

THINKING AND DOING OTHERWISE WITH ELLA – A VIRTUAL LABORATORY FOR EFL LEARNING

Pensar e fazer diferente com ELLA – Um laboratório virtual para aprendizagem de inglês como língua estrangeira

DOI: [10.14393/LL63-v35nEsp2019-11](https://doi.org/10.14393/LL63-v35nEsp2019-11)

Simone Tiemi Hashiguti*

Cristiane Carvalho de Paula Brito**

Giselly Tiago Ribeiro Amado***

Isabella Zaiden Zara Fagundes****

Fabiano Silvério Ribeiro Alves*****

ABSTRACT: This article discusses how a critical approach to language education is being translated into contents and computer programming for the creation of a virtual laboratory for learning English as a foreign language. The laboratory comprises didactic material, such as video lessons, animations and exercises, and an artificial intelligence system that provides feedback to users. We begin by explaining the context in which the laboratory was conceived and its objectives. We follow with a discussion on our critical approach on language teaching and learning. Then we describe some of its contents and list the applications of the artificial intelligence in the laboratory. In the end, we point out future developments for research. The laboratory is still being developed. It is an innovation project funded by the Coordination for the Improvement of Higher Level Education Personnel.

KEYWORDS: EFL conversation. Language technology. Critical Applied Linguistics. Care. Dignity.

RESUMO: Este artigo discute como uma abordagem crítica ao ensino de idiomas está sendo traduzida em conteúdo e programação computacional para criação de um laboratório virtual para aprender inglês como língua estrangeira. O laboratório compreende material didático, tais como videoaulas, animações e exercícios, e um sistema de inteligência artificial que fornece feedback aos usuários. Começamos explicando o contexto em que o laboratório foi concebido e seus objetivos. Seguimos com uma discussão sobre nossa abordagem crítica no ensino e aprendizagem de idiomas. Em seguida, descrevemos alguns de seus conteúdos e listamos as aplicações da inteligência artificial em laboratório. No final, apontamos desenvolvimentos futuros para pesquisas. O laboratório ainda está sendo desenvolvido e é um projeto de inovação financiado pela Coordenação de Aperfeiçoamento de Pessoal de Nível Superior.

PALAVRAS-CHAVE: Conversação em inglês como língua estrangeira. Tecnologia de linguagem. Linguística Aplicada Crítica. Cuidado. Dignidade.

* Ph.D. in Applied Linguistics. Associate Professor at the Institute of Languages and Linguistics at the Universidade Federal de Uberlândia (UFU). ORCID: <https://orcid.org/0000-0002-9230-9640>. E-mail: [simonehashiguti\(AT\)gmail.com](mailto:simonehashiguti(AT)gmail.com).

** Ph.D. in Applied Linguistics. Associate Professor at the Institute of Languages and Linguistics at the Universidade Federal de Uberlândia (UFU). ORCID <https://orcid.org/0000-0002-7210-6635>. E-mail: [depaulabrito\(AT\)gmail.com](mailto:depaulabrito(AT)gmail.com).

*** Doctor's degree student in Linguistic Studies from the Universidade Federal de Uberlândia. ORCID: <https://orcid.org/0000-0002-8962-2230>. E-mail: [gisellyamadoufu\(AT\)gmail.com](mailto:gisellyamadoufu(AT)gmail.com).

**** Master's degree student in Linguistic Studies from the Universidade Federal de Uberlândia. ORCID <https://orcid.org/0000-0002-9495-7422>. E-mail: [izaiden\(AT\)gmail.com](mailto:izaiden(AT)gmail.com).

***** Master's degree in Computer Science from the Universidade Federal de Uberlândia. ORCID: <https://orcid.org/0000-0002-9497-2040>. E-mail: [fabiano.fsra\(AT\)gmail.com](mailto:fabiano.fsra(AT)gmail.com).

1 Introduction

This article describes a virtual laboratory for learning English as a foreign language (EFL). Our objectives are: (1) to introduce its innovative general aspects regarding the didactic contents and the usage of artificial intelligence (AI), and (2) to explore theoretical and political aspects that guided our work, in order to make visible our critical positioning¹ towards teaching EFL, and the critical enunciative position² we hope to be creating for the laboratory users. We start by contextualizing the conditions that moved us to propose the construction of the lab. These conditions refer to institutional, technological and historical possibilities of distance education, and of meaning making in EFL. Then, we describe and problematize the production of contents and the usage of AI in the laboratory. We explain aspects of the technical and epistemological foundations of our work and we discuss the concept of *tomada da palavra*³ in EFL, the programming of the AI feedback for the user's inputs, and the computational features regarding the analysis of natural language and facial expressions that we have developed up to now. We finish by pointing out some research questions. We claim that the use of AI in the laboratory does not mean a simple application of one more kind of technology in the history of didactic materials and courses for EFL learning. It demands careful theorization on language, (digital) language practices, the relationship between humans and machines, language policy and linguistic education, and a reflection on the potentiality of AI to change the way we, humans, learn languages.

Higher level online distance education has had more attention and investment from the Ministry of Education (MEC) in Brazil since 2005 on, when the Open University of Brazil Program (UAB) was created. Many private and public universities proposed distance courses, especially

¹ By critical positioning we mean adopting critique in our theoretical foundations and in our praxis, and following a critical perspective in Applied Linguistics that problematizes and questions themes such as race, gender, social inequality, ideology, among others (PENNYCOOK, 2008). We concur with Kubota and Miller (2017, p. 24), who assert that: "critical language studies [...] scrutinize how power, in new forms of domination, operates in social, cultural, economic, and political domains and [...] expose and critique discrimination, oppression, and inequality. Such perspective is further discussed in section 4 of this article.

² An enunciative position is neither a grammatical category nor a psychological position, but one that refers to the historical, social and power conditions of enunciation. It refers to a place that can be occupied within a discursive regime from which one is able to enunciate, to speak and to produce meaning. By critical enunciative position, we mean a position where critique can be practiced.

³ *Tomada da palavra* is a concept introduced by Serrani (1998), who advocates that language acquisition implies that the subject claims word in the foreign language, that is, that she or he authorizes herself/himself to take part in the discursive game.

in the area of teaching formation, which also had an incentive program released by MEC in 2009⁴. Within this context of expansion of higher education, the Universidade Federal de Uberlândia (UFU) created its first class of the undergraduate licentiate course of English and English Literature. The four-year course took place from 2011 to 2014, and was designed to be a fully distance education course with online activities. The classes occurred on a virtual platform (Moodle⁵), and with the utilization of web conference rooms. In this model, teaching and learning EFL was based on human to human interactions in discussion forums, varied kinds of exercises, and conversation sessions via web conferencing.

The students were all adults from different cities who worked full time. Almost all of them had attended public schools, were married and had children, and could only have access to university due to the course modality and to its being offered in the public system⁶. Since they studied and did the activities according to their own availability and planning, synchronous moments for web conferencing were not always possible, so most speaking activities in EFL involved video and audio recordings. The teaching of oral communication in English became one of the challenges in the course: firstly, due to a tradition of EFL presential courses and to an imaginary representation that it can only be learned in this kind of course (BRITO; HASHIGUTI, 2014; AMADO, 2018); secondly, and mainly, as we see it, because of our historical conditions of enunciation.

As formal EFL virtual, online courses are relatively new and still regarded with suspicion (SANTOS, 2017)⁷, many of the students believed it was too difficult or impossible to learn how to speak EFL in distance education. At the same time, they idealized and wished a “native-like” accent and fluency as a result of their learning. We understand our history of language teaching and learning in Brazil was built under layers of repressive language policies that created “a

⁴ Federal Program entitled: The National Plan for Teacher Formation for the Basic Level Education.

⁵ Moodle is a free software designed for educators and learners. It can be used as a personalized learning environment. More details on the software are available at: https://docs.moodle.org/37/en/About_Moodle. Accessed: 10/14/2019.

⁶ In Brazil, college courses can be offered by private and public universities. Public universities are financed by federal, State or city funds, and students are exempt from paying tuition fees.

⁷ According to Santos (2017), distance education is not a new modality of education in Brazil, but virtual, online courses in distance education in the twenty-first century still face prejudice as they are imagined as being less efficient than presential courses.

grand narrative of Brazil being monolingual” (CAVALCANTI; MAHER, 2018)⁸. This narrative shaped “the ways in which individual and collective identities of immigrant languages, Indigenous languages and Sign Language were represented in the country” (CAVALCANTI; MAHER, 2018, p. 4), that is, with less value or no importance. The monolingual policies and the denial of multilingualism naturalized a language perception that Brazil is a “linguistically homogeneous giant”, in the words of Massini-Cagliari (2004), and made invisible numerous Indigenous and immigrant languages⁹. It also stigmatized varieties of Portuguese in the Brazilian territory, as the myth of linguistic unity led to linguistic prejudice not only against foreign languages but also against any Portuguese variation imagined as different from a non-standard Portuguese. According to Hashiguti (2017), the Brazilian context is heavily marked by a subaltern position of enunciation, that is, one where linguistic knowledge is not actually acknowledged as such. In the case of EFL, this position is sustained by the ghostly figure of imagined native, legitimate English speakers to whom one is afraid to speak.

In 2015, the Coordination for the Improvement of Higher Education Personnel – CAPES, released a public notice¹⁰ for Fostering Technological Innovation. The call aimed at selecting and financing national projects that presented innovative teaching solutions for higher level distance courses from various areas. Each product would become a freeware that other universities in the UAB program could use. Given our experience at the first class of the English and English Literatures course, and our will to create a laboratory that would help the formal learning processes of the students in the second class, our team proposed the English Language Learning Virtual Laboratory project, which was later named as the ELLA Project. Its objective is

⁸ Cavalcanti and Maher (2018) point out there were three main types of repressive language policies in the Brazilian history: the first was in Colonial Brazil, in 1758, when the Marquis de Pombal decreed that Portuguese should replace any other language in the Portuguese colonial Brazil, proposing the eradication of all the other languages (Indigenous and African languages and the *línguas francas*); the second was in the post-independence period, at a period known as *Estado Novo* (1937-1945), when the populist and nationalist politics of President Getúlio Vargas forbid and banned immigrant languages from enemy countries (German, Japanese and Italian); and the third related to the Deaf groups in Brazil and “was in place from the colonial period onwards, until 1980s”, with the understanding that the schooling of Deaf students should occur in Portuguese and that they “had to learn to communicate in oral Portuguese”.

⁹ There are approximately 200 other languages spoken in the country: around 170 of them are Indigenous languages. Source: Instituto de Pesquisa Econômica Aplicada – IPEA, 2014. Available at: http://desafios.ipea.gov.br/index.php?option=com_content&view=article&id=3053&catid=28&Itemid=39. Accessed: 10/20/2019.

¹⁰ Call notice CAPES/UAB 03/2015.

to provide a virtual space for language practice in and around EFL, focusing on the development of oral communication skills, and with the help of an AI system. It was awarded first place in the selection process, and it the project effectively started in 2017, when the project budget was released. As we write this article, in July 2019, ELLA is in the final phase of development. We aim at testing and launching its first version for use in the second class of the English and English Literature Course, by November 2019.

2 Thinking otherwise in EFL teaching-learning: assumptions from a critical perspective

We consider language as social practice and in its dialogic, multimodal aspect. We understand foreign language learning as a process that can take place in institutional/educational spaces, with didactic materials produced under educational and linguistic policies. As a process, foreign language learning entangles:

- a) social, political and economic contexts: We understand learning a language involves institutions, imaginary representations of speakers and of language(s), and power relations. The discursive construction of English as a global, economically relevant language, and the political-economic relations among Brazil and English-speaking countries has allowed for English to become a subject in the curricula of the majority of schools in the country. However, the dominance of this discourse does not mean individuals engage in effective linguistic practices in EFL, especially regarding oral communication, as the historical context is much broader and complex as mentioned in the previous section.
- b) Subjective issues and the body: Learning a language demands intellectual, cognitive and subjective investment from the subject. The foreign language changes the perceptive dimension (so the body is able to hear the sounds of the new language and understand the different ways of interpreting the world) and the mechanics of the speech apparatus (so it can produce the new sounds). These changes demand what Revuz (1998) calls psychic flexibility and bodily malleability.
- c) Technology: With the use of different forms of digital communication technology, language practices are multi-modal, involving digital kinds of semiosis: written

language, spoken language, photographs, images, media, sonic files all make the complex material of contemporary digital communication. The body also has to adapt to communicate by computers and with digital systems. Using technology to teach and learn languages does not mean “to study forms of reading images and sounds” (MONTE-MOR, 2010, p. 474) as separate codes, but to expand one’s agency to make meaning from multi-modal texts which demand, interpreting verbal and visual materialities together, as they affect each other, learning how to read hypermediatically on screens, in a non-linear, rhizomatic¹¹ way (SOUZA, 2011).

- d) Power: *tomar a palavra*, that is, claim word in the foreign language means to occupy a place of speech and to feel authorized and entitled to speak and to make meaning. It takes place because there is subjective investment and agency of the language. We understand oral communication depends on the *tomada da palavra* and that didactic activities have to make it possible.

We took into consideration these key assumptions to design ELLA. Our proposal was to create a virtual space with learning tools that can foster the *tomada da palavra* and that, at the same time, make visible contemporary social issues that tend to be silenced in the numerous market oriented educational initiatives and materials.

To produce contents for ELLA, in addition to the first discussions on human language and the functioning of the AI technology in the laboratory¹², we also considered our previous analyses of didactic materials and online EFL courses (HASHIGUTI, 2013; PEIXOTO; HASHIGUTI, 2013; HASHIGUTI, 2016, MELO, 2019). Our critical analysis towards these more traditional, market regulated didactic materials is that they tend to objectify and practice EFL within a capitalist discourse, whose effect is of the commodification of the language and the constitution/maintenance of discursive positions that are generally related to

¹¹ The rhizome is a term used by Deleuze and Guattari (2003) that expresses a non-linear (cultural, intellectual, artistic, subjective) process to which one cannot establish its beginning or ending. Souza reviews the term to address what he identifies as an ethical and responsible position needed in education, from which educators understand education is not an act of repeating models, but opening up for difference, complexity and a rhizomatic world.

¹² These complex discussions exceed the limits of this article and will be addressed in other publications.

commercial/productive relationships. Many didactic books and other materials present dialogues and repetition exercises and activities with characters that reinforce the privileged position of imagined “native speakers” and white, male, heteronormative views on race, gender and social roles. These discursively regulated identifications help crystallize social divisions, discursive truths (FOUCAULT, 1997) and the sense of more or less legitimate languages (REAGAN, 2016). Another discursive regularity in these market-oriented materials, especially in online courses and platforms, is the constitution of learners as competitors and players (MELO, 2019), in a productive, neoliberal logic (LAZZARATO, 2010). In this logic, English has been discursivized as a language that promotes capitalist happiness and success (HASHIGUTI, 2013), so methods and materials try their best to provide fun, playful exercises which objectify the language as structural items in games and other ludic activities, freeing English from the association to real political and economic problems.

Intellectuality, the capacity for abstraction, and critique, and the approach of serious social issues are not considered as educational goals in these materials and courses. For us, however, they should be part of any educational project that mirrors the ethical and responsible position demanded in education (SOUZA, 2011). Our objective is for ELLA to provide activities and materials for users to have a chance to discuss and reflect on processes of meaning making, and to practice EFL from themes that make urgent social matters sayable¹³ (DELEUZE, 2005). For ELLA, we established every theme and its activities would bring a form of conflict, be it a small linguistic misunderstanding (for example, the pronunciation of one word in place of another, such as “curse” for “course”, and its discursive effects), or bigger social conflicts, related to questions of power, legitimacy, social identifications, etc. We follow an orientation in CLA and the area of teaching formation that reflects what Cavalcanti (2013) proposes as an expanded linguistic education:

[...] in this view of expanded linguistic education, I believe that a teaching degree in this world of diaspora, immigration and migration, of increasingly emerging social mobility, would need to emphasize the formation of a positioned, responsible, citizen like, ethical, critical reader with sensitivity to

¹³ In the Deleuzian reading of the work of Michel Foucault, the sayable is that which is historically, linguistically possible to be enunciated. In the teaching of EFL, we understand it in terms of what we make possible, in the activities and contents of a didactic material, to be said, reflected upon and problematized.

diversity and cultural, social and linguistic plurality, etc., attuned to their time, be it in relation to technological advances or in relation to conflicts that cause any kind of suffering or rejection to their peers, remembering that these issues are changing, fluid such as identity constructions in classrooms. That is, the requirements would be for a complex formation that focused linguistic education in a socio-historical and culturally situated way that also focused on the intrinsic and extrinsic relations of the foreign language and the language 1 of the teacher in formation. (CAVALCANTI, 2011 *apud* CAVALCANTI, 2013, p. 212)¹⁴

We understand processes of meaning making as processes of interpellation, and of politics that are always conflictive, in the manner Mouffe (2005) explains political thought must be agonistic and not antagonistic. It means conflict is part of the processes of meaning making and not an opposition to be avoided.

We follow a critical orientation in Applied Linguistics that, as Kubota and Miller (2017) explain, may be understood in relation to a critical turn that emerged in the social sciences in the 1990s. According to the authors, in the 2000s, applied linguists such as Alastair Pennycook (2001) identified some topics that should be problematized in the area, such as:

[...] problematizing naturalized and normalized assumptions and practices; questioning power and inequality; focusing on broader social, ideological, and colonial milieus; problematizing gender, race, class, and sexuality; transcending fixed knowledge and seeking visions for change; and practicing self-reflexivity and praxis.” (KUBOTA; MILLER, 2017, p. 4)

Criticality in Applied Linguistics means the adoption of a position of constant inquiry about the normative scientific assumptions (PENNYCOOK, 2001; MOITA LOPES, 2006) and assuming a transgressive academic practice (PENNYCOOK, 2006) that challenges and reviews theories, concepts, policies, and privileges. Current trends of criticality have greatly contributed

¹⁴ Our translation for: “[...]nessa visão de educação linguística ampliada, entendo que um curso de licenciatura nesse mundo de diáspora, imigração e migração, de mobilidade social cada vez mais emergente, precisaria enfatizar a formação de um professor posicionado, responsável, cidadão, ético, leitor crítico, com sensibilidade à diversidade e pluralidade cultural, social e linguística etc., sintonizado com seu tempo, seja em relação aos avanços tecnológicos seja em relação aos conflitos que causam qualquer tipo de sofrimento ou de rejeição a seus pares, lembrando que essas questões são cambiantes, fluidas assim como as construções identitárias nas salas de aula. Ou seja, as exigências seriam para uma formação complexa que focalizasse a educação linguística de modo sócio-histórico e culturalmente situado, que focalizasse também as relações intrínsecas e extrínsecas da língua estrangeira e da língua 1 do professor em formação.”

to the expansion of the epistemological references, investing in deeper theorizations on multiculturalism, post colonialism, post humanism, feminism, gender studies, indigenous scholarship, among other perspectives.

We understand themes such as cultural diversity, the impact of human exploration of the environment, language policy, urban ecology, technology and knowledge, among others that have been discussed in critical epistemologies such as Critical Applied Linguistics (CAL), started to be addressed by some EFL didactic materials available in the market. However, as they are appropriated within a neoliberal discourse (KUBOTA, 2014), they tend to appear in a superficial, marketed form that is palatable for the neoliberal economic turn. Smiling faces of multi-racial characters, chapters about ecology, and technology, for example, have invaded the pages of EFL didactic books which, nevertheless, still teach structural exercises that discursivize subaltern feminine positions and a heteronormative model of masculine identity (HASHIGUTI, 2016), representations of socially acceptable families that are always heteronormatively, middle white class based, and happiness related to financial success and to English fluency (HASHIGUTI, 2013). Stereotypical descriptions of culture, and social, environmental problems that are detached from human action and responsibility are also usual.

Indeed, Canagarajah (1999) explains that educational processes are related to pedagogical traditions. In his view, “the assumptions motivating dominant pedagogical practices fail to accommodate the type of questions arising in the periphery educational context” (p. 13). On Table 1, we point some differences the author makes between what he calls the *pedagogy of the mainstream* and *critical pedagogy*:

Table 1 - Pedagogy of the Mainstream and Critical Pedagogy.

Pedagogy of the Mainstream	Critical pedagogy
Learning as a detached cognitive activity	Learning as personal
Learning as transcendental	Learning as situated
Learning processes as universal	Learning as cultural
Knowledge as value-free	Knowledge as ideological
Knowledge as preconstructed	Knowledge as negotiated
Learning as instrumental	Learning as political

Source: Adapted from Canagarajah (1999).



From a decolonial epistemology, Baptista and López-Gopar (in this volume) point out that within critical pedagogy, Caballuz-Ducasse (2015) indicates Latin America has been contributing with the construction of the decolonial pedagogies (*pedagogías-otras*), in the sense that there are structural elements in our pedagogies that meet, such as the understanding of education in its relation to ideology, politics and ethics, and as (dialogical) praxis that can cause social transformations against oppression, social invisibility and the European colonial hegemony and rationality. Identifying our work with the characteristics of a critical pedagogy, and of decolonial pedagogy within a critical field of Applied Linguistics, we sought to create contents and a computational system that can help promote a non-hegemonic and non-subaltern narrative to EFL learning at ELLA.

3 Doing otherwise: content and computational programming in ELLA

3.1 Didactic content

To address conflict and socially relevant issues, we opted to create eight units that materialize themes that we believe transgress at a certain level the crystallized patterns of themes that usually appear in teaching EFL materials produced by global educational companies. We bring to light emergent social situations that are likely to happen to our students, in a way that such eventualities require reflection, to ensure that learners can position themselves within contexts that question certainties and truths. Table 1 lists the eight produced themes, exemplars of their artistic design, some aspects of their plots, and some of their didactic foci:

Table 1 – List of thematic contents in ELLA (continue)¹⁵

Theme	Plot and discursive foci
<p>Theme 1: I see you</p> 	<p>Two passengers on a bus trip get to know each other and to discuss different meanings for one same literary work. Conviviality, human contact, care and (im)politeness functioning in the linguistic structure and in facial expressions are explored.</p>
<p>Theme 2: Academic encounters</p> 	<p>This theme presents a commonplace situation that can happen on a first day in a foreign language classroom. The teacher introduces herself and explains the course plan, requesting the students' participation. Among them, there is a very shy student. Misunderstanding caused by pronunciation as well as power in/of the language are discussed.</p>
<p>Theme 3: A matter of health</p> 	<p>Presenting several local scenarios, this unit involves the world of sports, expectations towards health and being abroad for competitions. Local habits and vocabulary about local cultural items are explored as the focus on the visibility and EFL enunciability of the local.</p>

Source of images: Private ELLA archives.


¹⁵ Every theme was produced from the scripts English Professors and research members of the project team wrote. The scripts were then discussed with an artist for the production of visual material. They were subsequently sent for editing and the insertion of voices for the characters. The voices were acted out by members of the project team, English teachers and actors. The whole production, including the animation of the units, was developed by the RTU – University Radio and Television – Team of the Universidade Federal de Uberlândia.

Table 1 – List of thematic contents in ELLA (continued)

<p>Theme 4: The (un)canny</p> 	<p>This unit works on stereotypes constructed in and by language and because of the visibility of the body. Prejudice, race, identity, and foreignness happening in the linguistic and visual dimensions are discussed.</p>
<p>Theme 5: A day in the life of women (2018 version)</p> 	<p>Unit 5 focus on the theme of gender inequality and the social place of women. It exposes situations they have to go through at a daily basis anywhere in the world in the year 2018: verbal and physical abuse, disrespect and silencing, expectations from a patriarchal model of subjectivity. We hope to have a different plot for the same theme to present some years from now.</p>
<p>Theme 6: Interview with an actor</p> 	<p>Gender construction and political positioning are focused in this unit, bringing a feminist and queer theoretical perspective to EFL language studies.</p>
<p>Theme 7: Art for thought</p> 	<p>Art and its relationship to language and thought are explored in this unit. Based on Deleuzean-Guattarian explorations on rhizomatic thinking and the Spinozean concept of affect, this unit aims to discuss body, perception, affect, affection, and the enunciability of emotions.</p>

Source of images: Private ELLA archives.

Table 1 – List of thematic contents in ELLA (continued)

<p>Theme 8: Migrations</p> 	<p>Adoption, migration and cultural hybridism are some of the themes approached in this unit where the concept of family is put under discussion, together with the focus on translingual¹⁶ practices.</p>
--	---

Source of images: Private ELLA archives.

Images 1 to 3 below are from our theme 2 in ELLA, titled Academic Encounters. It exposes a common situation in the academic routine of first day classes, when professors and students have to introduce themselves and say what their expectations for the subjects are. In this sequence, the character named Priscila says “curse” to “course”, what makes Bianca laugh.

Image 1 – Theme 2 in ELLA



Source: Private ELLA archives.

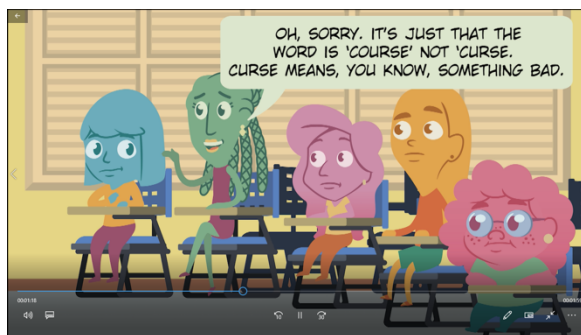
Image 2 – Theme 2 in ELLA



Source: Private ELLA archives.

¹⁶ According to García and Wei (2014): “translanguaging practices are seen here not as marked or unusual, but rather taken for what they are, namely the normal mode of communication that, with some exceptions in some monolingual enclaves, characterizes communities throughout the world. (GARCÍA, 2009 *apud* GARCÍA; WEI, 2014, p. 22)

Image 3 – Theme 2 in ELLA



Source: Private ELLA archives.

This dialogue and the academic situation of fear and discomfort of exposure in a foreign language that Priscila felt are discussed in the unit together with a formal structural view on the English sounds (phonemes and phonetic difference), as they make visible a power issue related to language pronunciation. We understand that, when it comes to foreign language teaching, assuming a critical perspective does not mean to simply consider social or political issues as themes to be mentioned, but as themes that take place in and by language as it is practiced. We believe the contents and their developments in exercises and activities need to instigate conflict and the experience of the foreignness in the learners, as to help them reflect not only on the different discourses and linguistic structures at play, but also to experience otherness in the sense of getting in touch and problematizing differences of gender, race, social class etc.

We also included local aspects in the units. In theme 2, for instance, as well as in the other 7 themes in the laboratory, we opted to give the characters in the stories Brazilian names or names other than John, Peter or Mary, to cite some common foreign names to us, and to use local and regional geographic places as scenarios of the stories. By doing so, we try to provide opportunities to make the familiar strange as students are not usually accustomed to seeing their own culture and reality being enunciated in EFL. Traditionally, commercially oriented materials mostly bring foreign characters from economically relevant English speaking countries and their cultures to teach English. This local movement may disarrange the network of naturalized meanings concerning what can and should be said in the context of English learning, and above all, constitute the place of speech for people who are from non-English

speaking countries. This could indeed make possible other *ways of entering* the language of the other (FRANZONI, 1992)

3.2 AI solutions and applications in the lab

To construct a non-repressive AI system that incorporates the (un)predictability, hybridity and multimodal nature of human communication strategies, and that accepts different variations of the English language, we are designing it to accept varied forms of inputs from the users – that is, either linguistic (oral and written) material, or visual/mediatic content (for example, facial expressions of emotion, song or video files, etc.). We envisioned an AI that respects and promotes the dialogic, translinguistic and transmodal nature of the human processes of meaning making, and that can respond as creatively in the form of written text or in spoken language. So far, the AI system has a feminine voice, named Theresa, and we are working on the development of a masculine voice, named Marcus. We agreed neither our contents would approach EFL in terms of native/non-native accents, nor our AI would be programmed to repeat traditional, strictly structural feedback, based only on normative grammar rules, for example, or on only two possible answers (right or wrong).

In ELLA we work with a rhizomatic perspective of thinking and speaking, that is, we see human thought and communication as processes emerging from the subjective bodily work with different visual, sonic and verbal materialities (dialogues, visual and sonic art, literature, news, videos, etc.) and from human action (contact with other humans, body movements, practices etc.). Thus, we understand that an educational space needs to provide a variety of materials that give individuals condition to expand their learning experiences. The body participates as a whole participates in such processes, being both a visual materiality available for interpretation (facial expressions mean as much as verbal statements) and a speech machine. This orientation requires that the AI¹⁷ in ELLA is able to respond to such creative processes and to the bodily dimension of speech.

¹⁷ Simulation of human intelligence on a machine, so as to make the machine efficient to identify and use the right piece of “Knowledge” at a given step of solving a problem. A system capable of planning and executing the right task at the right time is generally called rational. (KONAR, 2000, p. 27)

In our current version of ELLA, AI is being programmed to process verbal and visual data collected¹⁸ and to be collected from users in the exercises and activities within the laboratory sections. It analyzes linguistic input, consisting of either written or acoustic material which will be processed as enunciation and voice emotion, and visual input, consisting of facial expressions of emotion and facial expressions of the mouth for the production of speech. Our objective to use AI is to have a system that sees and hears the users as speakers and that provides automatic feedback to them. We believe these technological conditions, together with a very careful programming and a varied source of materials, will give students a space to enunciate in EFL, practicing oral communication.

There are many variables in the creation of an AI system and due to its complexity, we make use of free products that are already available. Currently, we are working in the combination of freeware that can: (a) process natural language¹⁹, (b) process written text into machine speech²⁰, (c) analyze emotions in the voice, and (d) analyze facial expressions of emotion or speech (mouth region)²¹. The laboratory users will be able to write or talk to the Theresa or Marcus²², the names of our AI, in exercises provided along the sections, or in tools such as a chatbot²³.

According to Dodigovic (2005), AI is a powerful tool that "can deal with new problems, once it has learnt the general principle" (DODIGOVIC, 2005, p.2). In the case of ELLA, we have been carefully programming the AI feedback with rules that resonate our views on humanity and language practice. We aim that the AI develops a dignified relationship with the users. By dignified, we mean the system will accept non-violent content, as well as it will produce non-violent feedback, and that both parties (humans and AI system) have to learn to care for each

¹⁸ A first data bank for the functioning of the AI system was created. It was submitted to and approved by the Ethics Committee of the Universidade Federal d Uberlândia. Process number: 83384917.2.0000.5152.

¹⁹ From the freeware available for non-commercial use, we chose to adapt Google LLC product called Syntaxnet as further developed by Mozilla Company as the program named Deep Speech. These parsing technologies are able to convert oral English into written text, using real time neural speech recognition.

²⁰ For this purpose, we are testing the incorporation of the text-to-speech system called Tacotron, developed by Wang et. al. (2017) for Google LLC.

²¹ For this purpose, we used OpenCV (Open Source Computer Vision Library) and OpenSmile, two libraries that were developed by Intel (originally) and audEERING GmbH respectively. They have C++, C, Python and Java interfaces.

²² As of today, we only have a feminine voice. The development of a masculine voice is a future task for the ELLA development team.

²³ Chatbots are computer programs that simulate human conversations.

other. The system is being programmed to accept multiple forms of language (speech, visuals etc.) and to invite and give space for users to talk about them. As it is still in under development, the AI will not be able to process very complex statements, but it will be open to receive this kind of data. Table 2 shows exemplars of possible inputs and outputs between humans and the AI we are currently implementing in the laboratory:

Table 2 - Sample of possible dialogues between users and AI

Conversation Sample#	AI	Human
1	Hello./Good morning./Good afternoon./Good evening.	Hello./Good morning./Good afternoon./Good evening.
	How are you?	I'm okay. What about you?
	I'm doing fine too.	That's good.
2	Hello.	Hello.
	How are you doing?	Actually, I'm a bit sad today.
	Oh, I'm sorry to hear that. Would you like to see a piece of art ²⁴ to maybe cheer you up?	Yes, that'd be nice.
3	Hi. Welcome back.	Hello.
	How are you doing today?	To tell you the truth, I'm very tired.
	Oh, I'm sorry to hear that. Would you like to hear a song before you start your studies?	Yes, please.
4		[user sends an image file]
	Uhm, I see you sent me an image. Would you like to talk about it?	Well...

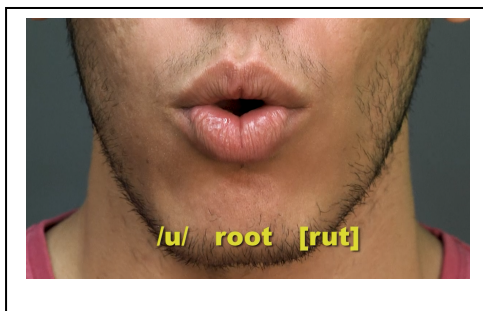
Source: ELLA private archives.

The modules for analyzing emotion in the voice and facial expressions will be used in activities where these aspects are either fundamental for meaning making or will help the learning process. For instance, in the study of English phonemes, the practice of the vowel

²⁴ To be able to act it out, the AI will access a library the laboratory team is creating with public domain works.

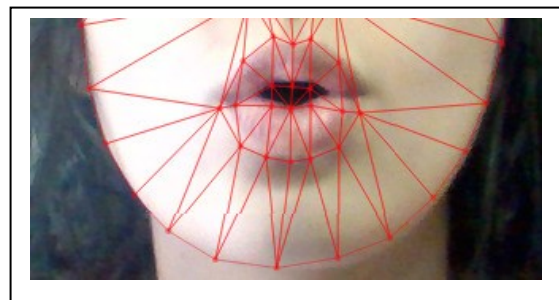
sounds may be facilitated with a tool that indicates how close the openness or closure of the lips are, as shown in Images 4 and 5:

Image 4 – Lab content, phoneme /u/



Source: Private ELLA archives.

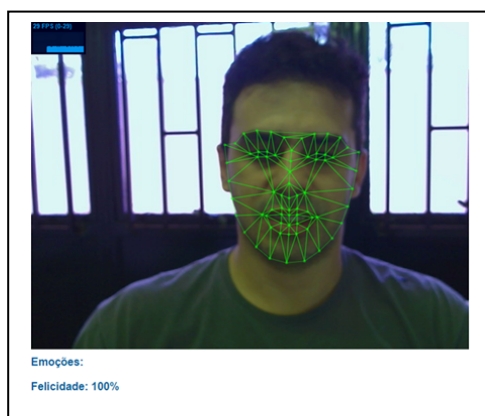
Image 5 – AI analysis of user's repetition



Source: Private ELLA archives.

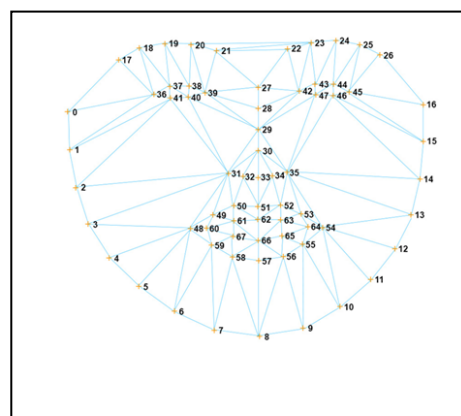
In the study of emotion and intonation, the proper production of facial expression is also part of the communicative event, and therefore, is part of the didactic content to be learned. Addressing the body and making it visible to the learner resumes the importance of the bodily dimension of EFL learning. Images 8 and 9 display how the program analyzes these micro facial movements:

Image 6 – Emotion analysis tool



Source: ELLA private archives.

Image 7 – Facial mapping



Source: Private ELLA archives.

Having facial expressions as communicative elements is part of our understanding that language learning and language proficiency are not limited to knowledge of the linguistic material. We agree with Canagarajah's (2018) terms, when he concluded, in a study with

Chinese scholars and their teaching practices, that communication goes beyond grammar or cognition or a static form of knowledge once “diverse semiotic resources shape meaning-making activity” (p. 36). In his view,

proficiency can be a rhizome, representing the possibility that one can develop mastery of relevant verbal and other semiotic resources for any activity through situated practice, without regard to how advanced the communicative activity or grammatical knowledge of the speaker. Rhizome would also indicate that one can move in and out of spatial repertoires without relevance for whether the activities are inter-related or progressive. (CANAGARAJAH, 2018, p. 48)

By using various kinds of materials and fostering multimodal communication from humans and variations of actions and responses from the AI, we hope to be creating a virtual laboratory that minimally reaches the communication needs and creativity of the learners

6 Final remarks

The ELLA project has raised many research questions and attempts of solutions, and many answers still depend on further readings, the deepening of theories, and the problematization of human language and machine programming. In this article, we discussed part of its contents and mentioned some programming characteristics we are currently working on. Due to its complexity, the computational programming and the analysis of natural language will only be deeply analyzed once the laboratory is running.

The *tomada da palavra* in EFL, as we hope, will be favored in the laboratory through the themes and language practices that aim to interpellate subjects to take a stance on and through English from a social and ideological position that brings up the voices of the South, the conflicts that permeate the very process of meaning making such position entails. There is certainly no guarantee that the *tomada da palavra* will happen, however we can make it possible for subjects to “experience” other discursivities, other ways of making meaning and thus of existing in the world by narrating it otherwise. The translation of our critical position in language education to the organization and construction of the laboratory is materialized in the choice of themes for the contents, the way we approach the linguistic structure and the power

relations taking place on its surface and within its minimal elements, the way the computational programming will receive and respond to a variety of inputs.

ELLA has become a space for various researches. To name some, our team members are currently investigating and reflecting on aspects such as: intelligibility between human and machine, the effects of a data bank that is predominantly formed by Brazilian speakers, enhancement of AI training for EFL speech production, mapping of facial expressions, and the combination of different inputs (acoustic and visual, for example) for AI feedback. These studies will contribute for the fields of Applied Linguistics, language teaching and technology, and for the development of AI.

The whole creative process of ELLA has been thought cautiously and following a theoretical basis on which we sign up, and by the use of transformative practices, which are "preparing students for communicative and normative unpredictability" (CANAGARAJAH, 2017, 58), because we believe we need to encourage students "to renegotiate and reconfigure norms by adopting repositioning strategies" (CANAGARAJAH, 2017, 59), to render them able to the meaning making, without canceling themselves out, finding their voice, legitimize them (also) in a foreign language.

We emphasize our objective at ELLA is to create a space for dignifying language learning practices and for care. We support wellbeing, conviviality, rhizomatic thinking for an interesting, lively intellectual process that puts together humans and machines. These epistemological concepts and their practice in projects in CLA are, as we see it, fundamental contemporary matters.

References

AMADO, G. T. R. **EAD - entre a ferramenta e a língua perfeita**: um estudo discursivo sobre aprendizagem de língua inglesa como língua estrangeira a distância. 2018. Thesis (M.A. in Linguistic Studies) – Universidade Federal de Uberlândia, Uberlândia, 2018.

BAKHTIN, M. (Voloschinov). (1929). **Marxismo e filosofia da linguagem**. 9. ed. São Paulo: Hucitec, 2002.

BAPTISTA, L. M. T. R.; LÓPEZ-GOPAR, M. Educação crítica, decolonialidade e educação linguística no Brasil e no México: questões epistemológicas e metodológicas traçadas por um paradigma-outro. (This volume)

BOLOGNINI, C. Z.; OLIVEIRA, Ê.; HASHIGUTI, S. T. **Línguas estrangeiras no Brasil**: história e histórias. Ministério da Educação; CEFIEL/UNICAMP, 2005.

BRITO, C. C. P.; HASHIGUTI, S. T. Aspectos discursivos sobre/no ensino-aprendizagem de língua inglesa e na formação de professores em um curso EaD. **Horizontes de Linguística Aplicada**, ano 13, n. 2, p. 89-114, 2014. <https://doi.org/10.26512/rhla.v13i2.1365>

CABALUZ-DUCASSE, J. F. Pedagogías críticas latinoamericanas y filosofía de la liberación: potencialidades de un diálogo teórico-político. **Educación y Educadores**, Bogotá, v. 19, n. 1, p. 67-88, 2016. <https://doi.org/10.5294/edu.2016.19.1.4>

CANAGARAJAH, S. **Resisting linguistic imperialism in English teaching**. Oxford: Oxford University Press, 1999.

CANAGARAJAH, S. **Translingual practices and neoliberal policies**: Attitudes and strategies of African skilled migrants in anglophone workplaces. Switzerland: Springer, 2017. <https://doi.org/10.1007/978-3-319-41243-6>

CANAGARAJAH, S. English as a spatial resource and the claimed competence of Chinese STEM professionals. **World Englishes**, n. 37, p. 34-50, 2018. <https://doi.org/10.1111/weng.12301>

CAVALCANTI, M. Educação linguística na formação de professores de línguas: intercompreensão e práticas translíngues. In: MOITA LOPES, L. P. (Ed.) **Linguística Aplicada na modernidade recente**. Festschrift para Antonieta Celani. São Paulo: Parábola; Cultura Inglesa, 213. p. 211-226.

CAVALCANTI, M.; MAHER, T. M. (Ed.) **Multilingual Brazil**: Language resources, identities and ideologies in a globalized world. New York: Routledge, 2018. <https://doi.org/10.4324/9781315623870>

COURTINE, J. J. **Análise do discurso político**: o discurso comunista endereçado aos cristãos. Translated by Cristina Campos de Velho Birck *et al.* São Carlos: Edufscar, 2009.

DELEUZE, G.; GUATTARI, F. **A thousand plateaus**. Capitalism and schizophrenia. Translated by Brian Massumi. Minnesota: University of Minnesota Press, 2003.

DELEUZE, G. **Foucault**. Translated by Cláudia Sant'Anna Martins. São Paulo: Brasiliense, 2005.

DODIGOVIC, M. **Artificial intelligence in second language learning**: raising error awareness. Clevedon: Multilingual Matters Ltd, 2005. <https://doi.org/10.21832/9781853598319>

FANON, F. **Pele negra máscaras brancas**. Trad. de Renato da Silveira. Salvador: EDUFBA, 2008. <https://doi.org/10.7476/9788523212148>

FERREIRA DE SOUZA, P. H. G.; MEDEIROS, M. **The concentration of income at the top in Brazil, 2006-2014**. Brasília: International Policy Centre for Inclusive Growth (IPC-IG), 2017. Available at: <https://ipcig.org/pt-br/brasil-est%3a1-entre-os-cinco-pa%3adese-do-mundo-em-que-o-1-mais-rico-recebe-mais-de-15-da-renda-total>. Accessed on: 31 May 2019.

FRANZONI, P. **Nos bastidores da “Comunicação Autêntica”**. Uma reflexão em Linguística Aplicada. Campinas: Editora da Unicamp, 1992.

FOUCAULT, M. **A arqueologia do saber**. Translated by Luiz Felipe Baeta Neves. 6. ed. Rio de Janeiro: Forense Universitária, 2000.

GARCÍA, O.; WEI, L. **Translanguaging**: Language, bilingualism and education. London: Palgrave Macmillan, 2014. <https://doi.org/10.1057/9781137385765>

HASHIGUTI, S. T. Can we speak English: Reflections on the unspoken EFL in Brazil. **Trabalhos em Linguística Aplicada**, Campinas, v. 56, n. 1, p. 213-233, jan./abr. 2017. <https://doi.org/10.1590/010318135150200431>

HASHIGUTI, S. T. A questão de gêneros: masculino e feminino em livros didáticos de língua inglesa como língua estrangeira. *In*: CORACINI, M. J.; CAVALLARI, J. S. (Org.). **(Des)Construindo verdade(s) no/pelo material didático**: discurso, identidade, ensino. Campinas: Pontes, 2016. p. 137-154.

HASHIGUTI, S. T. O corpo nas imagens em livros didáticos de língua inglesa. *In*: HASHIGUTI, S. T. **Linguística Aplicada e ensino de línguas estrangeiras**: práticas e questões sobre e para a formação docente. Curitiba: CRV, 2013. p. 35-58.

KONAR, Amit. **Artificial intelligence and soft computing**: behavioral and cognitive modeling of the human brain. Boca Raton: CRC Press LLC, 2000. <https://doi.org/10.1201/9781420049138>

KRISHNAMURTHI, S.; LERNER, B. S.; POLITZ, J. G. **Programming and programming languages**. 2018. Available at: <https://papl.cs.brown.edu/2018/>. Access on: 15 June 2019.

KUBOTA, R.; MILLER, E. R. Re-examining and re-envisioning criticality in language studies: Theories and praxis. **Critical Inquiry in Language Studies**, year 0, p. 1-29, 2017.

KUBOTA, R. The multi/plural turn, postcolonial theory, and neoliberal multiculturalism: Complicities and implications for Applied Linguistics. **Applied Linguistics**, p. 1-22, 2014. <https://doi.org/10.1093/applin/amu045>

KUMARAVADIVELU, B. Individual identity, cultural globalization, and teaching English as an international language: The case for an epistemic break. *In*: Alsagoff, L. (Ed.). **Principles and practices for teaching English as an international language**. New York: Routledge, 2012. p. 9-27.

LAZZARATO, M. **Signs, machines, subjectivities**. São Paulo: SESC/n-1, 2014.

LAZZARATO, M. **The making of the indebted man**: An essay on the neoliberal condition. Los Angeles: Semiotext(e), 2012.

MASSINI-CALIARI, G. Language policy in Brazil: monolingualism and linguistic prejudice. **Language Policy**, v. 3, p. 3-23, 2004. <https://doi.org/10.1023/B:LPOL.0000017723.72533.fd>

MELO, M. A. V. **Inteligência artificial e ensino de inglês como língua estrangeira**: inovação tecnológica e metodológica/de abordagem? 2019. Thesis (MA) – Instituto de Letras e Linguística, Universidade Federal de Uberlândia, 2019.

MOITA LOPES, L. **Por uma linguística aplicada indisciplinar**. São Paulo: Parábola Editorial, 2006.

MOUFFE, C. Por um modelo agonístico de democracia. **Rev. Sociol. Polít.**, v. 25, p. 11-23, nov. 2005. <https://doi.org/10.1590/S0104-44782005000200003>

PAIVA, V. L. M. O. História do material didático. *In*: DIAS, R.; CRISTÓVÃO, V. L. L. (Ed.) **O livro didático de língua estrangeira**: múltiplas perspectivas. Campinas: Mercado de Letras: 2009. p. 17-56.

PEIXOTO, M. R. B. S.; HASHIGUTI, S. T. Disponibilização de materiais didáticos alternativos na sala de aula de língua estrangeira. *In*: HASHIGUTI, S. T. **Linguística Aplicada e ensino de línguas estrangeiras**: práticas e questões sobre e para a formação docente. Curitiba: CRV, 2013. p. 25-34. <https://doi.org/10.24824/978858042755.4>

PENNYCOOK, A. Critical applied linguistics and language education. *In*: MAY, S.; HORNBERGER, J. (Ed.) **Encyclopedia of language and education**. 2. ed. [s.l.]: Language policy and political issues in education, 2008. v., p. 169-181. https://doi.org/10.1007/978-0-387-30424-3_13

PENNYCOOK, A. Uma linguística aplicada transgressiva. *In*: MOITA LOPES, L. P. **Por uma linguística aplicada indisciplinar**. São Paulo: Parábola, 2006. p. 67-84.

PENNYCOOK, A. **Critical applied linguistics: a critical introduction**. London: Routledge, 2001. <https://doi.org/10.4324/9781410600790>

RAJAGOLAPAN, K. The identity of “World English”. **New challenges in language and literature**, FALE/UFMG, p. 97-107, 2009.

REAGAN, T. The conceptualization of language legitimacy. **Critical Inquiry in Language Studies**, v. 13, n. 1, p. 1-19, 2016. <https://doi.org/10.1080/15427587.2015.1116950>

REVUZ, C. A língua estrangeira entre o desejo de um outro lugar e o risco do exílio. In: SIGNORINI, I. (Org.). **Língua(gem) e identidade: elementos para uma discussão no campo aplicado**. Campinas: Mercado de Letras, 1998. p. 213-230.

RIBEIRO, D. **O que é lugar de fala?** Belo Horizonte: Letramento, 2017.

RUSSELL, S. J.; NORVIG, P. **Inteligência artificial**. Translated by Regina Célia Simille. 3. ed. Rio de Janeiro: Elsevier, 2013.

SANTOS, F. OLIVEIRA. Corpo visível e invisível na formação do professor de língua inglesa na educação a distância: um estudo discursivo. 2019. Thesis (MA) – Institute of Languages and Linguistics, Universidade Federal de Uberlândia, 2017. Available at: <https://repositorio.ufu.br/handle/123456789/21151>. Accessed on 17 Oct. 2019.

SERRANI-INFANTE, S. M. Identidade e segundas línguas: as identificações no discurso. In: SIGNORINI, I. (Org.). **Língua(gem) e identidade: elementos para uma discussão no campo aplicado**. Campinas: Mercado de Letras, 1998.

SOUZA, L. T. M. M. Cultura, língua e emergência dialógica. **Letras & Letras**, v. 26, n. 2, p. 289-306, jul.-dez. 2010.

SOUZA, L. T. M. M. O professor de inglês e os letramentos no século XXI: métodos ou ética? In: JORDÃO, C.; MARTINEZ, J. Z.; HALU, R. C. **Formação “desformatada”**. Práticas com professores de língua inglesa. Campinas: Pontes, 2011. p. 279-303.

SPIVAK, G. C. **A Critique of postcolonial reason: Toward a history of the vanishing present**. Cambridge, Mass.: Harvard University Press, 1999. <https://doi.org/10.2307/j.ctvj5f541>

WANG, Y. *et al.* **Tacotron: towards end-to-end speech synthesis**. arXiv:1703.10135v2 [cs.CL] 6 Apr 2017. Available at: <https://arxiv.org/pdf/1703.10135.pdf>. Accessed on: 22 June 2019.

Recebido em: 08.07.2019

Aprovado em: 23.10.2019