

Improving (not only) pronunciation with ELSA: Users' opinions

DANUTA STANULEWICZ
KONRAD RADOMYSKI

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Abstract

In this paper, we concentrate on ELSA (ELSA Speaking) which teaches English, focusing mainly, albeit not exclusively, on pronunciation. The aim of this paper is to analyze the opinions of the users of this application.

The research material was extracted from Google Play Store. We randomly selected 25,000 opinions written in English about ELSA and compiled a corpus of these opinions, with the use of the program AntConc. The tool used to conduct a sentiment analysis – the Text Sentiment Analysis add-in from the Azure Machine Learning Web Services for Excel – allowed us to classify the users' opinions about the application into the positive, neutral and negative. With the help of AntConc, we identified positively and negatively charged adjectives employed in the opinions.

Keywords

ELSA, language learning application, opinions, sentiment analysis, valuation

Poprawa (nie tylko) wymowy przy pomocy aplikacji ELSA: Opinie użytkowników

Abstrakt

W artykule tym koncentrujemy się na aplikacji ELSA (ELSA Speaking), która uczy języka angielskiego, skupiając się głównie, choć nie wyłącznie, na wymowie. Celem artykułu jest analiza opinii użytkowników tej aplikacji.

Materiał badawczy został wyekscerpowany ze Google Play Store. Wybraliśmy losowo 25 000 opinii napisanych w języku angielskim na temat aplikacji ELSA i stworzyliśmy korpus tych opinii, korzystając z programu AntConc. Narzędzie służące do analizy sentymentu – wtyczka Text Sentiment Analysis od Azure Machine Learning Web Services dla programu Excel – pozwoliło nam podzielić opinie użytkowników o aplikacji na trzy grupy: pozytywne, neutralne i negatywne. Przy zastosowaniu narzędzi programu AntConc zidentyfikowaliśmy przymiotniki wartościujące aplikację pozytywnie i negatywnie.

Słowa kluczowe

ELSA, aplikacja do nauki języka, opinie, analiza sentymentu, wartościowanie

1. Introduction

Language learning platforms and applications have recently gained in popularity. The most frequently used applications include Duolingo, Busuu and Memrise which offer courses in various languages. For instance, Duolingo teaches languages employed in international communication, e.g. English and Spanish, languages with small numbers of speakers, e.g. Navajo and Haitian Creole, and constructed languages: Esperanto, Klingon and High Valyrian. Duolingo offers its users a variety of activities, including reading, writing, listening, speaking, vocabulary practice and translation.

The learners' interest in platforms and applications is reflected in the growing interest on the part of researchers. For instance, Bączkowska (2021) presents an overview of popular language learning platforms and mobile applications, and Kétyi (2013) investigates the role of smart phones in language learning. Some researchers concentrate on particular applications, mainly Memrise and Duolingo. Focusing on Memrise, scholars examine autonomous learning (Aminatun and Oktaviani 2019), teaching legal English (Łuczak 2017) and the effectiveness of using this application in teaching vocabulary (Nuralisah and Kareviati 2020). As regards Duolingo, researchers investigate teaching and learning particular languages with this application, e.g. Russian (Gajda 2024) and Polish (Tsai 2023), the classroom experience (Munday 2016), motivation to learn languages (Stanulewicz and Aleksandrowska 2022) and effectiveness (Veselinov and Grego 2012). Researchers also examine the use of other platforms and applications, e.g. Busuu (Rosell-Aguilar 2018, Valencia 2016).

As regards investigating opinions concerning language learning platforms and applications, we have analyzed what users think about Duolingo (Aleksandrowska and Stanulewicz 2019, 2020, Radomyski 2022), as well as about Duolingo, Busuu and Memrise (Stanulewicz and Radomyski 2024). Similar studies have been conducted by other researchers (see, among others, Alsanousi et al. 2023, Araújo and Eddine 2020, Berti and Prenga 2021). For instance, Araújo and Eddine (2020: 13), drawing on the results of their study, come to the conclusion that Duolingo “can be thought of as support and auxiliary for the foreign language teacher. It has data on usability, ease of access, interactive and achieves non-native tongue learning objectives”. From interviews with Duolingo users, it follows that it is mostly effective in learning vocabulary and grammar; however, opinions are divided as to the elements of gamification it employs to motivate learners and make the courses more attractive (Aleksandrowska and Stanulewicz 2020). Opinions extracted from Google Play Store point to the predominantly

positive evaluation of different applications: “users are generally satisfied with the experience of learning a language through an application. The most frequently used adjectives are *great* and *good*” (Berti and Prenga 2021: 214). As Radomyski (2022) observes, 86.2% users of Duolingo alone give it the ratings of four or five stars. The authors of the opinions mention, among others, the following advantages: the wide range of languages the application offers, its availability to learners of all ages and interactive exercises.

In this paper, we concentrate on ELSA (also called ELSA Speaking) which teaches only one language, namely English, focusing mainly, albeit not exclusively, on pronunciation. The aim of this paper is to analyze the opinions of the users of this application. The research questions are the following: (1) What are the most frequent words which the learners employ to spontaneously evaluate ELSA? (2) Do the comments contain any information that could be valuable to the application developers? As regards answering the first question, our decision is to concentrate on adjectives because people naturally use words of this class to express their opinions about objects and phenomena.

The research material was extracted from Google Play Store. On Google Play Store, users may evaluate applications on the scale ranging from 1 to 5; moreover, they can express their opinions verbally. We randomly selected 25,000 opinions written in English about ELSA and compiled a corpus containing these opinions, employing AntConc, a program designed by Lawrence Anthony (2023). The corpus tools allowed us to identify users’ positive, neutral and negative attitudes to the application.

2. Basic information about ELSA

ELSA (or ELSA Speaking) is an application designed mainly to help learners to master English pronunciation. It offers its users Pro and Premium versions; however, before buying the sub-

scription, they can benefit from a trial period. As the creators of this application emphasize,

ELSA, English Language Speech Assistant, is a fun and engaging app specially designed to help you improve your English pronunciation. ELSA's artificial intelligence technology was developed using voice data of people speaking English with various accents. This allows ELSA to recognize the speech patterns of non-native speakers, setting it apart from most other voice recognition technologies.

(<https://elsaspeak.com/en/>, accessed 16.05.2024)

Basing on a speech recognition program, ELSA evaluates its users' pronunciation and provides them with immediate feedback not only on pronunciation, but on fluency as well. The Premium version also includes exercises practising grammar and vocabulary. ELSA offers its users a variety of activities, whose number amounts to over 7,100 at present. So far, over ten million learners of English have downloaded the application (<https://play.google.com/store/apps/details?id=us.nobarriers.elsa&hl=pl&gl=US&pli=1>, accessed 16.05.2024).

3. Methodology of the study

The procedure we employed in this study included the following stages:

- (1) random selection and extraction of 25,000 comments posted in 2022 and 2023 from Google Play Store;
- (2) categorization of the comments basing on the ratings: positive (5–4), neutral (3) and negative (2–1);
- (3) construction of the corpus containing the comments;
- (4) conducting a sentiment analysis of the comments;
- (5) identification of the most frequent positively and negatively charged adjectives.

The corpus includes 25,000 comments written originally in English. Although some users make reference to the free or paid versions of ELSA, it is impossible to estimate how many of them evaluate which version. Presumably most of them write about the Pro and Premium versions. It also needs to be explained here that some users write their opinions in their native languages, e.g. in Polish. While constructing the corpus, we did not take into consideration comments in languages other than English. The corpus size is 170,801 words (see Table 1).

Table 1
Information about the corpus

Software	AntConc 4.2.4 (Anthony 2023)
Corpus size	170,801 words
Number of comments	25,000
Average number of words per comment	6.83

The sentiment analysis was conducted by means of the Text Sentiment Analysis add-in from the Azure Machine Learning Web Services which is available for Excel. The add-in allows one to analyze various texts, such as comments, labelling them as *negative*, *neutral* and *positive*. It is worth mentioning that the program also returns mean sentiment scores ranging from 0 to 1.

As regards valuation, two categories can be distinguished: (1) general evaluative words, e.g. the adjectives *good* and *bad*, *proper* and *improper*, and the verbs *praise* and *condemn*; (2) descriptive-evaluative words which are positively or negatively charged lexical items, e.g. *pretty* and *ugly*, *healthy* and *sick* (Puzynina 2004: 185).¹ In his classification of values, Kiklewicz (2018: 119) highlights the role of adjectives in valuation.

In this paper, we concentrate on positively and negatively charged adjectives which are most frequently employed by the

¹ Also see, among others, Puzynina (2013).

authors of the opinions. The data we provide include the absolute (raw) and relative (normalized) frequencies of these adjectives, i.e. the numbers of their occurrences in the corpus and the numbers of their occurrences per one million words, respectively (see e.g. Brezina 2018: 46).

4. Results of the study: Ratings

As has already been signalled, ELSA has been downloaded by over 10 million users and 874 thousand of them have evaluated it. Its average rating is 4.7 stars (out of 5) (<https://play.google.com/store/apps/details?id=us.nobarriers.elsa&hl=pl&gl=US&pli=1>, accessed 16.05.2024).

Actually, users of the most popular language learning applications evaluate them similarly – relatively highly, which is reflected in the ratings of 4.5 stars or above (see Table 2).

Table 2

Ratings of selected language learning applications on Google Play Store

Application	Average rating
Cake – Learn English & Korean	4.8
IELTS Practice Band 9	4.8
Busuu	4.7
Duolingo	4.7
ELSA Speaking	4.7
English Speaking App- Stimuler	4,7
Rosetta Stone	4.7
Babbel	4.6
Bee Speaker	4.6
LOLA SPEAK: English Practice	4.6
English Listening 6mins	4.5
LingoDeer – Learn Languages	4.5
Memrise	4.5

Source: <https://play.google.com/store/apps/collection/cluster?gsr=SmdqGEI2QlQwNUg0UnNsdmVyYmtVREZDT2c9PcICSgoWChJ1cy5ub2JhcnJpZXJzLmVs c2EQBxgIMAE4AEooCAEQABocRUxTQSBTcGVhazogRW5nbGlzaCBMZWFybm luZyAAKAawAFAA:S:ANO1ljL6S2E&hl=pl&gl=US>, accessed 16.05.2024.

As can be expected basing on the average rating of 4.7 stars, ELSA has received predominantly positive opinions (rating: 5–4) from their users. Let us examine the distribution of the positive, neutral and negative opinions in the extracted sample of 25,000 comments. The average rating accompanying the comments – 4.5 stars – happens to be slightly below the overall average rating given by Google Play Store. As the data in Table 3 indicate, 87.62 percent of the authors of the comments express their positive opinions giving ELSA five or four stars, whereas 7.88 percent view it negatively, which is reflected in the rating of one or two stars.

Table 3

Ratings of ELSA in the comments – numerical and percentage data

Opinions	Number of comments	Percentage
Positive (rating: 5–4)	21,905	87.62
Neutral (rating: 3)	1,126	4.50
Negative (rating: 2–1)	1,969	7.88
Total	25,000	100.00

5. Results of the study: Sentiment analysis

The compiled corpus allowed us to conduct a sentiment analysis of the comments. As has already been signalled, we used the Text Sentiment Analysis add-in from the Azure Machine Learning Web Services for Excel to perform this analysis.

The sentiment analysis of the comments indicates that – unsurprisingly – the positive comments are the dominant ones in the corpus (86.86 percent). The negative comments constitute 7.64 percent of all the collected comments. Lastly, it is also worth stressing that the percentage values of the sentiment analysis corroborate the ratings ascribed by the application users (see Table 4). The mean sentiment score of 0.72 calculated

for the whole corpus confirms the overall positive rating of the application.

Table 4

Sentiment analysis of comments – numerical and percentage data

Sentiment	Number of comments	Percentage	Mean sentiment score
Positive	21,714	86.86	0.77
Neutral	1,367	5.47	0.53
Negative	1,909	7.64	0.22
Total	25,000	100.00	0.72

6. Results of the study:

The most frequent positively and negatively charged adjectives

As we have already stated, we decided to concentrate on adjectives used in the posts simply because words belonging to this class serve people to express their opinions directly. The corpus – with the tools offered by AntConc – allowed us to identify the most frequent adjectives employed to describe ELSA by its users. Tables 5 and 6 present the absolute and relative frequencies of the most popular positively and negatively charged adjectives. It should be clarified that we did not take into consideration adjectives preceded by the negative particle (e.g. *not good*, *not bad*). Besides, on semantic grounds, comparative and superlative forms were treated as separate words, not as variants of their basic forms (e.g. *better* and *best* vs. *good*).

6.1. Positively charged adjectives

Table 5 presents the frequency data of the most popular positively charged adjectives, extracted from the frequency wordlist generated by AntConc.

Table 5
The most frequent positively charged adjectives

Rank in the wordlist	Adjective	Absolute frequency	Relative frequency
4.	<i>good</i>	5,928	237,120
12.	<i>nice</i>	2,899	115,960
16.	<i>great</i>	2,048	81,920
24.	<i>best</i>	1,240	49,600
25.	<i>excellent</i>	1,228	49,120
26.	<i>amazing</i>	1,141	45,640
34.	<i>helpful</i>	919	36,760
38.	<i>awesome</i>	866	34,640
65.	<i>perfect</i>	379	15,160
75.	<i>easy</i>	318	12,720

As the data in Table 5 indicate, there are three dominant positively charged adjectives employed in the opinions about ELSA: *good*, *nice* and *great*. They belong to general evaluative words. The users also think that ELSA is *best*, *excellent*, *amazing* and *helpful*. It can be easily observed that the most popular words in this group – *good* and *nice* – do not express the highest level of satisfaction, which is rendered by the adjectives following them on the ranking list: *great*, *best*, *excellent* and *amazing*. However, we should take into consideration the fact that less advanced learners may happen not to be familiar with more sophisticated vocabulary or, for various reasons, application users may generally prefer laconic posts – examples will be presented in section 6.3.

6.2. Negatively charged adjectives

Table 6 contains the frequencies of the most popular negatively charged adjectives, also extracted from the frequency wordlist generated by AntConc.

Table 6

The most frequent negatively charged adjectives

Rank in the wordlist	Adjective	Absolute frequency	Relative frequency
127.	<i>bad</i>	170	6,800
209.	<i>wrong</i>	87	3,480
428.	<i>poor</i>	35	1,400
462.	<i>useless</i>	31	1,240
503.	<i>difficult</i>	27	1,080
547.	<i>limited</i>	25	1,000
556.	<i>annoying</i>	24	960
748.	<i>fake</i>	16	640
783.	<i>disappointed</i>	15	600
1072.	<i>boring</i>	9	360

What should be expected and actually emerges from the data is that, in comparison with the positively charged adjectives, the negatively charged adjectives are found less frequently, which is also reflected by their ranks on the wordlist. This, of course, results from the considerably smaller number of unfavourable comments. The most frequent negatively charged adjectives include *bad* and *wrong*, as well as *hard*, *poor*, *useless* and *difficult*. Also here, the top word on the ranking list, *bad*, does not express the highest level of dissatisfaction with ELSA; moreover, the list does not include its superlative form, *worst*, while *best* occupies the fourth rank on the other list. What is of interest is the presence of three lexemes in the group of top ten negatively charged adjectives: *annoying*, *disappointed* and *boring*, pointing to the negative emotional states evoked in the users who are dissatisfied with ELSA.

6.3. Exemplary comments

Below we quote some exemplary comments, with their original wording and spelling, which we decided not to correct.²

Comments (1)–(4) represent favourable opinions in which their authors use positively charged adjectives.

- (1) **Good** app to improve your pronunciation skills
- (2) **nice** and **challenging**.. I love this app
- (3) it's a **great** application to learn English thank you Elsa speak
- (4) **Excellent** app

As can be easily seen, these opinions are relatively short. The terseness of the comments can be justified by the simultaneous use of other ways of appreciation, including the ratings as well as emojis and emoticons.³

The following unfavourable comments contain adjectives which express the users' disappointment with the application.

- (5) It doesn't work.. very **bad** app
- (6) **Bad** app, if you say **wrong**, he says excellent. This is a **bad** application. I gave it 0.
- (7) **Poor** user interface and this app doesn't take into consideration the other accents in the world. It doesn't always pick up words.
- (8) Totally **useless**. It randomly recognizes or rejects what you saying, there is no logic behind it. Had been using for a while but seen no improvement. Doesn't show you how to produce some sounds. Just some **useless** text. It accepts the%90 of input even if it was **wrong** and randomly rejects even it is right, just enough illusion to make it seem doing something.

² Actually, the comments provide a wealth of research material not only for investigating the users' opinions about the application, but also for examining characteristic features of their English and for conducting error analysis etc.

³ In this study, we do not take into consideration emojis and emoticons, but – as we state in the conclusions – their use in the comments is certainly worth investigating.

Also records all your voice and STORES them on their servers indefinitely. When you request delete it is still there.

There are also comments which combine positive and negative remarks about ELSA, e.g.

- (9) The app is very **good**, but you need to focus on the right pronunciation not just the american I think that's easy , and also there's a problem about Linking words your app is very **bad** at recognize that which is weird considering it's based on AI which means usually lots of data , finally you made most of the free content paid , the app is a trial version of itself , which is **bad** because it's **not affordable** to Everyone, and for you too cause no one can see the benefits of it via this **poor** content

It is worth emphasizing that the negative and mixed opinions tend to be much longer than the positive comments expressed by the users of the applications. This comes as no surprise because the authors of the former apparently feel the need to justify their opinions, trying to explain what exactly they do not like about the application. The negative evaluations may contain information about specific flaws noticed by the learners. For instance, as the comments quoted above indicate, the users may think that the application does not offer different accents of the English language and it fails to present how to produce particular sounds correctly. Besides, some learners may be dissatisfied with the lack of a free version of the application.

7. Conclusions

Generally speaking, the findings of the sentiment analysis presented in Table 4 corroborate the findings concerning the distribution of the ratings provided by the authors of the comments presented in Table 3. Table 7 juxtaposes these two sets of data.

Table 7

Sentiment analysis of comments – numerical and percentage data

Opinions	Ratings		Sentiments	
	Number	Percentage	Number	Percentage
Positive	21,905	87.62	21,714	86.86
Neutral	1,126	4.50	1,367	5.47
Negative	1,969	7.88	1,909	7.64
Total	25,000	100.00	25,000	100.00

The most frequent positively charged adjectives – including *good, nice, great, best, excellent* – testify to the usefulness of ELSA in learning English pronunciation. The adjectives used quite frequently in the negative comments – *bad, wrong, hard, poor, useless* – not only express their authors' dissatisfaction with ELSA, but also provide – with their contexts – valuable information concerning the weaknesses of the application. It is worth noting that the most frequent adjectives chiefly happen to be general evaluative words.

In this paper, we take into consideration only the ratings and sentiments as well as the use of positively and negatively charged adjectives. As regards prospects for further research, we wish to carry out a more detailed analysis of the comments about ELSA, and also of opinions about other language learning applications, concentrating on the use of verbs (e.g. *love, like* and *hate*) as well as on figurative language (e.g. the metaphor AN APPLICATION IS A HUMAN BEING, exemplified by *thank you Elsa speak* in (3)) and speech acts (e.g. thanking, recommending). Another issue worth investigating is the discrepancy between the contents of the opinions and the ratings, which may result from a different rating convention (1 being the highest and 5 the lowest in the evaluation hierarchy). Also, the employment of emojis and emoticons – in relation to the verbal comments and ratings – deserves a detailed examination.

Generally speaking, comments found on Google Play Store not only enable the identification of strong and weak points of language learning applications and provide a better under-

standing of the problems their users face, but also may help their developers to improve them.

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Danuta Stanulewicz
ORCID iD: 0000-0003-1792-3883
Institute of English and American Studies
University of Gdańsk
Wita Stwosza 51
80-308 Gdańsk
Poland
danuta.stanulewicz@ug.edu.pl

Konrad Radomyski
ORCID iD: 0000-0001-6824-0439
Institute of English and American Studies
University of Gdańsk
Wita Stwosza 51
80-308 Gdańsk
Poland
konrad.radomyski@ug.edu.pl