Heutagogical Approach in Online English Pronunciation Learning: Student Awareness Survey

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HIGHLIGHTS

- Problems in English in pronouncing are fricative consonants, voiced and voiceless TH, plosive consonants, and vowel sounds.
- Proper pronunciation can help students to increase their abilities.
- A preliminary study on the students' self-learning and experiences during ODL are important for a heutagogical English pronunciation application development.
- A heutagogical approach such as Speech-to-Text and Text-to Speech can be used for online English pronouncing learning.

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ABSTRACT

English language learners have difficulties in English in pronouncing fricative consonants, voiced and voiceless TH, plosive consonants and vowel sounds. Serious speech mistakes can lead to miscommunication since poor pronunciation abilities make it difficult for other people to hear what you are saying. Additionally, students may miss their lecturers' direct explanations of proper pronunciation when taking online English lessons with inconsistent Internet access. Proper pronunciation can help students participate in conversations, form connections, and improve graduates' employability abilities. Furthermore, pronunciation skills are learnt independently at higher education institutions. Before designing a web-based tool for self-directed learning of English pronunciation, the designers must get feedback from the students about their self-directed learning, self-evaluation of English language proficiency and English learning experiences through Online Distance Learning (ODL). This survey is a preliminary survey towards the development of a heutagical English pronunciation application. An online questionnaire was disseminated to 424 respondents from various higher education institutions in Malaysia. In this survey, firstly we aimed to get feedback from the students about their self-directed learning, self-evaluation of English language proficiency and English learning experiences through Online Distance Learning (ODL). The survey consisted of demographic data of respondents, standardized test of English language proficiency, self-evaluation of English language proficiency and English language learning experiences during COVID-19. The findings suggested that although language learners have developed their self-directed learning skills, they still need to improve these skills in learning the language using ODL. Learners consider themselves as having average English language proficiency. They were responsible for improving their pronunciation skills and needed assistant tools to improve their

pronunciation skills. It is recommended that an application that uses a heutagogical approach such as Speech-to-Text and Text-to Speech need to be developed.
Keywords: *English, Heutagogy, Language learners, Online Distance Learning(ODL), Pronunciation, Self-directed Learning*

INTRODUCTION

Since the word English itself is derived from Anglisc, one of three Germanic tribes that invaded England in the fifth century, the English language was known as the language of the Angles (Nordquist, 2020). There are many diverse varieties of English spoken by people around the world, including American, British, and many others. English has long been a universal language. The English language is widely used today, including in education, where the majority of the curriculum has been taught in English since the students were in primary schools. In other words, students were also required to practice and learn the basics of English languages ever since they were in the first semester of study and most of the subjects that they were participating in were taught in the English language.

A study by (Rao, 2019) has stated that the reason the English language has been widely used is that it has become the principal medium used in numerous disciplines of education and the sole language where information is preserved in the form of books and journals in both written and electronic form. In Malaysia, it is a requirement for students in higher education institutions to be able to read and write English to grasp the information and educational materials that are mostly provided in that language. The English language has played a big role in education where the majority of publications and education research are published and conducted in English.

Online Distance Learning (ODL) has been implemented by higher educational institutions (HEI) amidst the Covid-19 outbreak for teaching and learning including English education. However, a study found that ODL is not fully adapted by the students due lack of self-directed learning skills ((Chiu, Lin, & Lonka, 2021). Focusing on English learning, Malaysian students have difficulties in English pronouncing fricative consonants, voiced and voiceless "th", plosive consonants and vowel sounds (Shak, Lee & Stephen, 2016). They struggle to stay up during listening sessions because they are unable to comprehend English pronunciation when it is spoken at a native speaker's normal speed (Hasan, 2000). Because accurate pronunciation is not entirely taught in the classroom and students should make an effort to practice it at their own pace, the speaking syllabus can be thought of as informal learning. However, the difficulties in learning English is when students become reliant on their teachers, regularly calling them for help or asking them to fix their grammar and pronunciation. According to Winarso (2016), while those who were less prepared for learning tasks struggled or felt frustrated, the students who were more prepared for learning tasks did better.

Because of this problem, lecturers should play a significant part in developing strategy-based online instruction during ODL to improve students' skills to continue their studies virtually in productive ways. According to the approach's accessibility, it can promote improved communication between lecturers and students. It can prevent students from perceived stress in the classroom if they have poor self-efficacy and finally it leads to an increase in the probability of early withdrawal (Burger & Samuel, 2017). However, information regarding learners and self-evaluation of their language skills and pronunciation skills should be conducted prior to designing a website which will enhance self-directed learning of pronunciation skills.

Therefore, this paper will investigate learners' self-directed learning, self-evaluation of English language proficiency, pronunciation skills and English learning experiences through Online Distance Learning

(ODL). The objective of this survey was to investigate their readiness for self-determined learning of English pronunciation before designing a web-based pronunciation tool for language learners of English.

HEUTAGOGY

Heutagogy or self-determined learning is a learner-centered instructional strategy or method. It acknowledges the students' capabilities in attempting to integrate knowledge into the learning process. According to Moore (2020), heutagogy is a perspective for a self-directed approach to learning. The learners pursue the sources of information and will apply what they had learned to their new environment. (Hase, 2009) described the heutagogy approach as insufficiency in the educational system, particularly the need to offer to learn in a nonlinear manner that allows for more application to the real world.

The heutagogy approach can make students be more absorbed with the learning since they spend more time with the learning process. It urged a thinking strategy that optimizes the effort of students to dig knowledge over a material, which allows students to have a better understanding of their surrounding environment than teachers, as it has encouraged the lecturers to explore and think in a larger perspective for their courses.

Heutagogy is an excellent practice that has helped students achieve more academic goals and improve their learning skills since it gives teachers the freedom to help students choose their learning goals for related courses. To match the efficacy of the students in their studies has inspired the lecturers to develop a new experimental method of teaching by using heutagogy. Heutagogy also helps students to discover which learning methods work best for them, which can aid in the development of learning abilities that have boosted their productivity. It can then be connected to a recent study that revealed that students' degrees of self-reliance have successfully increased as a result of their learning experience.

Informal Learning in Heutagogy

Informal learning is learning that occurs outside of a structured, formal classroom setting where it includes the activities like watching movies, doing self-study, reading articles, engaging in forums and chat rooms, getting help with performances, coaching sessions, and playing games. Hence, the activities of informal learning could be multiplied with the existence of technology which enables the students to receive and transmit information and ideas through visual, audial, and textual modes in improving abilities such as critical thinking, intercultural communication, and cooperative learning (Zadorozhnyy & Yu, 2020). Once the integration of technology at all levels of education changed educational practices and, in particular, transformed the entire process of learning foreign languages like English, people started to explore informal learning from the perspective of digitalization

As a result, many academics claim that employing technology in informal settings for language acquisition allows students to customize their learning and select the most effective way to accomplish their tasks. (Ma, 2017). It is because students who are more exposed to informal learning activities in digital settings have higher levels of productive vocabulary (Sundqvist, 2009; Sundqvist & Wikström, 2015), better grades (Sundqvist & Wikström, 2015) and a higher level of oral proficiency.

Thus, the rise of technology allows students to acquire and communicate knowledge and ideas in visual, audial, and textual formats, enhancing skills like critical thinking, intercultural communication, and cooperative learning (Zadorozhnyy & Yu, 2020). As a result, it encourages students to learn in a flexible and context-sensitive manner even more.

SPEECH RECOGNITION TECHNOLOGY

Speech recognition, often known as speech-to-text, is the capacity of a machine or programmed to recognize and transform spoken words into legible text. Rudimentary voice recognition software can only identify a small number of words and phrases if they are spoken very clearly. More advanced software can recognize natural speech, multiple accents, and languages. To help the students to improve their English learning, especially pronunciation skills, many researchers have agreed to include these two tools which are Speech-to-Text (STT) and Text-to-Speech (TTS) in an application.

Web Speech API allows an application to integrate voice data into web applications because the Web Speech API is divided into two sections: *SpeechSynthesis* (Text-to-Speech) and *SpeechRecognition* (Asynchronous Speech Recognition) (MDN, 2022).

The *SpeechSynthesis* interface is a Text-To-Speech component that allows this project to read out their text content (normally via the device's default speech synthesizer), which was used to access speech synthesis. *SpeechSynthesisVoice* objects represent different voice types, and *SpeechSynthesisUtterance* objects represent different parts of the text that the students want to be spoken. In other words, by passing them to the *SpeechSynthesis.speak( )* method, the students can finally speak.

The *SpeechRecognition* interface was used to access speech recognition, which allows the device to recognize voice context from an audio input (normally via the device's default speech recognition service) and respond appropriately. In general, this project used the interface's function *Object( )* { [native code] } to create a new *SpeechRecognition* object, which has several event handlers for detecting speech input via the device's microphone.

Text-to-speech (TTS) is a technical tool that generates voice from the supplied input text (Hayashi et al., 2020). A few studies have reported that students achieve better results when the dictation is uttered by TTS instead of humans (Y et al., 2017; T et al., 2012).

```javascript
function textToAudio() {
    let msg = document.getElementById("text-to-speech").value;

    let speech = new SpeechSynthesisUtterance();
    speech.lang = "en-US";

    speech.text = msg;
    speech.volume = 1;
    speech.rate = 1;
    speech.pitch = 1;

    window.speechSynthesis.speak(speech);
```

Figure 1: JavaScript codes

Figure 2.1 shows the codes in JavaScript in a web application. JavaScript is essential to connect the codes with speech recognition codes. This way it detects the speech of the students.
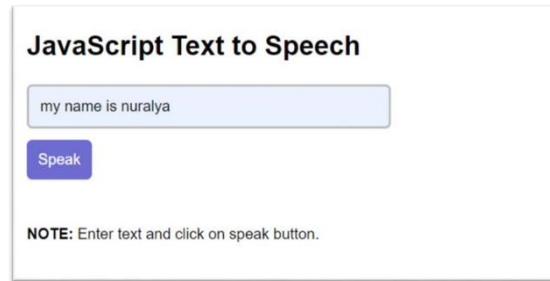
Figure 2: The features of Text-to-Speech

Figure 2.2 depicts the display of the JavaScript Text-to-Speech from the JavaScript results. The interface has a "speak" button where it detects the words from the student's input in the text field and voices them as a speech. This way, students have practiced the right pronunciation since speech recognition detects the English language.

METHODOLOGY

Method of Data Collection

The information was gathered through the use of a survey which was conducted using Google Form. The survey was conducted during COVID19 pandemic in Semester Mac-August 2021. The questionnaire was distributed in form of Google Form and disseminated using social media and email to university students in Malaysia. 424 respondents participated in the study. Data were analyzed using descriptive statistics.
This study was a preliminary survey for the development of heutagogical English pronunciation web-based application. The objective of this survey was to investigate their readiness for self-determined learning of English pronunciation.

FINDINGS AND DISCUSSION

Demographic Data of Respondents

There were 424 respondents participated in the survey. In the survey, demographic data from the respondents have been collected and depicted in Figure 3.

Respondent	Number	Percentage
Students		
Polytechnic	0	0%
College	3	0.7%
University	421	99.3%
Current study level		
Diploma student	117	27.6%
Degree Student	306	72.2%
Master student	0	0%
PhD student	0	0%
Age		
18-21 years old	310	73.1%
22-25 years old	110	25.9%
Above 25 years old	4	0.9%
Educational organization		
Public higher education	415	97.9%
Private higher education	9	2.1%
Previous school category		
National secondary school	307	72.4%
Private secondary school	12	2.8%
A religious school	29	6.8%
A boarding school	62	14.6%
Other	1	0.32%
Student of UiTM		
Yes	243	57.3%
No	181	42.7%

Figure 3: Respondents' Demographic Information

It can be retrieved that 99.3% of the respondents are university students and including undergraduates only. Instead of UiTM students, 42.7% of the respondents are from other higher educational institutions. Most of them were having their school study in national schools.

According to Figure 4, the respondents owned the Malaysian University English Test (MUET) as their English language proficiency exam.
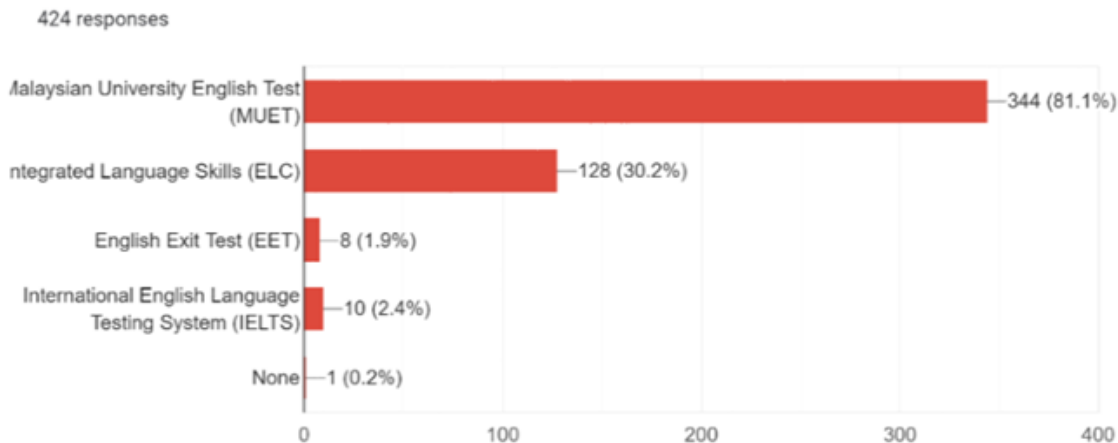
Standardized Test of English Language Proficiency

Figure 4: Standardised Tests for English Language Proficiency

Figure 4 shows standardised tests for English language proficiency which were taken by the respondents. Most of the respondents took Malaysian University English Test (MUET) as it was a requirement for them to pursue their degree programmes at local universities.

Self-evaluation of English Language Proficiency

As depicted in Figure 5, Figure 6, Figure 7 and Figure 8, respondents were asked to rate their language skills based on the rating values of 1(poor) – 5 (excellence). Writing, speaking, listening and reading skills were four language skills.
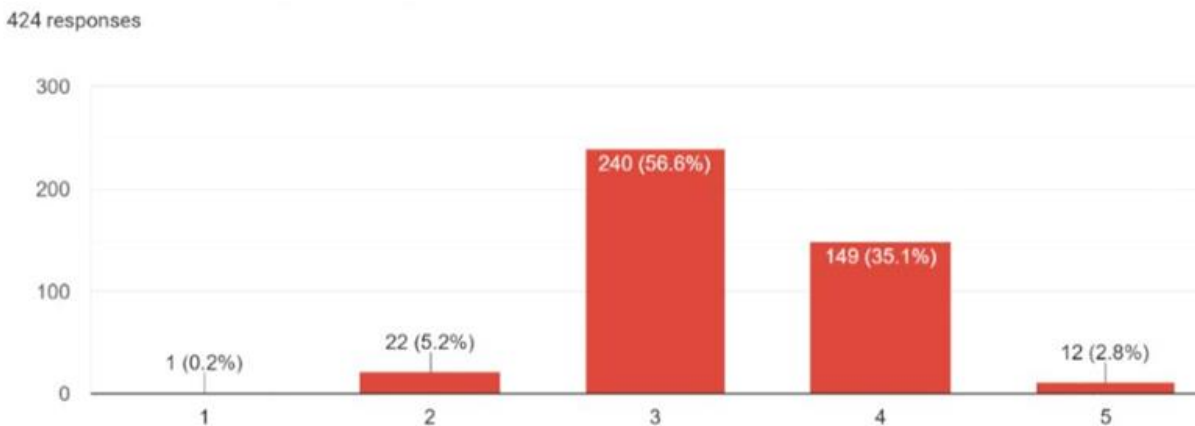
Figure 5: Self Evaluation of Writing Skills

Figure 5 shows that the majority of the respondents perceived that they had average writing skills. Only 2.8% felt that they had excellent writing skills. Writing skills are considered as the most difficult skill if compared to listening, speaking and reading (Fareed et al, 2016). Writing for academic purposes requires L2 learners to gain knowledge, experience and language skills (Hyland & Hyland, 2019). Having good command of English writing skills. Thus, university students often find academic writing as difficult to

master because they are required to present their argument on serious academic matters (Zaki & Yunus, 2015). Low English language proficiency and poor academic writing skills prevent low English language proficiency learners from being good academic writers.
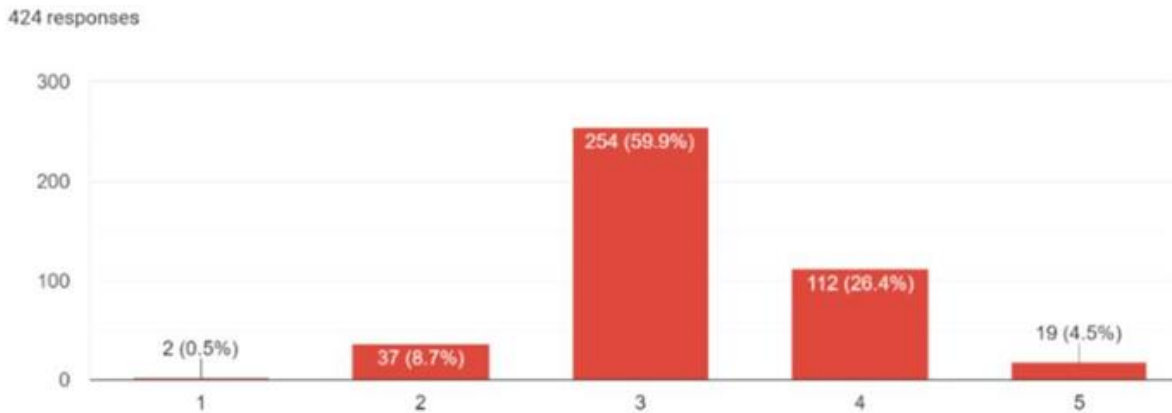

Figure 6: Self Evaluation of Speaking Skills

Similarly, Figure 6 illustrates the majority of the respondents perceived that they have average speaking skills. Only 4.5% felt that they had excellent speaking skills. Speaking skills are deemed to be challenging as learners face external and internal challenges (Kashinathan & Aziz, 2021). In some cases, learners refuse to speak in classes because they do not want to speak in English (Nijat, et al, 2019). Fear of making grammatical mistakes, inadequate vocabulary, lack of confidence and language anxiety are some of the reasons for learners to be passive in speaking activities (Kashinathan & Aziz, 2021).
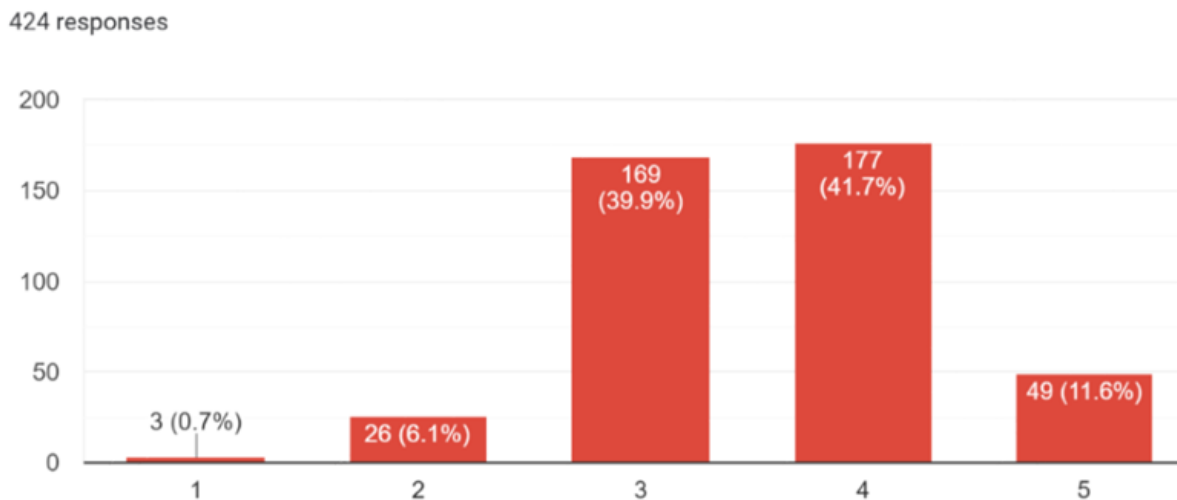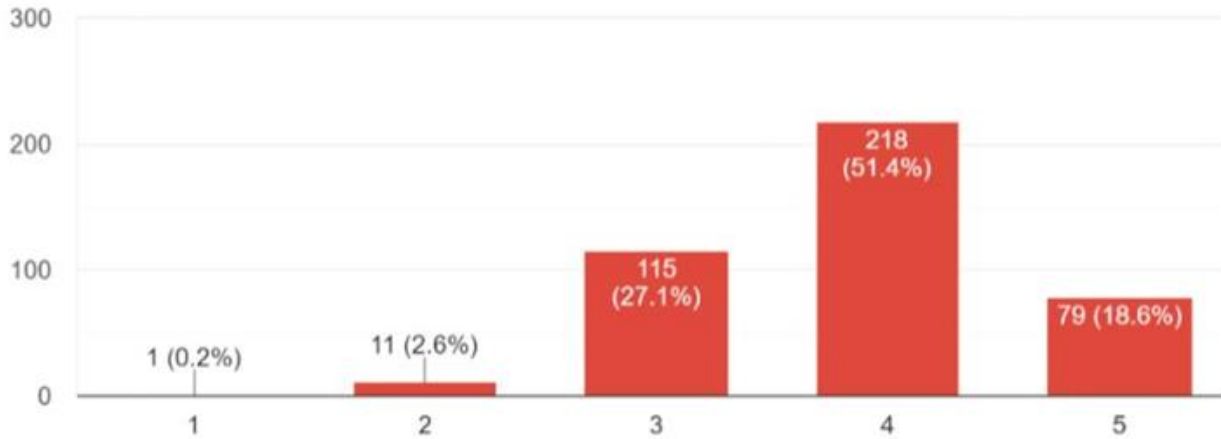

Figure 7: Self Evaluation of Listening Skills

Figure 7 indicates that in term of listening skills, 41.7 % of the respondents perceived that they had good listening skills. Whereas 39.9 % thought that they had average listening skills. These results point out listening skills are not the most difficult to master and it is crucial to assist other language skills. Listening skills are receptive skills which are easier to master as learners thought that writing and speaking are more

difficult to master (Ellialtı, & Batur, 2021). Academic listening requires listeners to mastering listening skills will assist learners to improve other language skills (Emiroğlu & Pınar, 2013).


424 responses

Figure 8: Self Evaluation of Reading Skills

In term of reading skills, Figure 8 points out 51.4 % of the respondents perceived that they had good reading skills. Whereas 18.6 % thought that they had excellent reading skills. Reading skills are receptive skills. This result supports the findings of previous studies that higher education institutions regard reading skills as the most crucial skills for university students (Sattar & Salehi, 2014). Reading skills correlates with academic success (Humphreys et al, 2014).

English Language Learning During COVID-19


424 responses
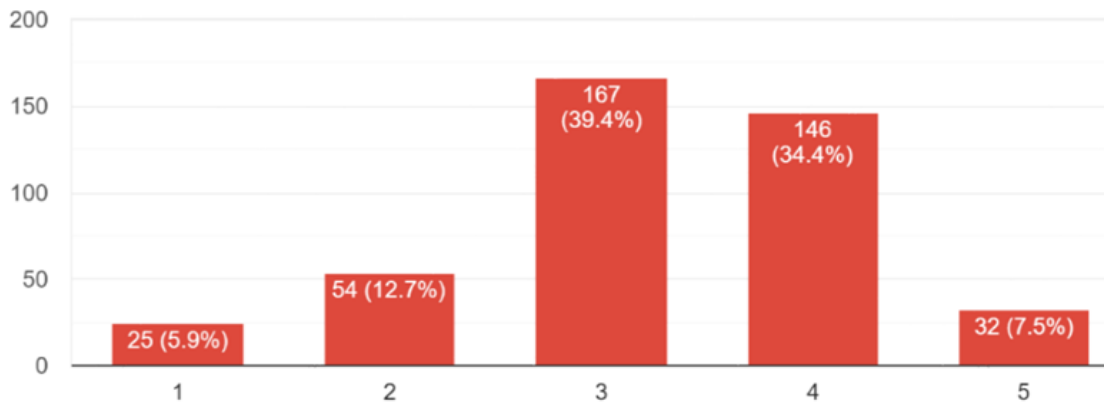
Figure 9: Happiness Index of English ODL during COVID19

Figure 9 stipulates there were 18.6% from the respondents are less happy during their English ODL during COVID19 pandemic. Only 7.5% were very happy with their learning. The internet connectivity influences

students' concentration during online learning (Maqableh & Alia, 2021) which influences learning satisfaction (Wei & Chou, 2021).
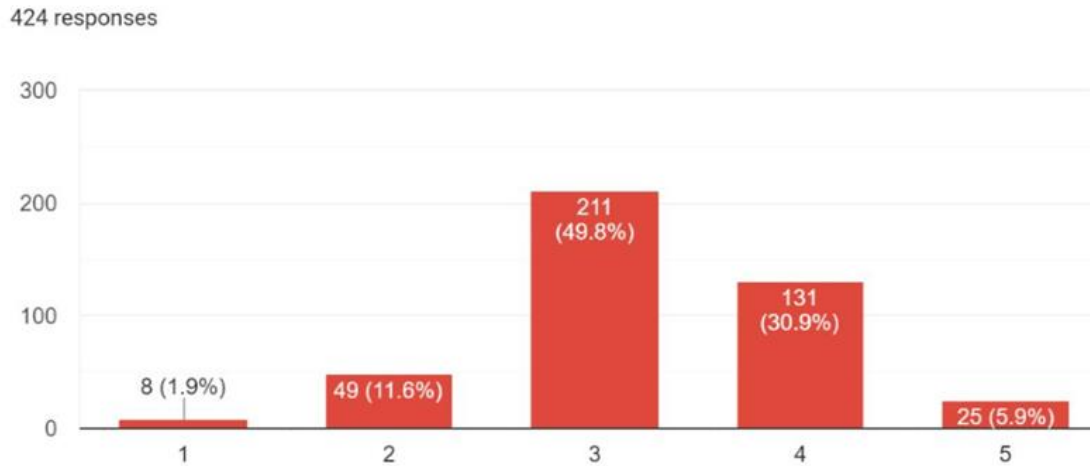
Figure 10: Effectiveness Index of English ODL during COVID19

Figure 10 stipulates the respondents were mostly moderately happy learning English using ODL during COVID19 were effective for them. Lack of personal or physical contact discourages some learners to learn effectively in ODL classes (Dhawan, 2021).
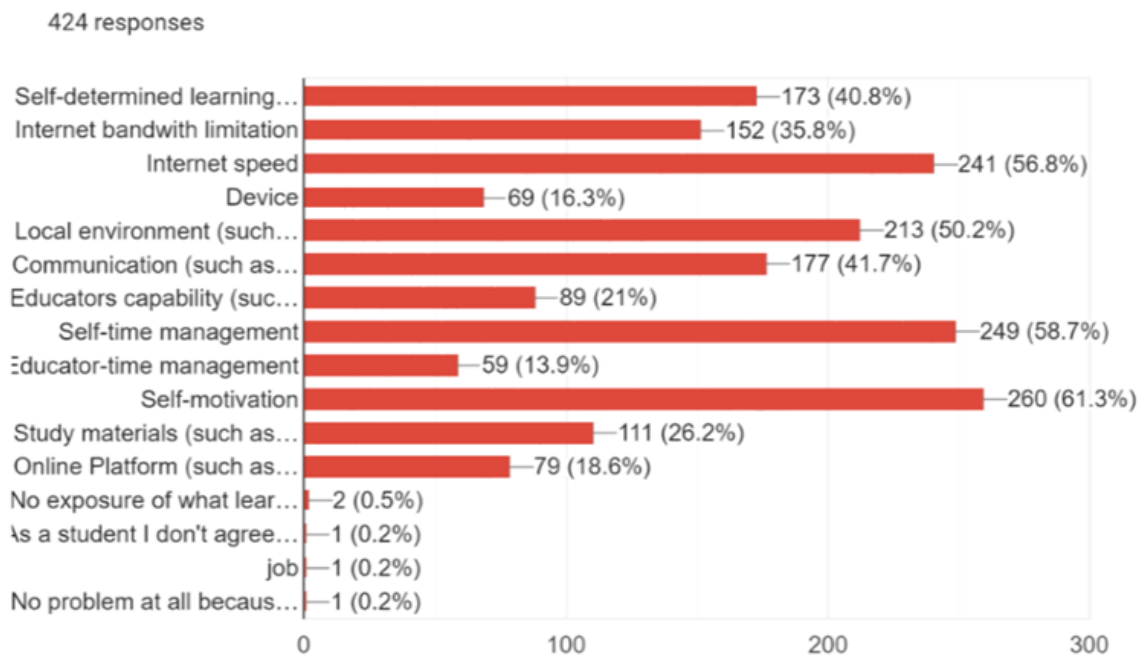
Figure 11: Challenges of learning English via ODL during COVID19

Figure 11 demonstrates that respondents faced external and internal challenges during their learning English via Online Distance Learning (ODL). Apart from the internet speed, respondents struggled with the learning

environment, managing time and motivating themselves. Sheela Faizura et al (2022) indicate that most learners have positive online learning experiences, yet others wanted to learn face to face. They also highlight instructors' teaching strategies enable learners to overcome online learning challenges like coaching learners for ideas, asking questions, playing online games and using creative teaching ideas to make learners involved in online language learning.
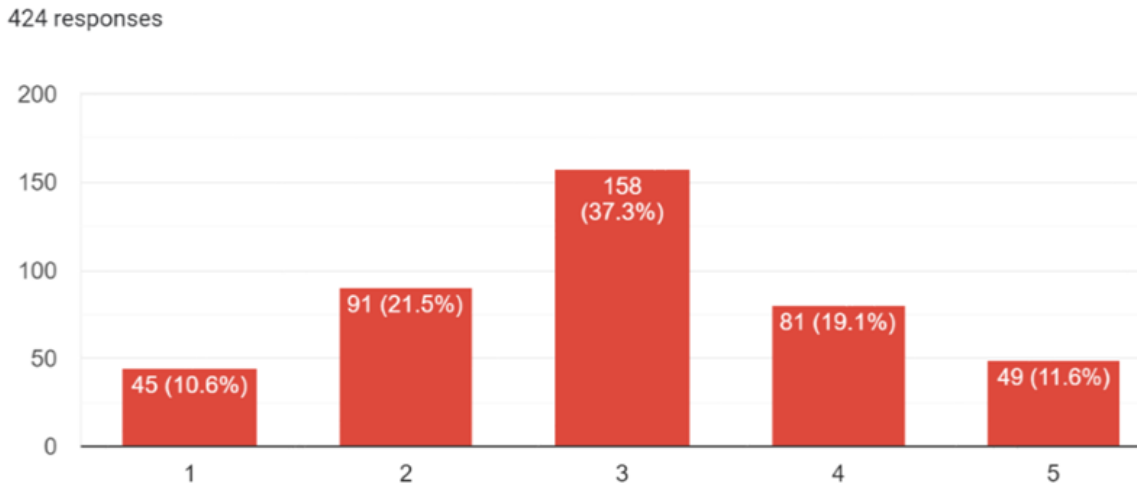

Figure 12: ODL vs Face to Face

According to Figure 12, respondents were asked to compare their English learning experiences using ODL and face-to-face. The respondents learning via ODL is more effective compared to face-to-face. It can be concluded that all of them have different responses to these questions. Online teaching was one of teaching and learning innovations during the pandemic as higher education institutes were closed (Liguori & Winkler, 2020).
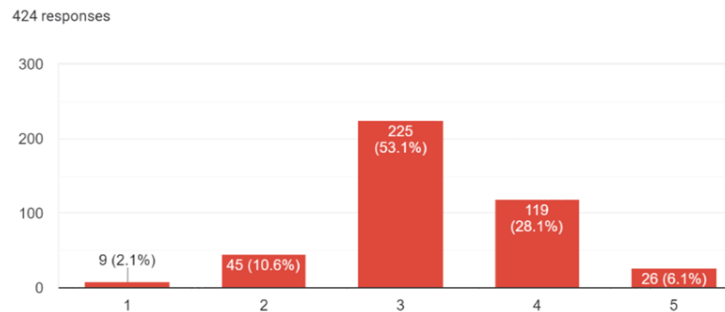

Figure 13: Individual Self-directed Learning Capabilities on ODL English Pronunciation

Figure 13 shows the respondents agreed that they had self-directed learning capabilities to learn English pronunciation during ODL. Most of English pronunciation is learnt with speaking skills and learning and teaching pronunciation is not highlighted in Malaysian classroom (Shak, Lee & Stephen, 2016). However, pronunciation influences learners' listening and speaking skills which hinder comprehension of intended messages (Rajadurai, 2001). Successful language learners have acceptable pronunciation (Pudin et al, 2021). Therefore, learners' mispronunciation at university level should be dealt and corrected in non-threatening learning environments (Pudin et al, 2021).
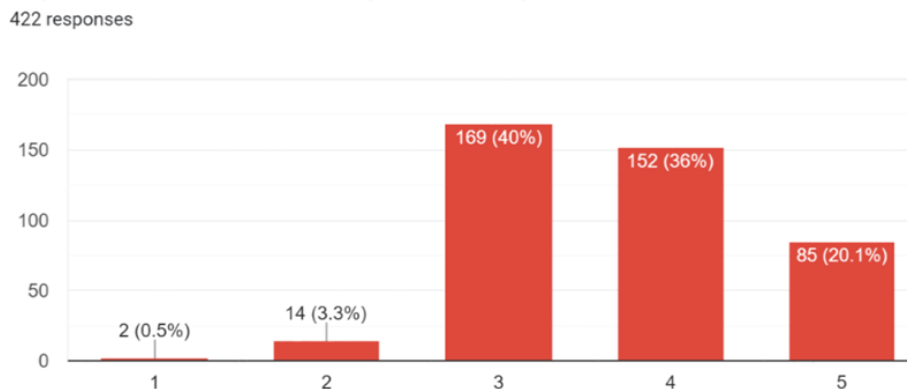
Figure 14: Assistance Tools for ODL English Pronunciation

Figure 14 illustrates the majority of respondents agreed that they need assistant tools for their self-directed learning of English pronunciation during ODL classes. Learners use mobile applications for out-of-class learning as they use the mobile applications for social interactions social for self-directed learning (Kacetl & Klímová, 2019). In addition, some of the learners do not have adequate self-directed learning skills and are not confident in exercising these skills (Lai, Saab & Admiraal, 2022)

CONCLUSION AND RECOMMENDATIONS

This paper has discussed heutagogy was used in learning English through Online and Distance Learning (ODL). The findings from the survey indicate that the students practised self-directed learning in their ODL English classes. Learners agreed that they needed self-motivation and self-determination in learning English language successfully through ODL. The findings suggested that although language learners have developed their self-directed learning skills, they still need to improve these skills in learning the language using ODL. Learners consider themselves as having average English language proficiency. Even though there were external and internal challenges they faced during their classes, they were still happy and accepted ODL as the best learning approach during the pandemic. They were responsible for improving their pronunciation skills and needed assistant tools to improve their pronunciation skills.

This paper has successfully found that students are not facing problems in having self-determined learning during ODL especially in English pronunciation. However, there are not well equipped with tools to support their learning. Therefore, it is recommended that an application that uses a heutagogical approach such as Speec-to-Text and Text-to Speech need to be developed.

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CONFLICT OF INTEREST DISCLOSURE

The authors declared that they have no conflicts of interest to disclose.

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