The Impact of Quizlet on Teaching Pronunciation to 9th Grade EFL Students

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ABSTRACT
Developing the ability to pronounce a word clearly is an essential component of oral communication. Hence, the present study aims to examine how the use of Quizlet, a digital flashcard tool, can contribute to enhancing the pronunciation abilities of 9th -grade Turkish EFL students at a state high school in Gaziantep. The study included a total of twenty-six high school EFL students as participants. The 52 target words for the study were selected from the English coursebook, skills book, and workbook specifically designed by the Ministry of Education for 9th-grade students. During the 8-week duration of the study, the Quizlet group was provided with various tasks and assignments using the different study modes available on the Quizlet platform. The participants' pronunciation of the target words was digitally recorded. The evaluation of the students' recordings was conducted by a native speaker and a native-like speaker of English. A rubric was specifically designed for the purpose of assessment, focusing on three main aspects: vowel quality, consonant quality, and word stress. To ensure the consistency and reliability of the ratings, the interrater reliability of the evaluators was calculated. By analyzing the mean scores, the overall scores of each individual word as well as the scores for segmental features of pronunciation, including vowel and consonant quality, and suprasegmental feature of pronunciation, which is word stress were examined. The findings of the study reveal that the learners in the Quizlet group performed well in the aspect of consonant quality. On the other hand, they faced challenges in the area of word stress. While the word 'trip' received the highest rating of 7.4, the word 'suggest' had the lowest rating of 4.1 in terms of mean scores for the correct pronunciation. The outcomes also indicate that teachers can gain valuable insights into learners' common errors and identify their areas of difficulty based on the mispronounced sounds.
Keywords: Digital Flashcards, Quizlet, Teaching Pronunciation, Turkish EFL High School Students

INTRODUCTION

Gaining the ability to pronounce a word clearly is a crucial component of oral communication. Even if it does not prevent communication between interlocutors by itself, it is vital to speak more intelligibly. Munro and Derwing (1995) define intelligibility by saying "the extent to which the speaker's message is actually understood by a listener" (p.76). Even though the learners have enough vocabulary knowledge, it could become a restriction because of 'mispronunciation'.

In the meantime, with its affordances and innovations in language learning and teaching, technology-enhanced language teaching has created a growing need to integrate it into pedagogical settings from researchers to teachers. It has a very crucial place in learning and teaching pronunciation. As digital tools have become more and more used in the field of foreign language teaching, technology-enhanced language instruction has become a larger trend in language education to accommodate the learning needs of the new generation of 'Digital Natives' to meet their needs of them and to ensure that they are motivated. Such that some studies have explored the effectiveness of computer-based technologies on pronunciation teaching. Golonka, Bowles, Frank, Richardon and Freynik (2012) stated that "technology made a measurable impact in FL learning came from studies on computer-assisted pronunciation training, in particular, automatic speech recognition (ASR)" (p. 70). The effect of ASR technology on the improvement of pronunciation has been investigated by many researchers. (Al-Qudah, 2012, Seferoglu, 2005). One of the software programs mentioned in the literature is MyET, also known as My English Tutor. The features of MyET are as follows (1) real-life conversations that cover audio-lingual and communicative language approaches. (2) different themes based on real-life dialogues so that learners can record dialogues and get holistic feedback: intonation, stress, and individual sounds. Liu and Hung (2016) investigated the impact of MyET on improving the pronunciation of Taiwanese learners. The learners experienced significant improvement in their scores. Another reported software program is Clear Pronunciation 2 which incorporates five topics and five related activities including suprasegmental features of pronunciation. The software is supported by three dialects: British

English, American English, and Australian English. Khoshsima, Saed and Moradi (2017) incorporated Clear Pronunciation 2 to enhance learners' pronunciation skills in Iran. The nature of the feedback improved their overall scores on intonation, connected speech, word stress, and sentence stress.

According to the literature, a considerable number of researchers and language teachers have shown a general inclination toward how they can utilize technology to give pronunciation instruction. Despite attempting to carry out many studies to find out whether technology has a very significant role in pronunciation teaching, there has been little evidence from previous research studies that it can be integrated well into classrooms (Lee, J., Jang, J., and Plonsky, L.,2015). Indeed, many studies have been interested in suprasegmental features of pronunciation (rhythm, stress, and intonation) (Thomson and Derwig, 2015). For instance, Eskenazi (1999) studied 10 native speakers of American English and 20 other participants who were speakers of other languages to investigate the effectiveness of a tool called automatic speech recognition while teaching and correcting errors of pronunciation at the suprasegmental level (intonation). The participants, however, did not show any significant improvements in pronunciation learning. Stenson, Downing, Smith, J and Smith (1992) also investigated the effectiveness of computers by analyzing suprasegmental features of pronunciation (intonation), however, Computer-Aided Pronunciation Teaching (CAPT) had little effect on intonation learning. On the other hand, findings from the meta-analysis conducted by Mahdi and Al Khateeb (2019) analyzed 20 research studies that used CAPT for pronunciation practice. Results confirmed that the effect size of CAPT on segmental features was moderate while there had been significant effect size on suprasegmental features. Additionally, a large portion of the studies applied CAPT to FL pronunciation achieved superior performance comparing traditional approaches. In contrast, it was also remarked that only four studies outlined no notable differences between the ones that used CAPT and the ones that did not.

Whilst the applications in the CAPT system are still limited and there is not a fully automatic, ready-to-use CAPT system, computer and electronic engineers in the field are exploring developing a fully automatic and ready-made system (Abdous, Facer and Yen, 2012; Moustroufas and Digalakis, 2007; Peabody, 2011). Even though recent trends and issues in technology have started to produce new instructional technologies regarding pronunciation teaching, studies conducted in the field are limited as opposed to CALL methods in the other skills of language.

Another concern is that spelling mistakes, and lack of intelligibility were noticed both by the research schools' English teachers and researcher and the students who orally stated that there was a need for pronunciation support in the current study. As the English classroom time was limited to four hours a week and the learners orally stated that they have not been engaged in a digital application before to learn English, a digital tool was preferred both to meet the needs of learners and to meet the need of vocabulary teaching. In response to these problems, Quizlet digital flashcard application was considered suitable for this study providing the students with opportunities to work individually by practicing and listening to the words during and after the lesson with different activities by reinforcing those activities with games, which is assumed to motivate and offer engaging learning environment by providing sufficient time for the learners.

In Turkish EFL contexts, many research studies were conducted to investigate the effectiveness of Quizlet on vocabulary learning (Bilcan, 2019; Çakır, 2019; Çınar and Arı, 2019; İnci, 2020). The main aim of these research studies was to test only the effectiveness of Quizlet on vocabulary learning. However, these research studies did not provide any results in terms of pronunciation development. Therefore, the present study aimed to shed light on the probable effect of Quizlet on pronunciation improvement as a new dimension to the current study.

To sum up, preceding studies suggested the acceptance of Quizlet in various implementations. It has become apparent that further research on the effect of digital tools on pronunciation improvement is needed. Especially, none of the preceding studies explored the effect of the Quizlet on learners' pronunciation development. For this reason, the purpose of the present study was to shed light on the effects of Quizlet digital web tool on 9th -grade EFL learners' pronunciation development. The research question is as follows:
1- What is the effect of Quizlet on the 9th -grade EFL students' pronunciation?
a- What are the words commonly mispronounced and pronounced correctly by these students after using Quizlet?

METHODOLOGY
a-   Participants, Setting and Research Design
The objective of the study was to examine whether a difference appears in learners' pronunciation skills on the production level as a result of exposure to audio from Quizlet application. 26 students aged 14-15 years took part in the study. The participants of the study were chosen from the researcher's teaching classes using a convenience sampling method. The Quizlet group presented tasks and assignments through Quizlet study modes. To ensure the

homogeneity of the participants in terms of proficiency level, the main coursebook was investigated and a proficiency test was conducted. The subjects were homogenous in terms of both their age and proficiency. As a part of their compulsory curriculum, the participants took four hours of English instruction per week, and the main coursebook used in the class was 'Teen Wise', which consisted of 10 units covering integrated skills in alignment with the principles of CEFR. The focus of the study revolves around the digital flashcard program called Quizlet as a teaching method to enhance learners' pronunciation. The research was a quasi-experimental research design. The quantitative method of research was used in this study.

b-   Data Collection Procedure
The study lasted eight weeks and the participants were asked to read the 52 target words aloud in a sentence while the instructor was recording them at the end of the week. First, a vocabulary familiarity test was administered to all 9th -grade students to identify the known words and exclude them. 52 unknown words were selected from out of three target units. In the following week, the participants underwent training to enhance their familiarity with the Quizlet app. At the end of the final week, the participants were requested to orally read the target words in sentences while being recorded by the researcher.

Figure 1 shows a screenshot of the browser-based version of the Flashcard page. The Flashcard page is where learners review the words through definitions, pictures, or audio. It gives options to determine which side(s) of the cards can be shown. ('flip or flow'). Learners can access the other side of the card by clicking when it is chosen to show only one side of the card. They can also hear the pronunciation of the word (audio on/off).

Figure 1: A screenshot of the flashcard page

c-   Design of the Evaluation Form for the Pronunciation Rubric
The rubric was designed for the pronunciation assessment when the recordings of the participants finished. The rubric was derived from an evaluation form for pronunciation conducted in a master thesis to evaluate a total sample of 7380 scores (Aktuğ, 2015). A rubric was formed based on two aspects after evaluation of many speaking rubrics in the literature, and an expert opinion from the ELT department and English teachers' opinions from the research school were taken when designing the evaluation form of the pronunciation rubric. Firstly, sentence-level quality items (intonation, linking, grammar, sentence stress) and items related to oral communication assessment (presentation length, structure, speaking skills, and organization) were excluded from the study since only word-level pronunciation was evaluated and there was no special training for given skills in the current study. A native speaker of English and a native-like speaker listened to each target word two times. Each rating was on a 10-point scale from 1-poor to 10-excellent (See Appendix B for an example pronunciation rubric).

d-   The Implementation of the Voice Recording Test
 Participants' responses to the target words were recorded digitally with a special microphone so that there could not be any misjudges or doubts between the raters. The recording was analyzed by a native speaker of English secondary school English teacher who has been teaching English for 8 years and lived and studied abroad. The school library was preferred to maintain silence and decrease noise levels and the best sound insulation. Twenty-six 9th participants were recorded and evaluated with 52 target words in terms of segmental and suprasegmental features of pronunciation. Every 52 words were not given isolation to prevent any feeling of stress of the upcoming word. The target example sentences were received from Cambridge online dictionary on https://dictionary.cambridge.org/tr/, https://www.merriam-webster.com/ and Oxford online dictionary on https://www.oxfordlearnersdictionaries.com/ and were modified according to the level of students. Some examples of the sentences that the participants encountered during the recording were provided in Table 1.

Table 1. The target words and the sentences for recording

No	Sentences
1	I love the ancient sites of Turkey
2	It is almost 2 feet in height.

Segmental features mean consonant and vowel sounds. In addition, stress was analyzed under suprasegmental features of pronunciation. Since they were beginner levels and as the researcher followed the curriculum, it was decided that it would be impractical to test all other suprasegmental features. Hahn (2004) indicates that improperly stressed words and phrases can cause confusion and misunderstanding. Hence, to impede a delay misunderstanding and confusion of participants' speaking stress were analyzed in the study.

e- Data Analysis
Raters
With an intent to raise the reliability of scoring for the voice recordings of the words, the recordings of the participants were rated by another native speaker of English who is a secondary school English teacher and has been teaching English for 8 years at a private school in Kayseri. Moreover, the recordings were scored by another native-like teacher to assure the raters score similarly. Inter-rater reliability was measured between the raters. The reliability between the raters was determined as 0.977 (See Table 2.). The reliability was calculated by comparing the scores of the raters.

Table 2. Cronbach's alpha statistics for raters

Reliability Statistics Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.976	0.977	2

FINDINGS
To evaluate the pronunciation of learners, a specifically designed rubric on a scale from 1 to 10 was utilized. A rubric was formed based on two aspects after evaluation of many speaking rubrics in the literature and an expert opinion from the ELT department and English teachers' opinion from the research school were taken and designed. The rubric was divided into 3 scales portraying the segmental features (vowel quality, consonant quality) and suprasegmental features of the pronunciation (word stress) of the 52 target words. The statistical analysis of the pronunciation qualities (vowel, consonant and word stress) is displayed in Table 3.

Table 3. Descriptive statistics of vowel, consonant quality, and word stress

Total Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Vowel quality	1352	2	9	6808	5,0	1,4
Consonant quality	1352	2	9	6969	5,2	1,4
Word stress	1352	2	9	6662	4,9	1,3
Valid N (listwise)	1352					

In the first scale, consonant quality showed the highest mean of 5.2. Then, it was followed by vowel quality (M=5.0) and word stress (M=4.987, SD=0.205) respectively. From the table, it might be seen that by far the greatest number was for consonant quality. In general, the learners were the most successful in consonant quality and they were the least successful in word stress. The success at the vowel quality existed between the consonant quality and word stress.

a- The Scores of the Individual Words
The mean scores of each target word were analyzed by averaging the consonant and vowel quality and word stress of the word to find out the difference between the scores of each word. The descriptive statistics of the average scores for each word are shown in Table 4.

Table 4. Descriptive statistics of average scores of each word

Words	N	M	SD	SE	Min	Max	Words	N	M	SD	SE	Min	Max
Trip	26	7,4	1,1	0,2	5	8,7	**Remote control**	26	5,0	1,0	0,2	3	6,7
Architecture	26	5,9	0,9	0,2	3,7	8	**Check-in**	26	5,0	0,7	0,1	4	6,3

Delay	26	5,8	0,9	0,2	3,7	7,3	**Soft drinks**	26	5,0	1,1	0,2	3	7,3
Gate	26	5,7	1,3	0,2	3,7	7,7	**Entertain**	26	5,0	0,8	0,2	3,7	7
Refuse	26	5,7	0,9	0,2	4	7,7	**Masterpiece**	26	4,9	0,7	0,1	3,3	6
Port	26	5,6	1,4	0,3	3	8,3	**Satellite dish**	26	4,9	0,7	0,1	3,7	6,3
Tower	26	5,6	0,6	0,1	4,3	6,7	**Civilization**	26	4,8	0,7	0,1	3,3	6
Board	26	5,6	1,2	0,2	3,3	8,3	**Tradition**	26	4,8	0,6	0,1	3,7	6
Accept	26	5,6	1,0	0,2	4	7,3	**Structure**	26	4,8	0,6	0,1	3,7	6
Turn on	26	5,5	1,1	0,2	3,7	7,7	**Height**	26	4,8	0,5	0,1	4	6
Historic	26	5,4	0,8	0,2	3,7	6,7	**Farewell party**	26	4,8	0,8	0,2	4	6,7
Prediction	26	5,3	0,8	0,2	3,7	6,7	**Heritage**	26	4,8	0,7	0,1	3,3	6
Guidebook	26	5,3	0,7	0,1	3,7	6,7	**Length**	26	4,7	0,8	0,2	2,7	6
Username	26	5,3	1,0	0,2	3,7	7,7	**Invitation**	26	4,6	0,6	0,1	3,3	6
Station	26	5,2	1,0	0,2	3,7	7,3	**Graduation party**	26	4,6	0,6	0,1	3,7	6
Internet access	26	5,2	0,5	0,1	4,3	6	**Disagree**	26	4,6	0,6	0,1	3,3	6
Security	26	5,2	0,6	0,1	4	6,7	**Opening party**	26	4,6	0,5	0,1	3,7	5,7
Permit	26	5,2	0,8	0,2	4	6,7	**Souvenir**	26	4,5	0,5	0,1	3,7	5,3
Century	26	5,2	0,6	0,1	4,3	6,7	**Reject**	26	4,5	0,6	0,1	3,3	5,7
Addict	26	5,1	0,6	0,1	4	6,3	**Statue**	26	4,5	0,8	0,2	3,3	6,3
Candle	26	5,1	1,0	0,2	3,3	7,7	**Agree**	26	4,5	0,6	0,1	3,3	5,3
Log in	26	5,1	0,9	0,2	4	7	**Housewarming party**	26	4,5	0,6	0,1	3,3	6
Documentary	26	5,1	0,8	0,2	3,3	6,7	**Underground**	26	4,4	0,6	0,1	3,3	6
Follow the news	26	5,1	0,7	0,1	4	6,3	**Ancient**	26	4,4	0,4	0,1	3,7	5,3
Baggage	26	5,1	0,9	0,2	4	6,7	**Mosque**	26	4,4	0,7	0,1	3	6
High Definition	26	5,0	0,5	0,1	4	6,3	**Suggest**	26	4,1	0,5	0,1	3,3	5

The word 'trip' had the highest rate of 7.4 regarding the mean score and the maximum score was 8.7 out of 10 for this word. The word 'suggest' had the lowest rate of 4.1 regarding mean scores while the maximum score was 5 out of 10 for 'suggest'. The overall quality rates and the statistics of each score of each word are given in Tables 5, 6 and 7.

Table 5. Descriptive statistics of vowel quality

Words	N	M	SD	SE	Min	Max	Words	N	M	SD	SE	Min	Max
Trip	26	7,4	1,1	0,2	4	9	**Satellite Dish**	26	5,1	1,1	0,2	3	8
Historic	26	6,4	1,3	0,2	4	8	**Guidebook**	26	5,1	1,2	0,2	3	7
Delay	26	6,3	1,3	0,3	4	8	**Structure**	26	5,0	1,2	0,2	3	7
Refuse	26	6,0	1,2	0,2	4	8	**Check-İn**	26	5,0	1,1	0,2	3	7
Turn On	26	6,0	1,6	0,3	3	8	**Century**	26	5,0	0,8	0,2	3	7
Port	26	5,9	1,7	0,3	3	9	**Civilization**	26	4,9	1,1	0,2	3	7
Length	26	5,8	1,8	0,3	2	8	**Remote Control**	26	4,8	1,7	0,3	2	8
Architecture	26	5,7	1,1	0,2	4	8	**Masterpiece**	26	4,8	1,3	0,2	3	7
Gate	26	5,7	1,5	0,3	4	8	**Invitation**	26	4,8	1,0	0,2	3	7
Permit	26	5,7	1,6	0,3	3	9	**Farewell Party**	26	4,7	1,0	0,2	3	7
Station	26	5,7	1,2	0,2	4	8	**Tradition**	26	4,7	1,3	0,3	3	7
Accept	26	5,7	1,3	0,3	3	9	**Statue**	26	4,5	1,2	0,2	3	7
Board	26	5,6	1,5	0,3	3	8	**Reject**	26	4,5	1,1	0,2	3	6
Heritage	26	5,5	1,1	0,2	4	8	**Entertain**	26	4,5	1,3	0,3	3	7
Soft Drinks	26	5,4	1,6	0,3	3	8	**Opening Party**	26	4,4	1,0	0,2	3	6

Words	N	M	SD	SE	Min	Max	Words	N	M	SD	SE	Min	Max
Follow The News	26	5,4	1,3	0,3	3	8	Graduation Party	26	4,3	1,4	0,3	2	7
Prediction	26	5,3	1,3	0,3	3	8	Agree	26	4,3	1,0	0,2	2	6
Log İn	26	5,3	1,3	0,2	3	7	Housewarming Party	26	4,2	1,0	0,2	2	6
Documentary	26	5,3	1,8	0,4	2	8	Suggest	26	4,2	0,8	0,2	3	6
High Definition	26	5,2	0,7	0,1	4	7	Underground	26	4,1	1,0	0,2	2	6
Security	26	5,2	1,2	0,2	3	8	Ancient	26	4,0	0,9	0,2	2	6
Username	26	5,2	1,7	0,3	2	8	Disagree	26	4,0	0,9	0,2	3	6
Candle	26	5,2	1,5	0,3	2	8	Tower	26	4,0	1,1	0,2	2	7
Addict	26	5,2	1,1	0,2	3	7	Souvenir	26	3,8	1,2	0,2	2	6
Baggage	26	5,1	1,0	0,2	3	7	Mosque	26	3,7	1,1	0,2	2	6
Internet Access	26	5,1	1,3	0,3	3	7	Height	26	3,4	0,9	0,2	2	5

According to the mean scores, out of 26 participants, the word 'height' was observed as the most challenging word for vowel pronunciation quality having a mean of 3.4. On the other hand, 'mosque' and 'souvenir' also could be categorized as problematic words as having a mean of 3.7 and 3.8 respectively. The word 'trip' was the most properly pronounced one with an overall 7.4 mean score. The words 'historic and delay' were the next words pronounced correctly with an overall 6.4 and 6.3 respectively. (See Table 5.)

Table 6. Descriptive statistics of consonant quality

Words	N	M	SD	SE	Min	Max	Words	N	M	SD	SE	Min	Max
Trip	26	7,5	1,2	0,2	5	9	Candle	26	5,0	1,3	0,3	2	8
Height	26	7,2	0,8	0,2	6	8	Documentary	26	5,0	1,3	0,3	3	8
Tower	26	6,4	1,1	0,2	4	8	Permit	26	5,0	1,1	0,2	3	7
Delay	26	6,2	1,3	0,3	3	8	Underground	26	5,0	1,3	0,3	3	7
Gate	26	5,9	1,5	0,3	4	8	Follow the news	26	5,0	1,2	0,2	3	7
Accept	26	5,9	1,3	0,3	4	8	High Definition	26	5,0	0,8	0,2	4	7
Century	26	5,8	0,9	0,2	4	8	Refuse	26	5,0	1,4	0,3	3	8
Architecture	26	5,8	1,5	0,3	3	9	Farewell party	26	5,0	1,0	0,2	4	7
Disagree	26	5,8	1,0	0,2	4	8	Masterpiece	26	4,9	1,3	0,3	2	7
Board	26	5,7	1,3	0,3	3	8	Graduation party	26	4,8	1,0	0,2	3	7
Port	26	5,6	1,8	0,4	2	9	Soft drinks	26	4,8	1,4	0,3	2	8
Mosque	26	5,5	1,1	0,2	4	8	Tradition	26	4,8	1,3	0,3	3	7
Prediction	26	5,3	1,2	0,2	3	8	Check-in	26	4,8	1,3	0,2	3	7
Station	26	5,3	1,4	0,3	2	8	Ancient	26	4,7	0,8	0,2	3	6
Internet access	26	5,3	1,1	0,2	3	7	Historic	26	4,7	1,3	0,3	2	7
Remote control	26	5,3	1,3	0,3	3	7	Satellite dish	26	4,7	1,0	0,2	3	7
Turn on	26	5,3	1,4	0,3	3	8	Structure	26	4,7	1,1	0,2	2	7
Username	26	5,3	1,5	0,3	3	8	Souvenir	26	4,6	0,8	0,2	3	6
Civilization	26	5,3	1,1	0,2	4	7	Statue	26	4,5	1,5	0,3	2	7
Addict	26	5,2	1,1	0,2	3	7	Invitation	26	4,5	1,2	0,2	3	6
Agree	26	5,2	1,5	0,3	2	8	Reject	26	4,3	1,1	0,2	3	6
Entertain	26	5,2	1,2	0,2	3	7	Opening party	26	4,3	1,2	0,2	2	7
Baggage	26	5,2	1,7	0,3	2	8	Heritage	26	4,2	0,9	0,2	3	6
Guidebook	26	5,2	0,8	0,2	4	7	Housewarming party	26	4,2	1,0	0,2	3	6
Security	26	5,2	1,1	0,2	3	7	Suggest	26	4,0	0,9	0,2	2	6
Log in	26	5,1	1,2	0,2	3	8	Length	26	3,8	1,1	0,2	2	6

The one which was the most mispronounced was the word 'length', the average mean score of the participants was 3.8. The words 'suggest housewarming party, heritage and opening party' with a mean score of 4.0, 4.2, and 4.3 followed respectively. According to the statistical analysis shown in Table 4., the word 'trip' is indicated as the most properly pronounced word with an overall mean of 7.5. Given the overall results, the word 'height' was the second properly pronounced word with a mean score of 6.4. (See Table 6.)

Table 7. Descriptive statistics of word stress

Words	N	M	SD	SE	Min	Max	Words	N	M	SD	SE	Min	Max
Trip	26	7,3	1,4	0,3	4	9	**Baggage**	26	4,9	1,5	0,3	3	7
Tower	26	6,4	1,0	0,2	5	8	**Addict**	26	4,9	0,9	0,2	3	7
Refuse	26	6,0	1,2	0,2	4	8	**Satellite dish**	26	4,8	1,7	0,3	2	9
Architecture	26	6,0	1,2	0,2	4	8	**Log in**	26	4,8	1,4	0,3	3	7
Guidebook	26	5,7	1,2	0,2	4	8	**Follow the news**	26	4,8	1,0	0,2	3	7
Gate	26	5,5	1,4	0,3	3	7	**Permit**	26	4,8	1,4	0,3	3	8
Board	26	5,5	1,7	0,3	3	9	**Structure**	26	4,8	1,3	0,2	3	7
Username	26	5,3	1,5	0,3	3	8	**Farewell party**	26	4,8	1,1	0,2	3	7
Port	26	5,3	1,6	0,3	3	8	**High Definition**	26	4,8	0,8	0,1	4	6
Prediction	26	5,3	1,1	0,2	4	7	**Station**	26	4,7	1,3	0,3	2	8
Check-in	26	5,2	1,2	0,2	3	7	**Soft drinks**	26	4,7	1,4	0,3	2	8
Internet access	26	5,2	1,1	0,2	3	7	**Century**	26	4,7	0,7	0,1	4	6
Security	26	5,2	1,0	0,2	4	7	**Heritage**	26	4,6	1,3	0,3	2	7
Entertain	26	5,2	1,5	0,3	3	8	**Reject**	26	4,6	1,1	0,2	3	7
Turn on	26	5,1	1,6	0,3	2	8	**Graduation party**	26	4,5	0,9	0,2	3	6
Accept	26	5,1	1,5	0,3	2	7	**Invitation**	26	4,5	0,9	0,2	3	6
Delay	26	5,1	1,3	0,3	3	7	**Length**	26	4,4	0,8	0,1	3	6
Souvenir	26	5,1	1,3	0,3	3	7	**Statue**	26	4,4	1,1	0,2	3	6
Masterpiece	26	5,0	1,0	0,2	3	7	**Ancient**	26	4,3	0,7	0,1	3	6
Historic	26	5,0	1,4	0,3	2	8	**Civilization**	26	4,3	1,1	0,2	2	6
Candle	26	5,0	1,1	0,2	3	7	**Civilization**	26	4,3	1,1	0,2	2	6
Opening party	26	5,0	1,2	0,2	3	7	**Suggest**	26	4,2	0,7	0,1	3	5
Housewarming party	26	5,0	1,2	0,2	3	7	**Agree**	26	4,0	0,8	0,2	3	5
Tradition	26	5,0	1,2	0,2	3	7	**Underground**	26	4,0	0,9	0,2	3	6
Documentary	26	4,9	1,1	0,2	3	7	**Disagree**	26	3,9	1,0	0,2	3	6
Remote control	26	4,9	1,4	0,3	3	7	**Mosque**	26	3,9	1,4	0,3	2	8
							Height	26	3,8	0,9	0,2	2	5

On the ground of the stress rules in Turkish, the word stress was analyzed on the vowels, not the sentence. One word indicates only one stress, and it could be stressed only by the vowels. As the result was considered, it was understood that the most problematic word regarding word stress was 'height'. It scored only 3.8 mean scores. The second challenging words concerning their stress were 'mosque and disagree' averaging only 3.9. When the results were considered, it was depicted that the word 'trip' had the highest mean score, and the word 'tower' ranked as the second one with an overall mean of 6.4. (See Table 7.)

Ultimately, the participants were successful at the consonant quality and least successful at word stress as displayed in Table 2. While the most well-pronounced target word was 'trip', the word 'suggest' had the lowest mean scores of all 52 target words. As seen in Table 3. 'trip' scored 7.4. for the vowel pronunciation quality percentage, 7.5 for the consonant quality, and averaged 7.3 for the word stress. In addition, the word 'height' appeared as the least successful word for the vowel quality and 'length' averaged only 3.8 for the consonant quality. As seen in Table 7., the word 'height' also scored only 3.8 for the word stress.

CONCLUSION & DISCUSSION

The present research was intended to explore whether the Quizlet digital web tool impacts 9th-grade students' English pronunciation skills or not. The Quizlet group learners heard each target word through Quizlet Flashcard mode which offers the 'Audio on' button. The 'Audio on' option was accessible for all Quizlet study modes. Although the Quizlet application did not offer any pronunciation scoring system, the researcher provided feedback on the pronunciation of the words when needed.

The statistical analysis of the scores revealed that the participants achieved better scores in consonant quality with a mean of 5.2 and scored slightly lower in vowel quality (M=5.0). The learners were least successful in the suprasegmental feature which is the word stress averaging 4.9. As observed in Table 4. according to the average scores of each word, the word *trip* had the highest mean score of 7.4 having an 8.7 maximum score out of 10. On the other hand, the word *suggest* scored only 4.1 having a 5 maximum score out of 10.

A-Vowel Quality
The present study identified five problematic words for the 9th grade Turkish EFL learners that are: height /haɪt/, mosque /mɒsk/, souvenir /ˌsuːvənˈɪər/, tower /taʊər/, disagree /ˌdɪsəˈɡriː/ (See Table 5.).
/aɪ/:
It is explicit that /aɪ/ was the most problematic vowel to produce in the word height. Since the Turkish language does not have a diphthong except for borrowed words and the Turkish dialects, the learners replace /aɪ/ diphthong with a vowel /e/.
/ɒ/:
The second commonly mispronounced vowel sound was /ɒ/ for the word 'mosque'. The learners replaced /o/ instead of /ɒ/. The sound systems' differences between Turkish and English phonology prevent learners to distinguish the correct sound. Since the English vowel system is unsteady (Cruttenden, 1994), each /o/ vowel is pronounced differently as seen in the words prove, come, and alone.
/uː/, /ə/, /ɪə/:
The third common pronunciation error was the word 'souvenir'. The participants substituted /o/ for /uː/ and /e/ for /ə/ as they pronounce their native language. Since the Turkish language has a lack of diphthongs, the participants tended to replace /ɪə/ with vowel /ɪ/.
/a/, /ʊə/
The fourth common vowel error was the /a/, /ʊə/ sound in the word 'tower'. The vowel /a/ was pronounced as /o/ in its written form. Turkish learners tend to pronounce the words in their written form due to "the mother tongue's influence" (Aktuğ, 2015: p. 111).
/ə/, /iː/
The last commonly mispronounced word in terms of its vowel sound was 'disagree' /ˌdɪsəˈɡriː/. The participants used the short form of the second vowel iː instead of the long form. Despite the English phonology, there are no short or long vowels in Turkish phonology.

B- Consonant Quality
The most problematic five words regarding consonant quality were as follows: length /leŋθ/, suggest /səˈdʒest/, housewarming party /ˈhaʊs. wɔːmɪŋ/ /ˈpɑːti/, heritage /ˈherɪtɪdʒ/, opening party /ˈəʊpənɪŋ/ /ˈpɑːti/, and reject /rɪˈdʒekt/. The challenging phonemes are respectively, /θ/, /dʒ/, /ŋ/. (See Table 6.)
/θ/
The first problematic consonant sound was /θ/ that does not exist in Turkish phonology as displayed in Table 6. The participants replaced it with /t/. As Kaçmaz (1993) provided results in support of this finding, the researcher suggested that 46% of his Turkish EFL learners did not pronounce the /θ/ sound. Varol (2012) also concluded that the English interdental consonants cause difficulty due to the absences in the mother tongue of the learners.
/dʒ/
The second challenging consonant that posed a serious problem was the /dʒ/ phoneme for the suggest, heritage, and reject. While the word 'suggest' had a mean of 4.0, the words heritage and reject had a mean of 4.2 and 4.3 respectively. Even though the Turkish language has the same affricative consonant, it is not seen at the final position. Hence, the participants replaced it with other sounds.
/ŋ/
The final challenging words were 'housewarming and opening party. They had an average mean of score 4.3 and 4.2 respectively. When the Turkish and English consonant systems compared, the nasal sound /ŋ/ is one of the differences. The nasal sound was pronounced as plosive /k/ by the participants.

C- Word Stress
Thompson (2002) indicates that the rhythmic pattern of English, with its stretched-out syllables and hurried unstressed syllables with their reduced vowels, is unusual and difficult for Turkish EFL learners. No matter how

the learners pronounce the segmental features correctly when the learners put the stress in the wrong syllable, that results in communication breakdown (Celce-Murcia, Brinton and Goodwin, 2008). Word stress usually exists on the last syllable in the Turkish language. Regardless of the length of the word and the weight of the syllables, Turkish has a simple rule to apply, unlike English. In the current study, the word stress was analyzed at the word level. In the nature of English stress structure, only the vowels can be stressed and only one stress exists in one word.

According to the results of the current study, common word stress errors committed by the 9th -grade EFL learners were as follows: height /haɪt/, mosque /mɒsk/, disagree /ˌdɪsəˈgriː/, underground /ˈʌndəgraʊnd/, agree /əˈgriː/, suggest /səˈdʒest/ (See Table 7.).

height /haɪt/
According to Table 7. which demonstrates the statistics of the word stress scores, it was observed that height was the most problematic word regarding word stress having a mean of 3.8. Since the participants misplaced the diphthong which is /aɪ/ for this word and put /e/ instead of it and there is only one syllable, the learners put the stress on the first syllable /h/ or last syllable /t/. The main reason is that they mispronounced the vowel as seen in Table 4. The word 'height' was investigated as the most problematic word in terms of vowel quality.

mosque /mɒsk/
The next commonly made mistake was, with a mean of 3.7, there is the word mosque /mɒsk/. As in the case of the word height /haɪt/, the participants mispronounced the vowel /ɒ/ by replacing /o/. They failed to put the stress on the right place assuming that the word was two-syllable as they read in Turkish.

disagree /ˌdɪsəˈgriː/
The other second challenging word in terms of its stress was disagree /ˌdɪsəˈgriː/. It has an overall 3.9 mean score. In Turkish phonology, there are not any long or short vowels, and the stress is on the first syllable for this word. Hence the participants mispronounced the vowel /iː/ and replaced it with pure /i/. The word was pronounced by participants like a two-syllable word.

underground /ˈʌndəgraʊnd/
The third problematic word was underground /ˈʌndəgraʊnd/. It has an overall 4.0 mean score as displayed in Table 4.32. The stress of the word underground is on the first syllable starting with the vowel ˈʌ. However, the participants who mispronounced the first vowel /u/, /e/, and also /ou/ sound failed to put the stress in the right place.

agree /əˈgriː/
The fourth problematic word in terms of its stress was agree /əˈgriː/ as displayed in Table 5. The participants averaged 4.0 overall. The stress is on the second syllable here /ˈgriː/ starting with the consonant /g/. The participants already mispronounced the /a/ sound, and the stress has been lost in the word.

suggest /səˈdʒest/
The last problematic word that could not be stressed correctly was the word suggest /səˈdʒest/. The word 'suggest' also has one of the problematic phonemes as observed in vowel quality analysis. The participants struggled to pronounce the /u/ sound as vowel /ə/. The stress is on the second syllable starting with the consonant /dʒ/. However, the participants who mispronounced the vowel /u/ put the stress in the wrong place.

The results of the analysis of the participants' pronunciation scores to find out the effect of Quizlet on their pronunciation provided full support for the errors that Turkish EFL learners had difficulties with. The findings are supported by Aktuğ (2015), Saka (2015), Türker (2010), Çelik (2008) and Kaçmaz (1993). In their studies, Saka (2015); Çelik (2008) and Türker (2010) counted the voiceless interdental fricative /θ/ as the phoneme that Turkish learners have difficulty with most. Similarly, the phoneme /ŋ/ was also found as a problematic consonant phoneme in Türker's study (2010). The affricate sound /dʒ/ was determined as the second challenging phoneme in the present study. This result is in line with the findings of the study which claims that the phoneme /dʒ/ is one of the problematic phonemes of English that lead to confusion for Turkish EFL learners (Aktuğ, 2015).

Another result arose from the study that /aɪ/, /ɒ/, /uː/, /ə/, /ɪə/, /a/, /ʊə/, /iː/ were determined as phonemic mistakes in terms of vowel quality. This result is in line with the findings of studies confirming that /ɒ/, /ə/, /ʊə/, /aɪ/, /ɪə/, /a/ appeared to be among the most problematic sounds that Turkish learners mispronounced (Aktuğ, 2015; Bekleyen, 2011; Türker, 2010).

Even though there have been studies focused on the effects of Quizlet on vocabulary teaching-learning in particular (Bilcan, 2019; Franciosi, 2017; İnci, 2020; Lander,2016; Özer and Koçoğlu, 2017), none of these studies investigated the effect of the Quizlet digital tool in terms of pronunciation skill. Even though the age factor to learn a target language is seen to have a prominent role in the improvement of pronunciation (Piper and Cansin, 1988; Thompson, 1991) and insufficient focus on pronunciation in Turkey's foreign language education context (Aktuğ, 2015), listening and spelling the target words through Quizlet study modes reinforced memorization of spoken forms of the words as stated by the majority of the participants in the interviews.

Taking into consideration participants' age to start learning English, the limited duration of lessons (40 minutes each) and restricted amount of feedback on pronunciation given to each participant from middle school to high school due to time constraints, Quizlet training in the current study gave insight on determining which sounds they had difficulties and they scored well to provide appropriate training for the participants even though the software is not designed specifically for pronunciation training.

Neri, Mich, Gerosa and Giuliani (2008) found that a computer-assisted pronunciation training (CAPT) system improved young learners' pronunciation compared to regular class teacher-oriented training. Similarly, other CAPT software programs were investigated to improve the pronunciation skills of learners. Comeau (2011) investigated the impact of EnglishCentral on EFL college learners. The learners indicated that the software was fun, useful, and engaging despite the ineffective scoring system of the tool. Alternatively, Baradaran and Davvari (2010) expressed that Pronunciation Power 2 had a positive impact on EFL learners' pronunciation with respect to its feedback feature. Similar results were concluded by Khoshsima, Saed and Moradi's research study (2017) that Clear Pronunciation 2 improved participants' intonation, connected speech, word stress, and sentence stress, and the EFL learners added that the tool was helpful and practical to use. Other than that, the effect of Automated Sound Recognition (ASR) technology was incorporated into pronunciation teaching (Seferoğlu, 2005). One of the well-known ASR software MyET provides holistic feedback to its users on different pronunciation features. Liu and Hung (2016) revealed that MyET was an effective tool by instructing users to record real-life dialogues. According to the results of the study, the pronunciation scores of the learners' improved significantly. Unlike Quizlet software, MyET supports users with conversations and dialogues, however, words are given isolated and without a context in the Quizlet tool. Still, in the current study, the researcher inserted sentences into the flashcards during the intervention, and the target words were recorded at a sentence level as in the way Liu and Hung (2016) addressed the target words in their study. Celce-Murcia, Bret et al., (1996) also suggested giving the words in a context instead of in isolation enlarges learners' knowledge of pronunciation.

Given the fact that Quizlet is a digital flashcard tool and differs from given ASR and CAPT software programs, it still includes the spoken form of the words. Regarding its deficiencies, an instructor can create study sets to enhance learners' pronunciation skills in the segmental aspect. More precisely, the Quizlet software with its engaging environment positively affected learners' attitudes toward improving their pronunciation regardless of the short time frame of 8 weeks. The analysis of the semi-structured interviews endorsed these findings. According to the interview results, learners indicated that Spell study mode and the Audio button helped their pronunciation. It was also reported that they increased their scores in the post-Orthography Productive test that listened and wrote correct pronunciation. As supported by Mayer's Dual Coding Theory (2005), the Quizlet application enabled them to process information through auditory and visual channels.

Still, it is a fact that there is a need for improvements in the nature of feedback and the recording of voice. Additionally, an eight-week time period is relatively short to assess the overall improvement of pronunciation. However, it is noteworthy that the Quizlet training helped determine 9th-grade learners' problems with individual phonemes. Like aforementioned studies and the present study's interview results support that educational technology in pronunciation teaching motivates learners. This is significant, as it presents teachers and administrators with a rationale for increasing the use of digital technology tools to teach pronunciation, as they are considered positively by the Quizlet group learners. On the other hand, a teacher needs to keep track of learners' common pronunciation errors and give instruction on both segmental and suprasegmental levels for a good command of pronunciation by evaluating a digital technology before implementing it to decide whether it is an answer for learners' needs.

IMPLICATIONS

All in all, in countries like Türkiye in which learners have limited opportunities to have English native speakers' input. Hence, another study mode with feedback on pronunciation would make a huge impact on EFL learners, that is to say, the teachers and the material designers should take these deficiencies for granted. the study uncovers the most problematic sounds for the 9th -grade Turkish EFL learners. Learners and teachers who are in the same level of EFL environment can benefit from the implications. The teachers can be fully aware of learners' common errors and be conscious of learners' difficulties. This enables teachers to be cautious of learners' pronunciation and makes the teachers eliminate fossilized pronunciation errors. Additionally, being cautious about pronunciation errors and difficulties that the learners struggle with makes learners more careful about their pronunciation. As put forward by Binturki (2001); Derwing (2003); and Mettler (1989) communication breakdown can be prevented when the students become more cautious about pronouncing words better. When considered from this point of view, the needs of the learners will be met with pronunciation exercises provided by the teachers. Especially high school teachers can get benefit from the results of this thesis in terms of pronunciation teaching. After

implementing Quizlet for 9th-grade learners to investigate the commonly mispronounced words, it was understood that some remedies should be taken into consideration. From the pedagogical perspective, making use of CAPT or with the help of tools like Quizlet in the classrooms can be a gateway to practicing pronunciation, but it is not always possible to integrate into real classrooms. Hence, firstly, the most crucial problem that should be dealt with urgently is the revision of the coursebook. Currently, English is 4 hours per week for the 9th-grade number of the classes is insufficient to dedicate sufficient time for pronunciation. Priority is on the other language areas.

According to Aktuğ's (2015) investigation of the reasons for the common pronunciation errors of secondary level students, the teachers put forward that insufficient coursebooks and insufficient curriculum content are one of the main problems of pronunciation errors. The English coursebooks only have one part for pronunciation skills which makes it hard to teach and improve the existing level of the learners or to emphasize the fossilized errors. On the other hand, according to the results and as the learners stated orally in the current study, pronunciation education should be a prerequisite for EFL learners. The curriculum and the coursebooks can be revised or redesigned by policymakers, curriculum designers, and material developers. Recently, the Ministry of Education has agreed that the assessment of English examinations should be done for each skill, and it should not be conducted only on paper. The teachers should benefit from this opportunity and during a speaking examination based on their learners' needs, they can give individual pronunciation instruction and include diagnostic feedback on pronunciation. Considering the infrastructures of their schools CAPT and ASR software such as MyET, EnglishCentral, Clear Pronunciation 2, and Pronunciation Power 2 can be augmented by using voice recording or recognition tasks. In addition, other presentation applications can be implemented. Consequently, the new directions in pronunciation teaching currently have been employing Computer-assisted instructional technology, and some other different language teaching techniques such as drama, psychology, or speech pathology (Celce-Murcia et al. 2010) are applied for pronunciation teaching.

Another implication of the study might be related to audiobooks. As Quizlet offers for learners, learners should be supported with audio-visual content adding to the pronunciation studies when the coursebook is revised. Audiobooks can be integrated into classrooms as pronunciation teaching practices instead of regular class practices. The impact of audiobooks on university-level students was investigated on both sound recognition and pronunciation level by Saka (2015). It was proven that audiobooks have been an effective tool for pre-intermediate level students. As most of the students indicated that they want to have a native-like speaking ability, audiobooks can be selected to pay attention to the learners' interest because it is more likely that listening to an audiobook takes a longer time than other language learning-oriented activities. Learners can listen to audiobooks of their interests and pace out of the classroom through computers, smartphones, or similar devices. Assigned audiobooks can be presented in five minutes presentations or group discussions can be supported. The teachers can initiate some question-answer sessions or direct learners to present alternative endings for the chapters.

Even though pronunciation software programs are assets for teaching pronunciation, most software programs cannot give feedback to learners for their production or do not give accurate feedback. The users need to notice the difference between the model utterance and their production. It is also the weakest aspect of the Quizlet tool which does not give any corrections and recording advice. Until the instructional technology improves fully, the teacher can create a response time for errors. Errors can be noted on a checklist or any inexpensive pocket camcorders can be used for video recording to review.

Finally, in the last quarter-century, pronunciation teaching has been taught with the multi-model method in that sounds are implemented visually, auditorily, kinesthetically, and in a tactile manner. That is to say, the teachers show sensitivity to students' autonomy, personality, ego, and identity in a learner-centered environment (Celce-M. et al., 2010). Several researchers like Thompson, Taylor, and Gray (2001) alleged that the Multiple Intelligence technique can be implemented to teach pronunciation of the target language in accordance with learners' intelligence types. Whereas rubber bands, balls, balloons, and body language can be applied for bodily-kinesthetic intelligence learners, card games and wall charts aid the visual/spatial intelligence of the learners. In the current study, the learners were the least successful at word stress, which may indicate that the teachers should attach more importance to suprasegmental features of pronunciation by instructing with explicit teaching. A list of target words can be given with underlined stressed syllables and when the teacher utters the words, the learners can clap. Likewise, the teacher may start with listening discrimination activities such as "contextualized minimal pairs, intonation patterns for tag questions, identification exercises by using songs, comic strips, nursery rhymes, limericks, and poems. Audios, technological tools, and videos serve as valuable resources" (Celce-Murcia et al., Teaching English as a Second or Foreign Language, 2008: p. 148).

Pronunciation training could be presented to beginner level learners through Fraser's (2001) theory of conceptualizing in the classrooms. Phonemic awareness at young ages would help learners grasp the target

language. In the second stage, learners should be instructed to notice the difference between L1 and L2. In the third stage of CT, cognates can be utilized to show the difference between target and native language pronunciation. To teach the right sound variations, role plays and dialogues can be implemented. This way, the teacher would address the suprasegmental features of pronunciation. To make learners internalize phonemes and other lexical phonemes authenticity in teaching affects the conscious level of learners.

FOR FURTHER RESEARCH
Expanding the duration of the treatment may assist in acquiring the segmental features of pronunciation. In the shed of this, future studies can consider long target language exposure time on the recognition and production of the segmental and suprasegmental features of pronunciation to see how online applications with audios may be important elements in vocabulary development. According to the findings of the study, segmental and suprasegmental aspects of the pronunciation presented in the study revealed the errors committed by the EFL high-school learners. The reasons behind these errors can be tracked and teacher interviews conducted to provide more reasonable results. It would be noteworthy if a future study could administer the Quizlet app at the same level as the EFL environment to see the effect of audio on their pronunciation and detect common errors.

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APPENDICES

A- Example Screenshots of Quizlet Study Modes
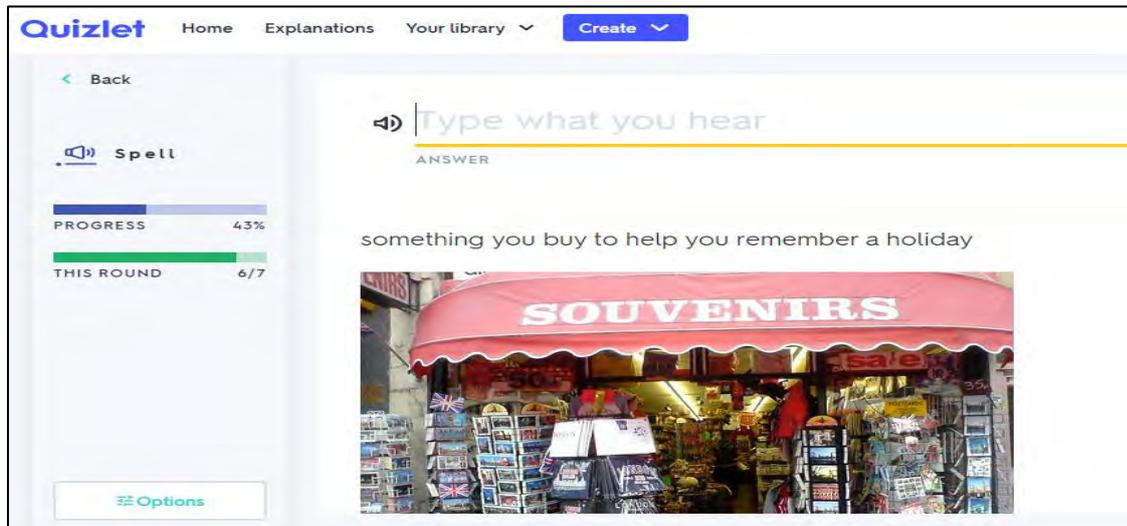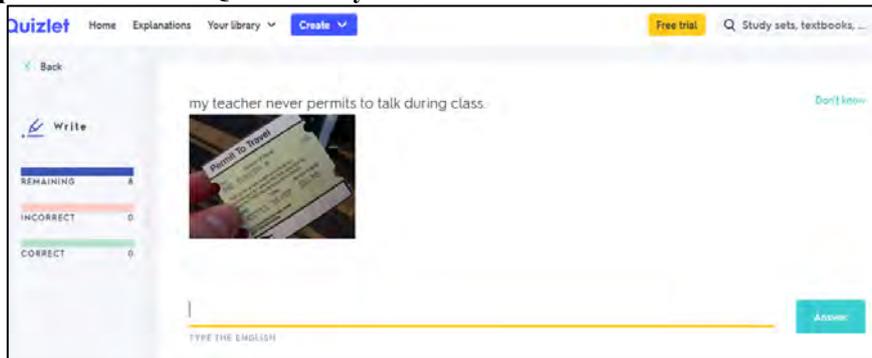
B-An Example Screenshot of Pronunciation Scoring

STUDENT E1	1-3=poor	4-6=satisfactory	7-8=Good	9-10=Excellent

	ancient			height			heritage			masterpiece			structure			statue			length			mosque			historic		
SENTENCES	vowel qual	Consonant q	word stress	vowel quality	Consonant q	word stress	vowel quali	Consonant	word stress	vowel quality	Consonant	word stress	vowel quali	Consonant	word stress	vowel quali	Consonant	word stress	vowel quali	Consonant	word stress	vowel quali	Consonant	word stress	vowel quali	Consonant	word stress
I love ancient sites of Turkey																											
It is almost 2 feet in height.																											
The Taj is a UNESCO World heritage site.																											
His book is a masterpiece.																											
Skyscrapers are beautiful structures.																											
The statue of Liberty is located in New York																											
She has shoulder length hair.																											
They went to the mosque to pray.																											
She tries to give up sweetened soft drinks																											
They sent out the invitations yesterday.																											
I organized a farewell party for her.																											
Jane lit a candle.																											
Half of the students have a computer with internet access																											
You should log in to your account to get e-mail alerts.																											
His prediction turns out to be correct.																											
He made a television documentary on nature.																											
You can check-in online to save time.																											
If you disagree with him, get a second opinion																											