Case Report

Interrogating Structural Bias in Language Technology: Focusing on the Case of Voice Chatbots in South Korea

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Abstract: The increasing use of language technology applications requires a more critical evaluation of the current state of language technology and its application than simply viewing it as an ideal and effective language learning aid. While an increased number of scholars have examined the issue of potential biases and hidden ideologies in language technology such as racism and gender discrimination, little attention has been paid to how the newly emerging language technology can contribute to reproduce the native speaker fallacy. This paper, focusing on the case of voice chatbots in Korea, critically examines how learning technology, in particular language technology applications, can potentially reproduce and reinforce the essentialist discourse of native speakerism, which posits native speaker accents as an ideal form of English and marginalizes nonnative English teachers and students.

Keywords: language ideology; language technology; chatbots; raciolinguistics; native speakerism; native speaker fallacy; technology and education; equality; diversity

1. Introduction

With the advancement of technology, various language technology applications such as spellcheckers, machine translation systems and speech recognition have been introduced and utilized in the field of English language teaching. These new technology applications have been largely understood as an ideal and sustainable language learning aid. The use of these language technology applications has been particularly encouraged in many English as a foreign language (EFL) countries including China, Japan and Korea, where English is widely understood as an important capital, yet students have limited access to English in their daily lives. The case of South Korea illustrates the active use of language technology in EFL countries: The Ministry of Education in Korea recently distributed AI Peng Talk, a voice chatbot designed for elementary school students, nationwide as a learning aid in public English education. As previous research has shown, the newly emerging technology and its application can increase language learners’ motivation in language learning (Fryer et al. [1] and Gallacher et al. [2]) and enhance language learners’ output and interaction (Golonka et al. [3] and Kim [4]). The increasing use of language technology applications, however, requires a more critical evaluation of the current state of language technology and its application than simply viewing it as an ideal language learning aid. While an increased number of scholars have examined the issue of potential biases and hidden ideologies in language technology such as racism and gender discrimination (see Blodgett et al. [5] for more discussion), little attention has been paid on how the newly emerging language technology can contribute to reproduce the native speaker fallacy. This paper, focusing on the case of voice chatbots in Korea, critically examines how language technology applications can potentially reproduce and reinforce the essentialist discourse of native speakerism, which posits native speaker accents as an ideal form of English and marginalizes nonnative English teachers and students (Choi [6] and Holliday [7,8]).
2. The Native Speaker Fallacy in English Language Teaching

The native speaker fallacy relates to the belief that the language of native speakers serves as a standard form while assuming other varieties as being incompetent and vernacular (Phillipson [9]). As one of the prevalent ideologies in language teaching, this fallacy has led to the dominance of native speaker ideal in the field of English language teaching, which posits native speakers as ideal language models and teachers, and prioritizes the acquisition of native-like language competence as the main goal of language learning and teaching (Cook, [10]; Holliday [7] and Savingnon [11]). While a growing body of research has criticized the essentialist discourse of native speakerism, the concept of native speakers is still predominantly used in many English as a foreign language (EFL) countries and potentially marginalize both EFL learners and teachers in those countries. Previous studies have demonstrated how the native speaker fallacy marginalizes non-native English language teachers by depicting them as inherently deficient (Braine [12]; Kubota [13]; Llurda [14] and Medgyes [15]). In addition, Creese et al. (2014) argue that the native-nonnative dichotomy is deeply embedded in many language programs where nonnative speakers are strongly encouraged to learn “correct” native-like pronunciation while not being able to appreciate their unique status as a multilingual speaker. Similarly, Cook [10] points out that the predominance of the native speaker fallacy “has obscured the distinctive nature of the successful L2 [second language] user and created an unattainable goal for L2 learners” (p. 185).

In addition, recent studies have examined how the native speaker fallacy and its representation of ideal native speaker teachers are closely related to raciolinguistic ideologies that associate particular racialized bodies and subjects with linguistic deficiency (Alim et al. [16] and Flores and Rosa [17]). Braine [12], for example, shows how racially white foreigners are often portrayed as ideal English teachers in advertisements in EFL countries. This is the native speaker fallacy and its racialized discourses tend to selectively provide legitimacy to a group of language teachers with certain racial, ethnic and linguistic backgrounds while marginalizing others, and hence reinscribe racial stereotypes and hierarchies (c.f., Ramjjattan [18]).

An increased number of researchers have critically examined the predominance of the native speaker fallacy in the field of English language teaching, and implored language researchers and professionals to see the importance of being aware of the hidden biases and essentialist ideologies embedded in native speaker ideal (e.g., Choi [6]; Braine [12]; Creese et al. [19] and Holliday and Aboshiha [20]). They have also emphasized that it is important to encourage language learners to embrace cultural and linguistic diversities rather than segregating them based on the fallacy of a “homogenous” native-nonnative speaker and imbuing them with essentialist ideas (e.g., Tanaka [21] and Tsuchiya [22]).

3. The Native Speaker Fallacy in Language Technology: The Case of Voice Chatbots in South Korea

Recently, the development of technology and the increased availability of digital resources have made a tremendous advancement in language technology for language teaching and learning. Language technology applications including chatbots and machine translation systems have been largely seen as an effective language learning aid. The use of language technology applications has been particularly promoted in many EFL countries as an attempt to meet the needs of students’ different language proficiency levels, increase authentic language exposure and promote students’ sustainable language learning and use (Kim [4] and Lee et al. [23]). South Korea, as one of the leading countries in the use of language technology, has been actively investing in developing voice chatbots for public English education. Indeed, many scholars and practitioners have conducted research on technology-based language learning using voice chatbots and voice assistants (Min [24] and Sung [25]). In addition, as mentioned above, the Ministry of Education in Korea distributed AI Peng Talk to public elementary schools at the beginning of this year. The Seoul Metropolitan Office of Education further proposed to distribute AI Tutor, a voice
chatbot designed for English language learning, for 800,000 students enrolled in the public education system within the district.

These voice chatbots can provide language learners more individualized instruction and assistance. Both AI Peng Talk and AI Tutor, however, can reify the native speaker fallacy by positing native speaker ideal and stressing the importance of acquiring native-like language proficiency. AI Peng Talk, for example, has been largely presented as a native speaking teacher (woneomin gyosa) in various advertisements and media discourses. Electronics and Telecommunication Research Institute that developed language technology applied in AI Peng Talk also describes the main role of AI Peng Talk as a native speaking teacher in public English education. Similarly, the AI Peng Talk website introduces the main benefit of using AI Peng Talk as follows: “Practicing English conversation with AI Peng Talk is as good as doing it with a native speaking teacher” (EBS English [26]). This particular portrayal of AI Peng Talk presents native speakers as an ideal language model and teacher. The native speaker ideal can be also found in its content. AI Peng Talk offers language learners three main activities: (a) listen and repeat, (b) practice structured dialogues on certain themes and (c) practice English conversation with certain topics. In these activities, language learners are often encouraged to learn more native-like English pronunciation. For example, the Student Guide to AI Peng Talk provides the following instruction for the listen and repeat activity: (1) Let us carefully listen to native English speaking teachers’ pronunciation, (2) You can record your voice by pressing the microphone button. After recording, you can check the score and see how accurate your pronunciation was and (3) You can compare the sound and waveform of your pronunciation with that of native speakers. This activity clearly prioritizes the acquisition of native-like pronunciation as the ultimate goal of English language learning while positing the language of native speakers as a norm.

The same discourse of native speaker ideal can be also found in AI Tutor. On the official website, AI Tutor is described as an authentic language learning tool that enables language learners to “have an English conversation with a native speaker” (LG CNS [27]). In addition, while AI Peng Talk uses a famous penguin character without using anthropomorphic design features, AI Tutor uses human images while language learners engage in conversation with a voice chatbot. When looking at human images used in AI Tutor and its advertisements, it is noticeable that most of them include people who are perceived as being racially white. This selective portrayal of ideal native speaking teachers can produce the image of racialized native speakers and resummons a historical legacy of racial stereotypes and marginalization (c.f., Kubota and Fujimo [28]).

4. Discussion and Conclusions

While language technology has been often viewed as apolitical and an ideologically neutral tool, recent studies emphasize the importance of understanding language technology in relation to the wider social and political context and dynamics (e.g., Cave and Dihal [29]). The discussion presented in this paper, using the case of voice chatbots in Korea, expands on that discussion by demonstrating ideological presuppositions of native-like competence in language technology, which can marginalize nonnative language learners and teachers and reproduce the discourse of inequality in the field of education. Despite much criticism over the predominance of the native speaker fallacy and its discriminatory consequences in the field of English language teaching (e.g., Braine [12]; Creese et al. [19] and Holliday [7]), little attention has been paid to the issue of the native speaker ideal that has been embedded in language technology applications such as chatbots. Living in a globalized world where English is used as a global lingua franca by approximately one-fourth of the world’s population, it is important for language researchers, educators and technology developers to critically evaluate whether language technology applications posit the language of native speakers as a socially and academically privileged linguistic form (Dalton et al. [30]) while marginalizing other varieties. It is equally important for them to look at the issue of raciolinguistic ideologies in language technology, which
can not only marginalize many nonnative speakers but also discriminate against non-white native speakers (e.g., Jeon [31] and Sung [32]). When designing and implementing language technology applications, we need to ensure that language technology applications offer language learners opportunities to use the target language, and at the same time enable them to appreciate their multilingual backgrounds and to develop their multilingual identities, rather than imposing the acquisition of a certain variety of English as a norm or imbuing essentialist and reductionist discourses.

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**References**


