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Articulatory and Acoustic Characteristics of Long Vowels in the Call to Prayer (Adhan) and Their Semantic Dimensions

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Abstract

Objectives: This research examines the articulatory and acoustic characteristics, and semantic implications of the Arabic vowels as they occur in the Islamic call to prayer (Adhan). It focuses on the repetition and prominence of the front and back long open vowels (æ and α), which occur more frequently than other sounds in the Adhan.

Methods: The study employed Praat, a free computer software for speech and phonetic analysis, to analyze the unified and official Adhan in Jordan, recited by the late Sheikh Ma'rouf Al-Shareef of Al-Aqsa Mosque. An applied analytical approach was adopted to measure acoustic features.

Results: The findings reveal that the (æ and α) sounds dominate the Adhan, both in their emphatic and non-emphatic forms, enabling the reciter to extend these vowels and thereby deliver a more resonant and spiritually impactful performance. The repetition of phrases with emphasized intonation also led to noticeable variations in intensity and pitch.

Conclusions: The study concludes that the sequence of phrases in the Adhan influences the reciter's choice of intonation, enhancing the semantic and emotional expression of the call.

Keywords: Acoustic characteristics, articulatory characteristics, duration, intensity, long vowels, Praat.

الخصائص النطقية والفيزيائية للصوائت الطويلة في خطاب "الأذان" في الإسلام و أبعادها الدلالية: دراسة تحليلية تطبيقية على الأذان الموحّد في الأردن

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ملخّص

الأهداف: يدرس هذا البحث الخصائص النطقية والفيزيائية للصوائت في العربية وأبعادها الدلالية في خطاب الأذان في الإسلام، إذ يبحث في أكثر الصوائت انتشارا في الكلمات وركز عنايته على الصوائت الطويلة منها long vowels لاسيما صائت الفتحة الذي تميز بحضور مكثّف دون سواه من الصوائت الأخرى.

وقد توقف البحث على تحليل كل من زمن إنتاج الصوائت Duration وشدتها Intensity باستخدام برمجية التحليل الموجي Praat.

المنهجية: وطبّق التحليل الصوتي الفيزيائي (برات) على الأذان الرسمي الموحَّد في المملكة الأردنية الهاشمية بأداء مقرئ المسجد الأقصى المبارك الشيخ معروف رشاد الشريف رحمه الله، وقد اعتَمَد المنهج التحليلي التطبيقي في القياسات الفيزيائية.

النتائج: وقد خلص البحث إلى جملة من النتائج أهمها تميز صائت الفتحة، بنوعَيْهِ المرقق والمفخم، بحضور صوتي واسع على امتداد الخطاب، مما ساعد المؤذن على مدّ الصوت وتلوينه والتغني به فاكتسب الخطاب قوة إسماع عالية ساهمت في انتشار الصوت وبلوغ رسالة الأذان،

الخلاصة: توصّل البحث إلى توظيف المؤذن خاصية الدرجة الصوتية في تكرارات جمل الأذان فتباينت وفقا لذلك شدة الأصوات والكلمات، وكان لموقعية جملة الأذان من الخطاب دور في اختيار الدرجة الصوتية مما ساهم في تحقيق دلالات متنوعة.

الكلمات الدّالة: الخصائص النطقية، الخصائص الفيزيائية، الزمن، الشدة الصوتية، الصوائت الطويلة، برمجية برات.

1. Introduction

The call to prayer (*Adhan*) serves as an intellectual, cultural, and political symbol for the Islamic nation, embodying the divine message that reminds Muslims of God's oneness and greatness in all matters. Linguistically, *Adhan* refers to announcing something, as mentioned in the Quran: "And an announcement from Allah and His Messenger to the people on the day of the greater pilgrimage" (The Holy Quran: Surah At-Tawbah, 3). It also signifies the call to prayer and the announcement of its time (Ibn Manzur, 1995, pp. 9-12). Technically, *Adhan* is defined as "the announcement of the time for prayer with specific words and phrases" (Al-Hazimi, 2005, 25). It is one of the greatest symbols and the most famous landmarks of Islam, starting in the first year of Hijrah (Daraweesh, 2011). It remains a ritual and worship maintained by the Islamic nation today, acting as a motive towards pure servitude to God (Al-Tirmidhi, 2014, p.516).

So, how had *Adhan* started? The Companion Abdullah Ibn Zaid saw a dream that someone was teaching him *Adhan* that came with fifteen specific phrases: six for Takbeer[1], four for *Shahada*[2], two for calling to prayer, two for being among the righteousness, and the last phrase for Tawheed[3] (see Figure 1). When Abdullah Ibn Zaid related his vision to the Messenger of Allah, peace be upon him, he said, "Teach Bilal what you have seen, so that he may call to prayer for Bilal has a louder and more melodious voice than you" (Al-Tirmidhi, 2014, p. 244). The Prophet's statement highlights an important acoustic feature required for a caller to pray (in Arabic: muezzin): having an articulate, beautiful, elevated, and strong voice. Such characteristics combine clarity and beauty, hence enabling the muezzin to effectively convey *Adhan*'s message to as many people as possible. The clarity and melody of the muezzin's voice are aided by *Adhan*'s sounds, which are characterized by high sonority in both vowels and consonants, such as the widespread occurrence of the vowels /æ & ɑ/ " short and long," " light and emphatic" and the resonant consonants like /l/, /m/, /n/, and /r/, which are characterized by their auditory clarity, musicality, and ability to be melodically intoned. All these sonorant sounds make *Adhan* more appealing to listeners and more influential in prompting a response.



[1] *Takbir* is the proclamation of Allah's greatness: "Allah is the greatest".

[2] *Shahada* refers to the testimony of faith: "I bear witness that there is no deity but Allah. I bear witness that Muhammad is the Messenger of Allah".

[3] *Tawhid* refers to affirmation of monotheism: "There is no deity but Allah."

"Allah is the Greatest, Allah is the Greatest...
I bear witness that there is no deity but Allah. I bear witness that there is no deity but Allah.
I bear witness that Muhammad is the Messenger of Allah.
I bear witness that Muhammad is the Messenger of Allah.
Come to prayer, come to prayer.
Come to success, come to success.
Allah is the Greatest, Allah is the Greatest.
There is no deity but Allah."

Figure 1: *Adhan* in Arabic along with its translation

This research aims to examine the articulatory and acoustic characteristics of vowels in *Adhan*[4] and the semantic dimensions they manifest in word and sentence structures[5]. The research focuses on vowels due to their clear and intense melodic lengthening in *Adhan*, especially the vowels /æ & ɑ/, which is distributed in an organized rhythmic pattern, leading to profound semantic dimensions.

2. The Islamic Call to Prayer *Adhan*:

2.1 Research Problem:

The research problem lies in attempting to trace the articulatory and acoustic characteristics of vowels in *Adhan* and to understand the semantic dimensions embodied by the presence of specific vowels at the word, phrase, and sentence levels. To the best of the researchers' knowledge, this topic has not been previously studied, making it one of its kind to link acoustic results of vowel duration and intensity to the semantic purposes of the phrases and clauses of *Adhan*. Despite the importance of *Adhan* as a central religious discourse in Islam, no linguistic studies have been conducted on it except for a study published in Al-Quds Open University Journal by Hussein Daraweesh, titled "The Rhetoric of *Adhan*: An Analytical Study" which focused on various rhetorical methods such as repetition, symmetry, epilogue, and conjunction and linked them to the semantic aspect of *Adhan*'s concepts. Despite its importance, Daraweesh's study did not delve into the details of the acoustic aspects and their impact on the major semantic objectives of *Adhan* discourse, which will be the focus of this research.

2.2. Research Questions:

The research seeks to answer the following questions:

1) What are the most prevalent vowels in *Adhan*, and why do they have this extensive presence compared to others?
2) What are the articulatory and acoustic characteristics of the most widespread long vowels in *Adhan*, and what is their semantic impact?
3) What are the measured acoustic properties of the duration and intensity of long vowels in *Adhan*, and how can they be analyzed semantically?

2.3 Research Objectives:

The research aims to achieve the following goals:

1) Draw the attention of scholars and interested individuals to the unique vowel quality in *Adhan*.

[4] In this study, we use the word '*Adhan'* to refer to the unified '*Adhan'* in Jordan, performed by Al-Aqsa Mosque reciter, the late Sheikh Ma'rouf Rashad Shareef.

[5] Another study will be dedicated to analyzing the acoustic characteristics of consonants and their impact on rhythmic and semantic dimensions.

2) Highlight the articulatory and acoustic characteristics of long vowels and determine their semantic impact.

3) Analyze the duration and intensity of long vowels, which are the subject of melodic lengthening in *Adhan* in Jordan, using the *Praat* software, and link this to the semantic dimension.

2.4 Research Significance:

The importance of the research lies in its attempt to trace the acoustic characteristics of long vowels in *Adhan's* phrases and clauses and their semantic reflections. Furthermore, the research seeks to highlight the meanings of *Adhan* from multiple perspectives, helping the listener to engage with *Adhan* attentively. This is because Allah has ordained *Adhan* to resonate across the universe five times a day, especially with the rhythmic response, to bring about a change in the lives of Muslims, and incite them to listen with an open heart and discerning mind. This indicates an urgent need for many studies to explore the philosophy and dimensions of *Adhan* in linguistics, jurisprudence, psychology, sociology, politics, and other sciences. Such studies would help increase the Islamic nation's awareness of its meanings and effects, as *Adhan* undoubtedly serves a purpose beyond merely announcing the time for prayer (Tawfiq, 1995).

3. Research Methodology

3.1 Acoustic Analysis

The research employs an analytical applied methodology, tracing the most prevalent long vowels in *Adhan*, analyzing their acoustic features, and clarifying their semantic impact. It attempts to link all this to the major objectives of *Adhan* discourse, focusing on the vowels that received vocal and melodic lengthening, mainly the vowels /æ and ɑ/ in their light and emphatic forms. The acoustic part, including the duration and intensity, was analyzed using *Praat*, based on the recorded *Adhan* in Jordan as performed by Sheikh Ma'rouf Al-Sharif. The unified *Adhan* was chosen because the study did not aim to compare the vocal performances of *Adhan* according to musical modes or countries; rather, it is a preliminary study analyzing *Adhan* as a model of officially adopted vocal performance in Jordan. This may be followed by another study comparing the various vocal performances of *Adhan* according to musical modes, countries, and mosques, especially those officially adopted in the three major mosques: The Grand Mosque in Mecca, the Prophet's Mosque in Medina, and Al-Aqsa Mosque in Jerusalem.

3.2 Research Tools:

The *Praat* Software (Boersma & Weenink, 2020) was utilized for the acoustic analysis of the audio material. This is one of the most popular free software tools used in applied acoustic studies, capable of examining various sound properties such as frequency, intensity, duration, waveform, and more.

3.3 Research Sample:

Adhan in Jordan, as performed by the late Sheikh Ma'rouf Rashad Al-Sharif of Al-Aqsa Mosque, was used as the sample. The audio file was downloaded from the internet via the following link, converted to MP3 format, and transferred to *Praat* for acoustic analysis. https://www.youtube.com/watch?v=rRoHYxZbO6M

3.4 Phonetic Characteristics of Vowels

Vowels are defined as "sounds during whose articulation the air passes freely through the throat and mouth without any obstruction or narrowing that would cause friction or turbulence" (Crystal, 2008, p. 23). Their description relies on two main criteria: "the vertical and horizontal movements of the tongue" and "the shape of the lips" (Ladefoged & Johnson, 2015). The vertical movement determines the proximity of the tongue's dorsum to the roof of the mouth, classifying the vowel as either *close* or *open*. The horizontal movement indicates the forward or backward position of the tongue, classifying the vowel as either *front* or *back*. The lip shape determines whether the vowel is *spread* or *rounded*.

Arabic consists of three vowels: *Fatha* (which has light /æ/ and emphatic /ɑ/ allophone), *Damma* /ʊ/, and *Kasra* /ɪ/.

These can be described based on the above criteria as follows (Esteiteh, 2003):

Fatha

- Light *Fatha* /æ/: A front open unrounded vowel (Esteiteh, 2003). The middle part of the tongue slightly raises and retracts a bit, staying generally at the bottom of the oral cavity, leading to an expanded oral resonance chamber, with lips in a spread position. It is somehow close to the schwa sound in English, but it appears in stressed and unstressed syllables.

- Emphatic *Fatha* /ɑ/: A back open unrounded vowel (Esteiteh, 2003). The middle part of the tongue raises higher than that of the light *Fatha* and retracts further back (Ladefoged, & Johnson, 2015). This retraction causes a greater expansion in the oral resonance chamber and a narrowing in the pharyngeal resonance chamber, with lips more spread than that of the light *Fatha* (Kent, 1992) as the lower jaw drops more, resulting in greater lip opening (Hussein and Esteiteh, 1998).

Damma /u/

Damma is a back close short rounded vowel. The back part of the tongue rises to its highest point and retracts, narrowing the distance between it and the roof of the mouth without causing friction, with the front part curved inward and the lips rounded (Ladefoged & Johnson, 2015).

Kasra /i/

This is a front close short unrounded vowel (Esteiteh, 2003). The front part of the tongue rises to its highest point and moves forward, narrowing the distance between it and the hard palate without causing friction, with the front part curved inward and the lips in a spread position (Crystal, 2008; Ladefoged & Johnson 2015).

Through these horizontal and vertical tongue movements, the resonance chambers of various sizes are formed according to the pronounced vowel. Figure (2) shows the shapes and relative sizes of the resonance chambers for Arabic vowels (Esteiteh, 2003). Understanding that a vowel's auditory clarity or sonority is closely related to the size of its resonance chamber (Esteiteh, 2003), the larger the chamber, the greater the sonority. Hence, *Fatha* vowel has the highest sonority among the vowels, followed by *Damma* and then *Kasra* as shown in Figure (2) below.

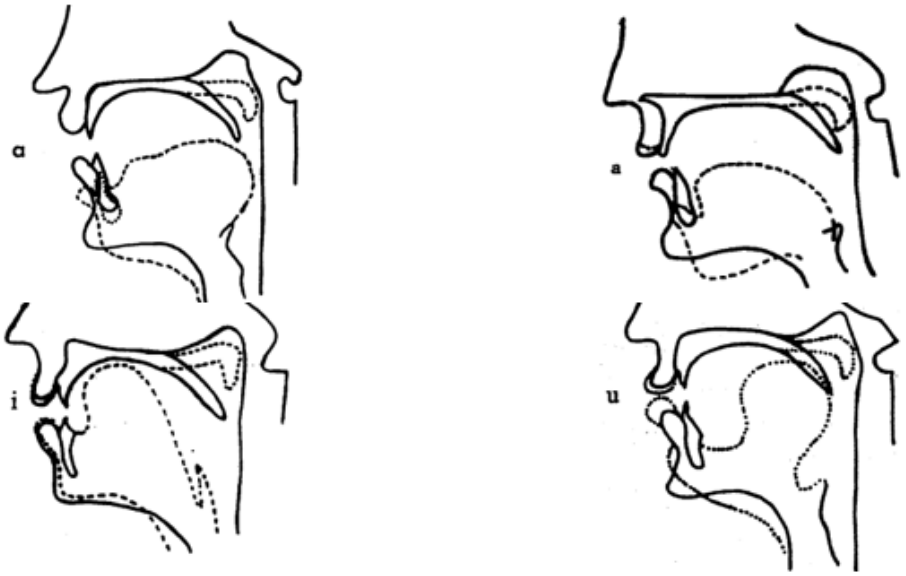


Figure 2: The Resonance Chambers of the four Arabic vowels

These figures help visualize the different articulatory and acoustic characteristics of Arabic vowels, emphasizing the variations in tongue position and the resulting resonance chambers, which affect the auditory clarity and sonority of each vowel.

4. Results and Discussion

4.1 Analysis of Vowels in *Adhan*:

It is observed that the most prevalent vowels in the words of *Adhan* are the two types of *Fatha*: light /æ/ and emphatic /ɑ/, followed by *Damma* /ʊ/, and then *Kasra* /ɪ/. The *Damma* appears only in six positions, four of which are inflectional suffixes: *Allah-u*, *Akbar-u* 'greatest', *Aʃhad-u* 'I bear witness' and *rasu:l-u* 'messenger'. The remaining two appear in the initial syllable of *Muhammad* and the second in *Rasul* 'messenger'. As for *Kasra*, it appears only in two words: *Ilah* 'god/ deity' and *Illa* 'except'. All other words in *Adhan* are mainly characterized by the *Fatha* in its long and short, light, and emphatic forms. Notably, the *Fatha* appears prominently in stable positions within the text, implying a rhythmic and structural steadiness across the recitation of *Adhan*, which contributes to its melodic and aesthetic appeal when delivered by the Muezzin.

4.1.1 Acoustic Properties of *Fatha*:

The tongue muscle, when articulating the light *Fatha* /æ/, remains settled at the bottom of the oral cavity with a slight backward retraction and minimal upward elevation, alongside lips spreading. This positioning is close to a state of muscular relaxation. With the tongue positioned low, there is a significant distance between the back of the tongue and the roof of the mouth, classifying it as an open vowel. This distance increases further with the emphatic *Fatha* /ɑ:/, causing the tongue to retract further back and rise higher than the light *Fatha*, narrowing the pharyngeal space and expanding the oral resonance chamber. This results in greater lip retraction compared to the light *Fatha* (Kent, 1992). Consequently, *Fatha's* broad resonance chamber makes it highly sonorant and more audibly clear compared to other vowels.

Thus, this vowel, with the described phonetic articulation, is in contrast to both vowels *Damma* /ʊ/ and *Kasra* /ɪ/, which are characterized as closed vowels due to the narrow space between the back of the tongue and the roof of the mouth during their production (see Figures 2 above). This phonetic feature of *Fatha*, characterized by the widening of the resonance chamber, has made it— as mentioned earlier—the most resonant and the most audible of all the vowels. Indeed, it is more resonant and audible than all other linguistic sounds. Scholars identified the open vowels [e.g. æ, ɑ] as the most audible, followed by the semi-closed vowels [e.g. e, o], and then the closed vowels [e.g. i, u] (Ladefoged & Johnson (2011). This finding is reinforced by Ladefoged's chart on the relative sonority of sounds, where the emphatic *Fatha* is positioned at the top, indicating its superior audibility (Ladefoged & Johnson (2011).

4.1.2 Sonority and Audibility of Vowels:

Sonority, or "audible clarity", refers to the amount of acoustic energy an acoustic signal carries (Ladefoged & Johnson (2011). A sonorant sound is characterized by having high acoustic energy conveyed through specific frequency bands known as "formant structures". These formants have unique values that distinguish each sound (Ladefoged & Johnson (2011). The relative audibility of vowels and sounds is determined by three primary factors: the size of the oral resonance chamber, the openness of the acoustic space, and voicing. When these factors increase, the sound's audibility and sonority increase as well. Ladefoged placed /ɑ:/ at the top of the sonorant scale, even ranking it ahead of /æ/. Fletcher & Butcher (2014) measured the audibility of short vowels (inter alia) (see Table (1) and Figure (3).

Table (1): Fletcher's order of vowel's audibility

Vowel	Audibility in microwatt
a	25
u	23
i	20

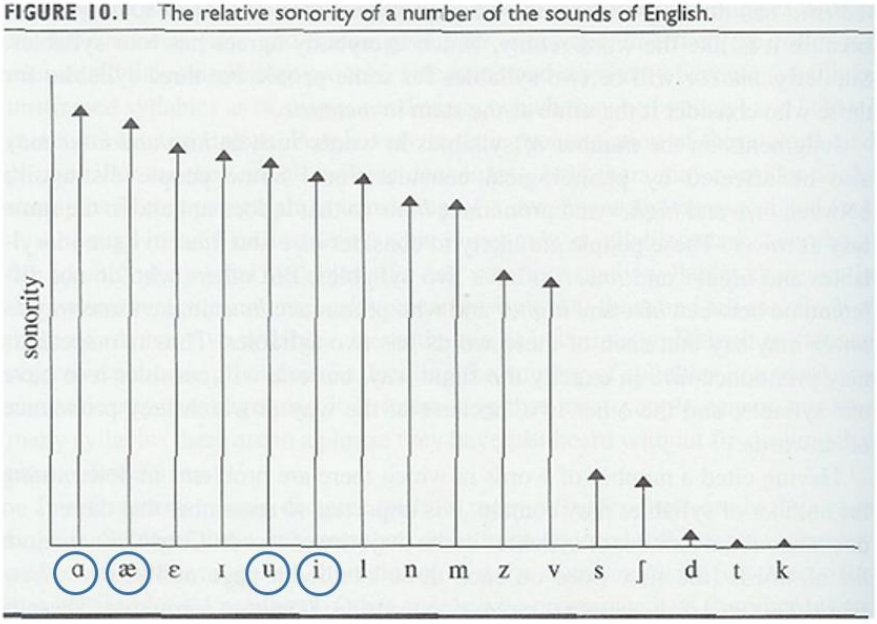


Figure (3): Sonority of some vowels and consonants as classified by Ladefoged and Johnson (2015)

Therefore, this ranking of relative sonority, which is characteristic of vowels in general, and the specific articulatory and acoustic properties of the two *Fatha* vowels in particular, have given this vowel a distinct sonority in *Adhan*. *Fatha* is considered the most audible and sonorant vowel in both its emphatic and non-emphatic forms. Therefore, it contributes to elevating the overall clarity of the message being delivered. Its spread varies between "long and short" and "emphatic and non-emphatic," making it stand out with a vocal print that allows the muezzin to melodize and lengthen it, thereby helping *Adhan* reach a wider audience across vast areas.

Moreover, Ghazali, Hamdi, & Barkat, (2002) state that "the three sounds with the greatest capacity for melody in Arabic are the long *Fatha*, nasal 'n', and the glottal fricative 'h' when followed by a pause... which Arabic poetry has employed in their chanting and songs" (p. 1). *Fatha* vowel, thus, is a focal point for the muezzin's melodic expression in terms of tone, rhythm, and vocal pitch.

Vowels in general are some of the most "musical" or melody-prone sounds, as they can be prolonged in a way that is pleasing to the ear (Johnson, 2011). However, *Fatha* vowel stands out among all of them with a higher musicality due to its openness, the broadness of the vocal tract, and its strong audibility. For this reason, our study will primarily focus on long *Fatha* vowels, which predominate in *Adhan*.

4.2. Acoustic Properties of Long *Fatha* in *Adhan*:

Long *Fatha* vowel appears 28 times in seven words within *Adhan* text, with 11 instances being emphatic in the word *Allah* and 17 being non-emphatic in the words: *La* 'negation particle', *Ilah* 'god/ deity', *Illa* 'except', *ʕala* 'to/ on' *Salat* 'prayer', and *Falah* 'success' (see Table 2). In all these instances, it is noticeable that they occur within a single long open syllable composed of the approximant lateral 'l' and long *Fatha*. What distinguishes this syllable is the 'l' sound which is classified as one of the resonant sounds with high sonority. As an approximant, it ranks immediately after the vowels in terms of sonority (Ladefoged & Johnson (2011) (see Figure 3 above). Al-Mahdi & Hani (2021) report that in his discussion of "human melodies," Al-Farabi (n.d) described *Fatha* as an extendable consonant, i.e it can be prolonged according to the melody without distorting it. The combination of 'l' with the long *Fatha* in an open syllable repeated 28 times in *Adhan* text, is not arbitrary. Instead, it reflects a rhythmic, structural design that enhances the sonority value in terms of strength, beauty, and impact.

Table (2): Emphatic and non-emphatic *Fatha* in *Adhan* words

Word	Syllable	Frequency	Type
Allah	L**ɑ**:	11	Emphatic
La	La:	3	Non-emphatic
Ilah	La:	3	Non-emphatic
Illa	La:	3	Non-emphatic
ʕala	La:	4	Non-emphatic
aṣ-ṣala:	La:	2	Non-emphatic[6]
Al-fala:ħ	L.a:	2	Non-emphatic
Total		28	

This study will focus on the above-mentioned words in two sections: the first is dedicated to examining the acoustic characteristics of the emphatic long *Fatha*, and the second to studying the acoustic characteristics of the non-emphatic long *Fatha*. Each section will explore aspects such as the duration and intensity of pronunciation in various words and sentences, highlighting their relationship to the textual meanings conveyed in *Adhan*. However, before moving on to the analytical section, it is important to note some general observations regarding *Adhan*. The most significant remark is that the total duration of the unified *Adhan* is approximately 193.64 seconds (see Figure 4). This duration includes all the phrases of *Adhan*, with their sound waves distributed as shown in Figure 4., and the pauses between these phrases, reflected as gaps between the waves. Generally, there is a noticeable variation in the duration and intensity of the sound waves among *Adhan* phrases, indicating that the melody and vocal extension varied between phrases. This variation was primarily dependent on the intensity of *Fatha* in the phrase and the underlying meaning. The following sections will provide further clarification and analysis of these acoustic characteristics

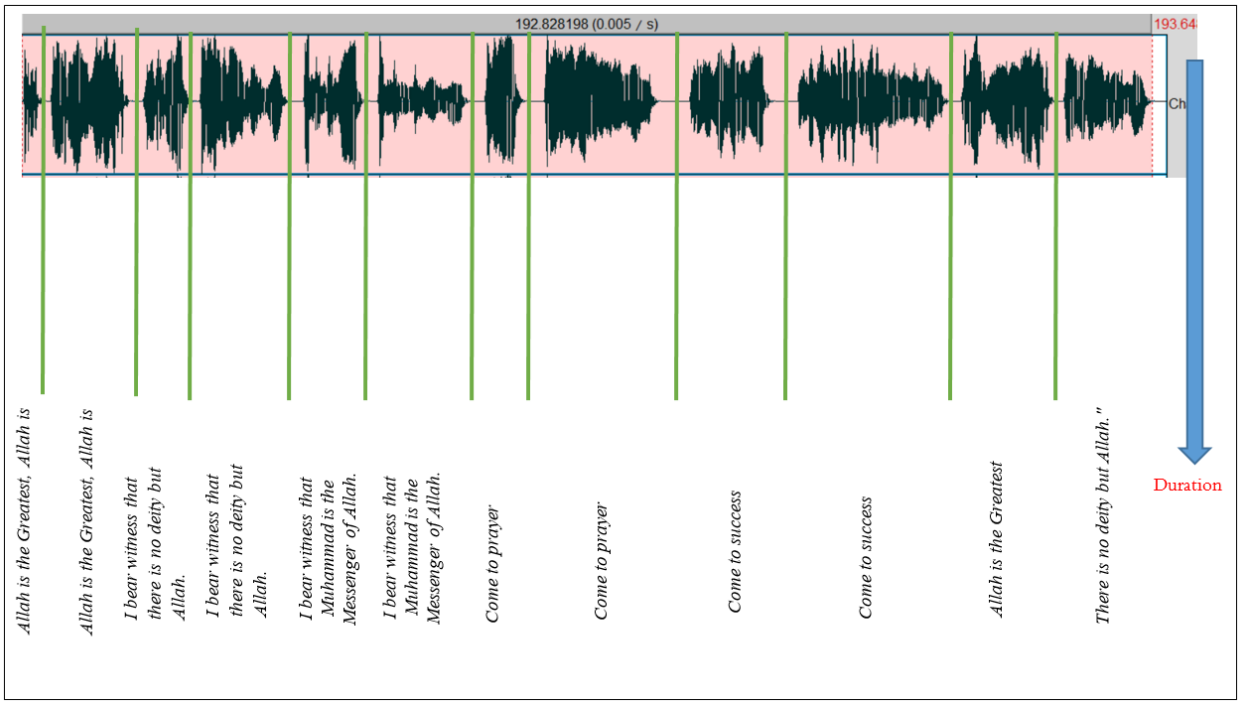


Figure (4): A soundwave of *Adhan*'s phrases along with the overall duration

[6] The Fatha sound in *aṣ-ṣala:* is not emphatic in order to match the softened fatha in "al-falāḥ

4.3 The Acoustic Characteristics of the Long Emphatic *Fatha*

The long emphatic *Fatha* appears throughout *Adhan* in only one word: the name of *Allah*. The duration of its production varies between phrases, ranging from a natural length to an extended length and sometimes to great lengthening. This variation reflects the differences in the pronunciation duration of the phrases in general. The longer the vowel is, the more apparent the melodic expression. The exclusivity of emphasizing the long *Fatha* in the name *Allah* among *Adhan*'s words adds a semantic, vocal, and rhythmic significance, making it the most audible word in the entire *Adhan*. This is due to its composition of the long emphatic *Fatha*, followed by the emphatic geminated 'l', which, as mentioned earlier, ranks highly among sonorant sounds in terms of clarity and perhaps surpasses certain vowels in audibility (Watson, 2002). The emphatic 'l' is more audible and resonant than its non-emphatic counterpart because of the additional muscular effort exerted during its pronunciation. In the word *Allah*, the 'l' gemination further amplifies the resonance of the word. Therefore, the combination of the emphatic 'ɑ:' and the emphatic 'l' in *Allah* achieves a highly sonorant utterance.

What further deepens the impact of the word *Allah* in *Adhan* is its repetition 9 times throughout the text in three phrases: *Takbir* (proclamation of Allah's greatness), *Shahada* (testimony of faith), and *Tawhid* (Affirmation of monotheism). This repetition emphasizes the profound purposes of *Adhan*. Additionally, the repetition of the word *Allah* is distributed in *Adhan* with a profound geometric pattern: it opens four instances within the nominal phrase *Allahu Akbar* 'Allah is the greatest'. It is followed by four instances in the *Shahada* sentences, two again in *Takbir* and one in the *Tawhid* phrase. The first word with which *Adhan* begins is "Allah." The last word with which it ends is also "Allah," as if this geometric structure announces the declaration of the entire message's reverence, anchored between the two central tenets of Islamic belief: *Takbir* (proclaiming Allah's greatness) and *Tawhid* (affirming monotheism). When we say *Allahu Akbar*, we mean that He alone is the greatest, and everything else is smaller in comparison (Hassan, 2004). By saying *La ilaha illa Allah* 'There is no deity, but Allah' we affirm that He alone is worthy of worship. The worshipper thus submits to Allah the Greatest, in whose hands lies everything and turns to the One, the Unique, to whom all matters return. In this way, worship, reliance on Allah, and the realization of *Tawhid* as a belief, knowledge, behavior, and culture are achieved.

Since the word *Allah* appears in three phrases: *Takbir*, *Shahada*, and *Tawhid*, this study will examine the physical characteristics of the emphatic *Fatha* in each phrase separately. Additionally, some characteristics of the non-emphatic *Fatha* will be analyzed for the purposes of auditory comparison and contrast. This will be followed by an examination of the long non-emphatic *Fatha* in the remaining words of *Adhan*[7].

4.3.1 The Acoustic Characteristics of the Long Emphatic *Fatha* in the word *Allah* in *Takbir*

The *Takbir* phrase *Allahu Akbar* is repeated six times in *Adhan*, which consists of fifteen phrases altogether. This means it occupies more than a third of *Adhan*. The duration of its pronunciation varies noticeably, which in turn affects its intensity and pitch:

[7] The study did not clarify to what extent the length and intensity (of the vocalization) are considered acceptable. This could have been addressed if the research had not been confined to only one style of the *adhān* (the recorded *Adhan* in Jordan as performed by Sheikh Ma'rouf Al-Sharif), and if it had brought in other examples or patterns. For instance, the acceptable lengthening of vowels (madd) in Qur'anic recitation is equivalent to six short vowels. This differs from the *adhān*, where the lengthening can exceed that. Nonetheless, the muezzin should prolong the madd without resorting to singing techniques, and without making the elongation undesirable.

Allah is the Greatest [1]
Allah is the Greatest [2]
Allah is the Greatest [3]
Allah is the Greatest [4]
I bear witness that there is no deity but Allah. I bear witness that there is no deity but Allah.
I bear witness that Muhammad is the Messenger of Allah.
I bear witness that Muhammad is the Messenger of Allah.
Come to prayer, come to prayer.
Come to success, come to success.
Allah is the Greatest [5]
Allah is the Greatest [6]
There is no deity but Allah.

Figure (5): *Takbir* phrases in *Adhan*

4.3.1.1 Duration

The duration of the emphatic *Fatha* in the word *Allah* within the *Takbir* phrase varied between being long, lengthened, and greatly lengthened. This is evident in Figure (6), which displays the waveform of the first four *Takbir* phrases at the beginning of *Adhan*. The first two phrases are short, the duration increases relatively in the third phrase, and it becomes significantly prolonged in the fourth phrase.

The duration of the word *Allah* begins with 1.14 milliseconds (ms) in the first phrase, then increases to 1.48 ms in the second, to 2.64 ms in the third, and reaches a peak of 10.33 ms in the fourth. This variation is dependent on the lengthening of the emphatic *Fatha*, which the muezzin melodically lengthens in the name of *Allah* to a considerable degree. The initial short duration serves as a quick introductory reminder at the beginning of *Adhan*, signaling the time for prayer, and is not prolonged because its primary purpose is simply to alert or inform Muslims of the prayer time.

When measuring the duration of the emphatic *Fatha* in *Allah* within these phrases, it is found that it gradually increases in length: it measures 0.92 ms in the first phrase, 1.66 ms in the second, 1.15 ms in the third, and then jumps to 8.20 ms in the fourth. This ascending progression in the length of the emphatic *Fatha* across four repeated phrases achieves a growing emphasis on the significance of the *Takbir*.

The fifth and sixth repetitions of the *Takbir* phrases occur just before the conclusion of *Adhan*. The duration of the fifth phrase is 3.98 ms, with the emphatic *Fatha* extending to 1.86 ms. The sixth and final phrase reaches 10.92 ms, with the emphatic *Fatha* extending to 8.25 ms. Therefore, the longest durations for the emphatic *Fatha* in *Allah* are observed in the fourth and sixth *Takbir* phrases—at the introduction and conclusion of *Adhan*. These lengthened durations act as distinctive auditory markers, emphasizing the importance of *Takbir* through the final phrase that prepares the transition to the next phrase, which conveys different meanings in *Adhan*. The last *Takbir* phrase is the longest of all, reinforcing the notion that the *Takbir* principle is being firmly established at the end of *Adhan*, which will be followed by the *Tawhid* principle in the closing of *Adhan*.

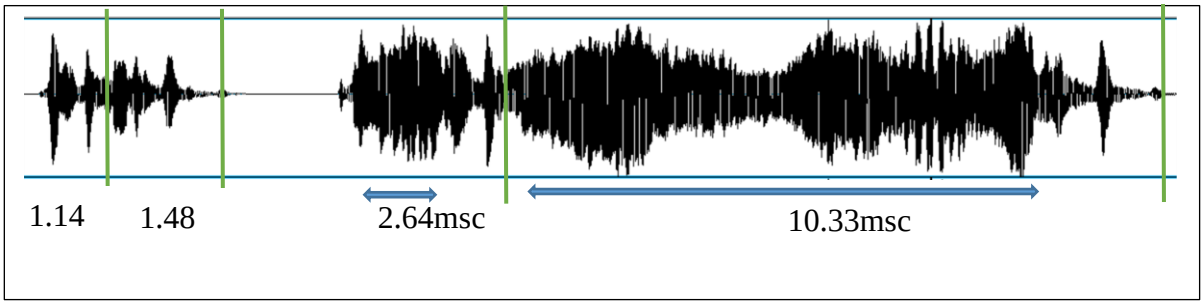


Figure (6): Duration of *Takbir* '*Allahu Akbar'* phrase in the 1st, 2nd, 3rd, 4th occurrences

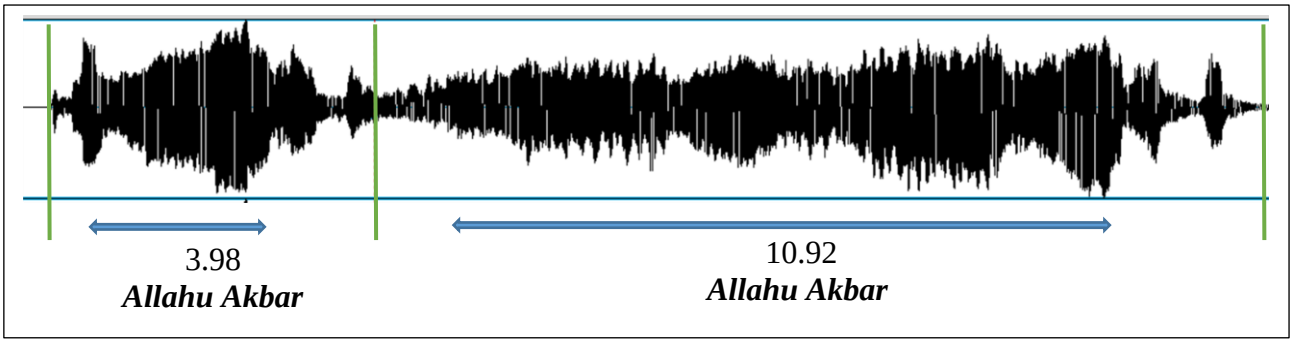


Figure (7): Duration of *Takbir* '*Allahu Akbar'* phrase in the 5th and 6th occurrences

4.3.1.2 Intensity

The intensity of the word *Allah* in the *Takbir* phrase varies depending on how the muezzin melodically extends and modulates the emphatic *Fatha*. As the muezzin lengthens the sound and varies the pitch, different levels of vocal intensity emerge. When the muezzin raises his voice sharply, the intensity increases; conversely, when the pitch and strength of the voice are lowered, the intensity decreases accordingly. However, all instances of the emphatic *Fatha* in the *Takbir* phrases are noticeably higher in intensity than the other components.

In the first *Takbir* phrase, the intensity of the emphatic *Fatha* reached 79.6 dB, while in the second phrase it increased to 81.4 dB. It continued to rise in the third phrase, reaching 82.1 dB. In the fourth and sixth phrases, the intensity fluctuated between 76.3 and 83.6 dB, due to the distinctive prolongation and wide tonal variation. In the fifth phrase, the intensity measured 83.2 dB.

This fluctuation in intensity creates a unique melodic rhythm that resonates deeply with the listener, especially when combined with the lengthened duration of the emphatic *Fatha*. It enhances the beauty of the performance, enriching the meaning of the message. This remark is not just a subjective impression but is supported by the Prophet Muhammad's (peace be upon him) observation when he said, "Teach Bilal, for he has a more melodious voice than you, Abdullah." Through tonal variation, pitch modulation, and the prolongation and saturation of the melody—especially in a sound characterized by high audibility and sonority—the vocal beauty and auditory appeal are achieved. Additionally, the natural beauty of the muezzin's voice and its unique quality further contribute to this appeal.

Figures 8, 9, and 10 illustrate the rise and variation in intensity (in yellow) across different phrases, adding to the overall diversity of *Adhan*'s vocal output.

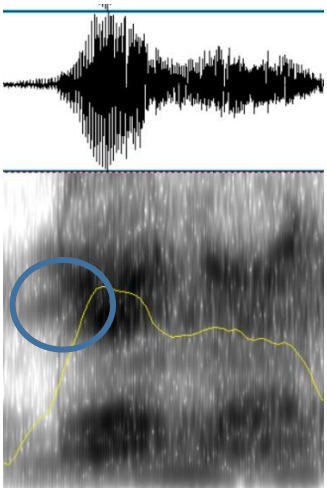


Figure (8): Intensity of the emphatic /ɑ:/ in the Lord's name *Allah* in the first *Takbir*

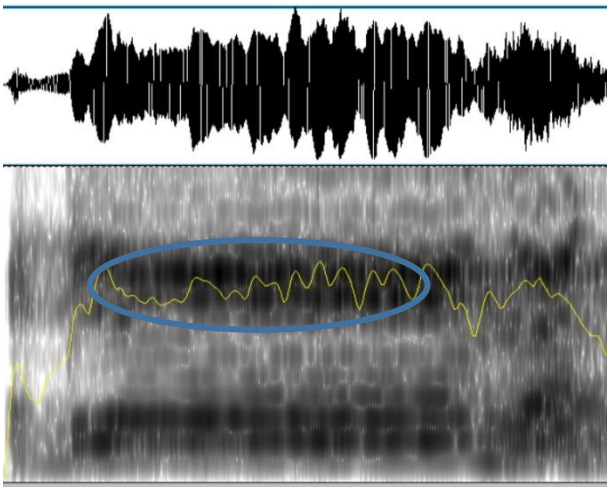


Figure (9): Variation in intensity with the changing pitch during the lengthening of emphatic /ɑ:/ in the second *Takbir*

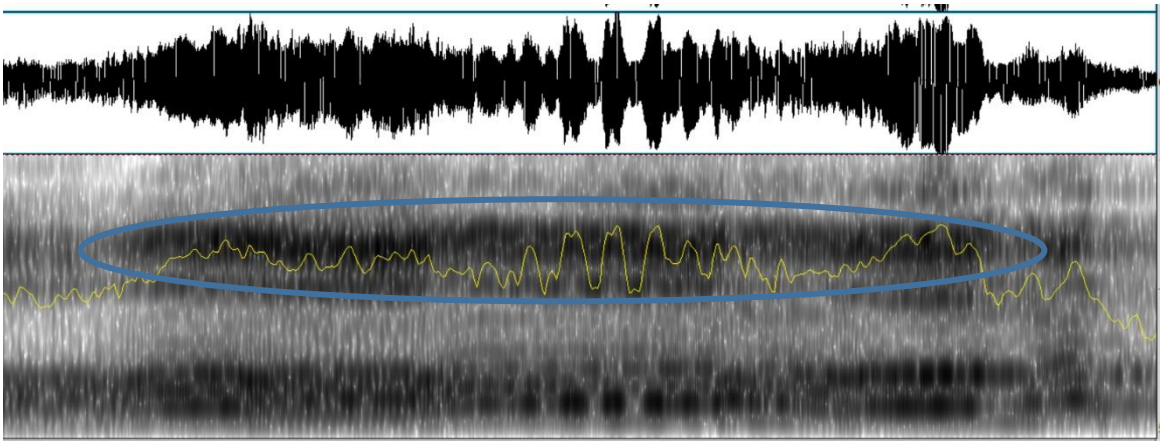


Figure (10): A cropped section of the lengthened /ɑ:/ in the fourth *Takbir* showing fluctuating intensity

4.4 Acoustic Characteristics of /ɑ:/ in the Divine Name *Allah* within the "Affirmation of monotheism" Phrase

The "Affirmation of monotheism" phrase, "There is no deity but Allah," is repeated twice within the testimony phrase "I bear witness that there is no deity but Allah." Notably, this phrase follows the opening *Takbir* phrase, and its singular occurrence at the conclusion of *Adhan* also follows the *Takbir*. This structural consistency seems to convey a profound message: one cannot fully internalize the belief in *Tawhid* (monotheism) in practice, culture, and belief without first

establishing the greatness of Allah (*Takbir*) in their heart. This structure reflects the principle that placing Allah above all else solidifies the belief in His oneness. Moreover, the placement of "Affirmation of monotheism" at the end of *Adhan* highlights its significance as the final declaration, echoing the Prophet's saying, "Whoever's last words are 'There is no deity but Allah,' will enter Paradise" (Al-Sijistani, 1998, p. 279). Thus, it stands as the gateway to crossing into devotion, summarizing servitude and representing the pinnacle of faith, as the Prophet (PBUH) said, "Faith has over seventy branches, the best of which is saying 'There is no deity but Allah...'" (Al-Naysaburi, 2014, p. 391).

4.4.1 Duration

The duration of the "Affirmation of monotheism" phrase at the end of *Adhan* was measured at 14.25 msc, with 4.28 msc dedicated to the Divine Name "Allah." The lengthened /ɑ:/ occupied 2.13 msc of this, nearly half of the total duration. Upon examining the complete waveform of the "Affirmation of monotheism" phrase (Figure 11) and the time measurements table for the entire phrase (Table 3), it is evident that the pronunciation of the Divine Name *Allah* was the longest, followed by the word *Ilah* 'deity', and then the negation particle *La*. With only a slight difference, the temporal similarity between the Divine Name *Allah* and the word *Ilah* contrasts with the negative particle *La*. This pattern reflects the semantic importance associated with each word in this phrase. Despite the differences in the prolonged durations of the *Fatha*- whether emphatic or non-emphatic- across the three words, the longest duration was associated with the non-emphatic *Fatha* in *Ilah*, followed by *La*, and the shortest with the emphatic *Fatha* in *Allah*. This pattern reveals two significant observations: First, the prolonged duration and the overall lengthening of the phrase *La Ilah-a* (no deity) highlight the importance of affirming the negation of all false deities, with the indefinite article *Ilah*-a in the context of negation signifying the absolute negation of any object of worship besides Allah. This prolonged duration seems to allow the listener to reflect deeply on all that is not intended for Allah's sake, prompting an internal realization that "no one is truly worthy of worship except Allah" through the prolonged recitation of *La Ilaha*.

The second observation lies in the delicate progression of the non-emphatic *Fatha* in the sequence *La Ilaha Illa*, with the syllabic sequence /læ:/ being followed by a sudden emphatic tonal shift in the last syllable of "*Al.lah*," creating a stark auditory and semantic contrast between the softening and emphatic sounds. This shift highlights the diminishment of everything before the greatness of Allah. While this part of the study focuses on the emphatic *Fatha*, a comparative analysis between the emphatic and non-emphatic *Fatha* was necessary to underscore the various meanings, inviting further interpretation and semantic connections that deepen the understanding of the concepts presented.

A brief comparison between the duration of the pronunciation of the Divine Name *Allah* and the duration of the emphatic *Fatha* within it in both the *Tawhid* phrase and the two occurrences within the *Shahada* sentence reveals a clear similarity in the duration taken to pronounce the Divine Name *Allah* (Table 3). The total duration was 4.28 msc for the *Tawhid* phrase and 4.16 msc and 4.12 msc for the two occurrences within the *Shahada* sentence. Similarly, the duration of the emphatic *Fatha* was 2.26 msc for the *Tawhid* phrase and 2.61 msc and 2.08 msc for the two occurrences within the *Shahada* sentence. This temporal similarity across the three structures underscores the consistent presence and prominence of the Divine Name *Allah* within the *Shahada* sentence ensuring that His presence is firmly established with the same strength and clarity in the heart of the listener to *Adhan*.

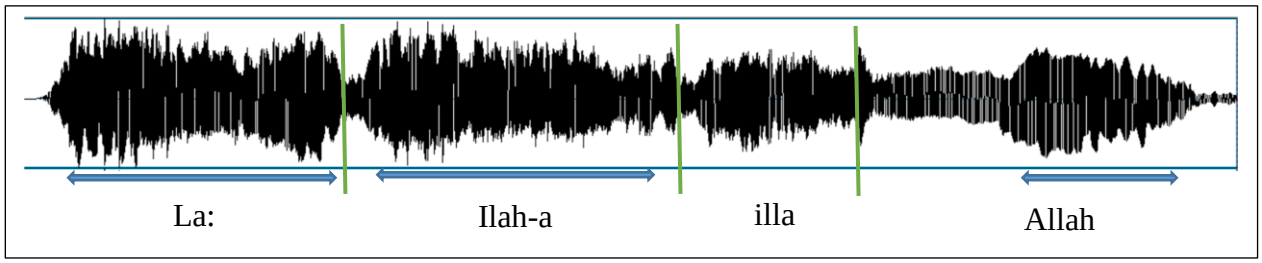


Figure (11): Duration of each word in the *Tawhid* phrase 'There is no deity but Allah'

Table (3): Duration values of the pronunciation for each word in the singular *Tawhid* phrase (Monotheism) as well as the two instances of "*Tawhid* phrase" contained within "*Shahada*" (Testimony of Faith)

Word in the *Tawhid* phrase	**Duration of the word**	**Duration of *Fatha***	**Word of *Tawhid* in the *Shahada* sentence**	**Duration of the word in the *Shahada*'s first sentence**	**Duration of the word in the *Shahada*'s second sentence**	**Duration of the *Fatha* in the *Shahada*'s first sentence**	**Duration of the *Fatha* in the *Shahada*'s first sentence**
La:	3.73	3.24	La:	1.35	3.31	1.24	3.23
Ilah-a	4.12	3.32	Ilah-a	1.12	3.73	.43	3.02
illa	The lengthening of the particle of exception *illa* is achieved through the sonorant consonant 'l' in all its occurrences. The long *Fatha* was shortened according to a phonological rule that shortens long vowels to prevent the formation of an unacceptable syllable structure in Arabic, which is the CVVC syllable (Ababneh, 2000) in connected speech. This structure is exemplified by the sequence /laal/ in *illa Allah*						
Allah	4.28	2.26	الله	4.16	4.12	2.61	2.08

Despite the similarity in the duration of the long, emphatic vowel in the word *Allah* between the singular "*Tawhid*" (Phrase of Monotheism) and the ones included in "*Shahada*" (Testimony of Faith), we observe the following:

[A]: The singular "*Tawhid*" phrase achieved the longest duration in all its words (as shown in Table 3). Therefore, it took longer to pronounce in its entirety, with a total duration of 14.25 msc. In contrast, the first instance of "*Tawhid*" phrase within "*Shahada*" sentence had a duration of 6.74 msc, while the repeated second instance reached 13.21 msc. This duration was measured after excluding the phrase *Ashhadu an* 'I bear witness that'. The fact that the singular "*Tawhid*" phrase at the conclusion of *Adhan* had this noticeable lengthening underscores our previous point that the unified *Adhan*, with its noble and well-known performance, tends to elongate the final phrases conveying a single concept. This lengthening aims to reinforce the conceptual meaning that the phrase carries, ensuring that it remains imprinted in the listener's heart and mind for as long as possible. Additionally, achieving the melodic and rhythmic variation enhances the impact of these meanings, making them more resonant and better understood. This phenomenon is evident in the second repetition of "*Tawhid*" phrase within "*Shahada*" sentence. The time difference between this repetition and its initial occurrence is significant, almost double or more, as the muezzin concludes the testimony of monotheism and transitions to the testimony of prophethood for the Messenger of Allah (PBUH).

[B]: The variation in the duration of the melodic elongation between the remaining words of "*Tawhid*," such as "La Ilaha" (as shown in the previous Table 3), indicates that the muezzin seeks to emphasize a particular concept in each instance. When the muezzin extends the duration of the word *Allah*, he emphasizes the greatness of Allah's exclusive right to worship. When he lengthens the negation "La:" (as in the long vowel in the second repeated instance of "*Tawhid*" phrase within "*Shahada*" sentence, he underscores the absolute negation of the existence of any deity other than *Allah* worthy of worship. Notably, muezzins differ in the musical modes they choose for *Adhan*, varying the placement, duration, and degree of melodic extension. Some muezzins may not adhere to any specific musical scale but instead create their own melody, leaving their unique mark on the aesthetic production of *Adhan*. This results in varying points of melodic elongation among different muezzins' performances. However, regardless of these differences, the overall meanings remain closely related, revolving around specific concepts, though they may open the door for other meanings based on the vocal performance, providing a field for future studies.

4.4.2 Intensity

The intensity levels of the emphatic vowel in *Allah* within the *Tawhid* phrase varied depending on the pitch and sharpness of the sound. In *Tawhid* phrase at the conclusion of *Adhan*, the intensity was relatively low, which is appropriate

for *Adhan* mode. The closing of *Adhan* traditionally requires an extended, calm pronunciation. This calmness is reflected in the muezzin's use of a deep, mellow, and gentle voice, rather than a sharp one, allowing the hearts to soften and the meanings to be deeply absorbed. The intensity curve in Figures (12 & 13) shows a gradual decrease in intensity within this phrase.

Figure (12) illustrates the intensity curve in the sequence *La Ilaha* 'no deity', where the intensity of the vowel in the negation particle reached 79 dB, and in the word *Ilaha*, it measured 77.6 dB. The intensity continued to decrease with the emphatic vowel in *Allah*, reaching 77.3 dB. In contrast, Figure (14) shows an increase in sound intensity within *Tawhid* phrase embedded in the first *Shahada* sentence. Here, the intensity of the long vowel in the negation particle rose to 79.3 dB, and in the word *Ilaha* 'deity', it climbed to 80.8 dB, continuing to rise to 83.7 dB with the emphatic vowel in *Allah*.

The sharpness and lengthening give *Tawhid* phrase a dynamic sound production, achieving the declaration of monotheism with a loud and intense voice, which is then reinforced by a second repetition that conveys the same meaning.

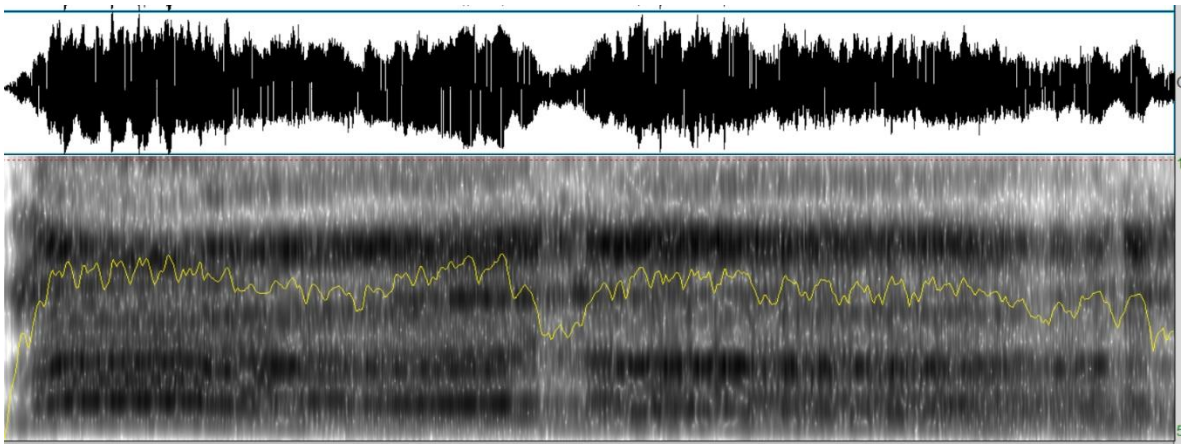


Figure (12): Intensity of \la: ʔilaha' in the "monotheism" phrase showing higher intensity for the negative particle 'la:'

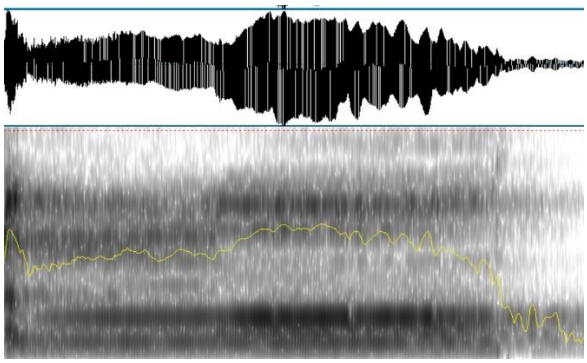


Figure (13): Decline in the intensity curve with the emphatic vowel *Allah* at the conclusion of *Adhan*

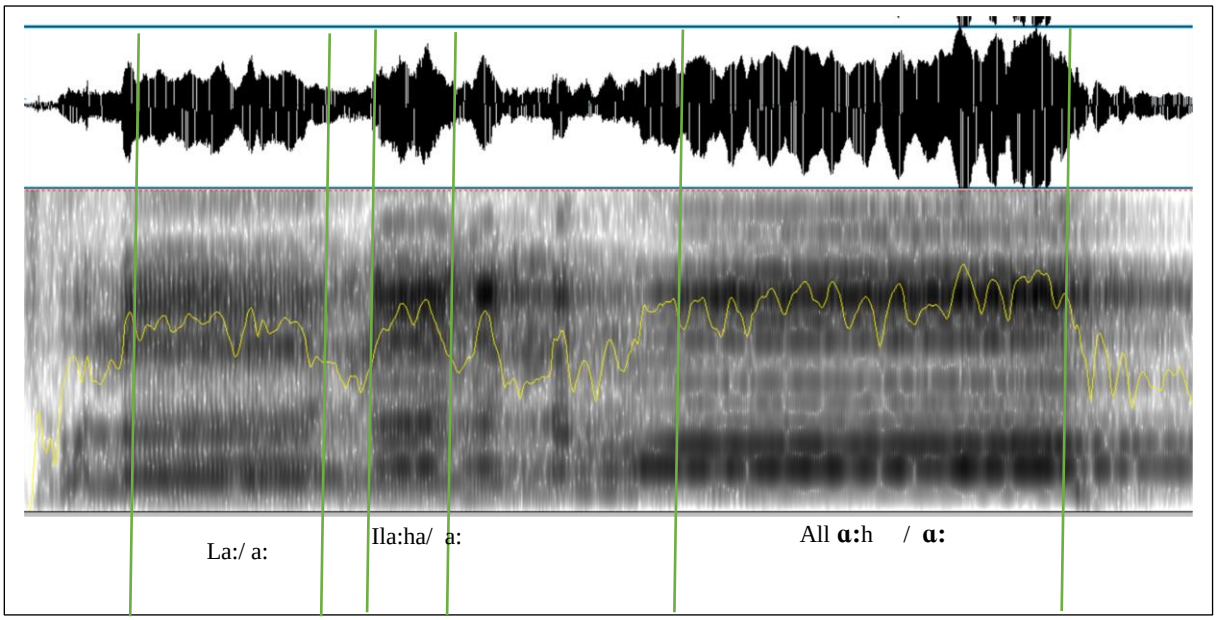


Figure (14): Intensity fluctuation in the phrase of monotheism in the first testimony sentence

5. The Acoustic Characteristics of the Long-Emphatic Vowel in *Allah* in the *Shahada* Sentences

5.1 Duration

The call to prayer includes two *Shahada* (testimony) sentences, each repeated twice. The first is "I bear witness that there is no deity but Allah," and the second is "I bear witness that Muhammad is the Messenger of Allah." The time taken to pronounce these sentences, when repeated, accounts for 55.17 seconds of the total time of *Adhan* (see Figure 15). Observing the waveform, it is noted that the duration of the first recitation of the two *Shahada* sentences was generally shorter than the second *Shahada*. Moreover, the second recitation of both sentences was very close in duration and intonation (see Table 4). This supports the previously mentioned idea that in a standardized *Adhan*, the muezzin tends to prolong the vowel in the second or final repetition of the repeated phrases to deepen their meaning and ensure that the resonance of the prolonged sound lingers longer in the listener's heart and mind. Here, the matter pertains to a profound concept, "the testimony," i.e., [the testimony that there is no deity but Allah and that Muhammad is the Messenger of Allah]. The significance of these two sentences can be caught by connecting them to some of the semantic fields tied to their presence in a person's life: through them, a person declares his/her Islam. The two *Shahada*s are included in the last part of a prayer as well. Moreover, it is considered a sign of a good end if a person's last words were *Shahada*s. This centrality of the *Shahada*s must always remind a person to reinforce the concept of servitude to Allah and allegiance to His Messenger. The implications of testifying that Muhammad is the Messenger of Allah include obeying his commands, believing in what he reported, avoiding what he forbade, and following his Sunnah in word and deed. Beginning the *Shahada* sentences with a present tense verb implies a continuous reminder of the obligations of testifying to Allah and His Messenger.

What deepens these meanings and keeps them present is the vocal performance in which the muezzin lengthens and melodically embellishes the pronunciation of these two sentences. The pronunciation of *Allah* in the testimony of "there is no deity but Allah" is prolonged more than the testimony for the Messenger of Allah. However, the duration of the long emphatic vowel in *Allah* across the four repetitions, which ranged between [2.08 msc - 2.63 msc], was relatively consistent.

Regarding the long "u:" vowel in the word *Rasu:l* 'Messenger', which is the only word in the phrase with this vowel, its duration and melodic embellishment varied between the two repetitions. It was relatively short in the first *Shahada* phrase and notably extended in the second repetition, even surpassing the duration of the long emphasized vowel in *Allah* within the same phrase. The intent behind this melodic extension was to emphasize the presence of the Messenger of Allah, remind people of his Sunnah, and reinforce allegiance to him, thus producing the melodically varied extension with the resonant long "u:" vowel.

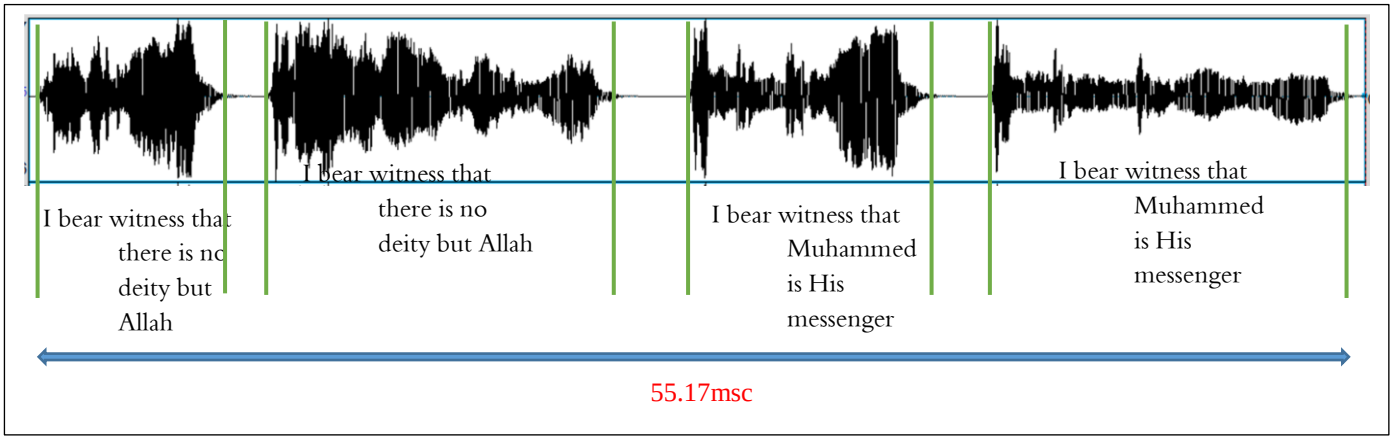


Table 4: Duration measurements for the *Shahada* (testimony) sentences, the word *Allah*, the emphatic vowel /ɑ:/ within it, the word *rasu:l* and the long vowel "u:" within it

Testimony Sentence	Duration of the whole sentence	Duration of the word *Allah*	Duration of /ɑ:/ in *Allah*	Duration of the word *rasu:l*	Duration of /u:/ in *rasu:l*
I bear witness that there is no deity but Allah	7.94	4.16	2.61		
I bear witness that there is no deity but Allah	14.51	4.12	2.08		
I bear witness that Muhammed is His messenger	10.06	2.96	2.63	1.39	.31
I bear witness that Muhammed is His messenger	14.57	3.34	2.33	3.81	2.68

5.2 Intensity

There is also a noticeable variation in the intensity of the emphatic vowel in *Allah* within the *Shahada* sentence. Whenever there is lengthening and modulation, there are variations in sound intensity. The first and second *Shahada* sentences show a clear fluctuation between high and low intensities. The intensity of the emphatic vowel in Allah reached a high level of 83.7dB in the first sentence, then dropped to 78.7dB in the second repetition. In the following *Shahada* sentence, "I bear witness that Muhammad is the Messenger of Allah," there is a significant similarity in sound intensity for the emphatic vowel in the first *Shahada* sentence, ending with a calm, deep, and soft tone in the final *Shahada*, where the intensity dropped to 74.3dB.

Regarding the sound intensity of the long vowel "u:" in *rasu:l*, it was lower compared to the following emphatic vowel in *Allah* in " *rasu:l-u Allah* 'the messenger of Allah'. In the first sentence, the intensity of "u:" was 72.4dB, rising to 74.3dB with the following vowel. In the second sentence, the "u:" vowel reached 75.4dB, and again, the intensity increased with *Allah*, reaching 78.7dB. Figure (16) clearly illustrates the rise in sound intensity in the phrase *rasu:l Allah* in the first *Shahada* sentence.

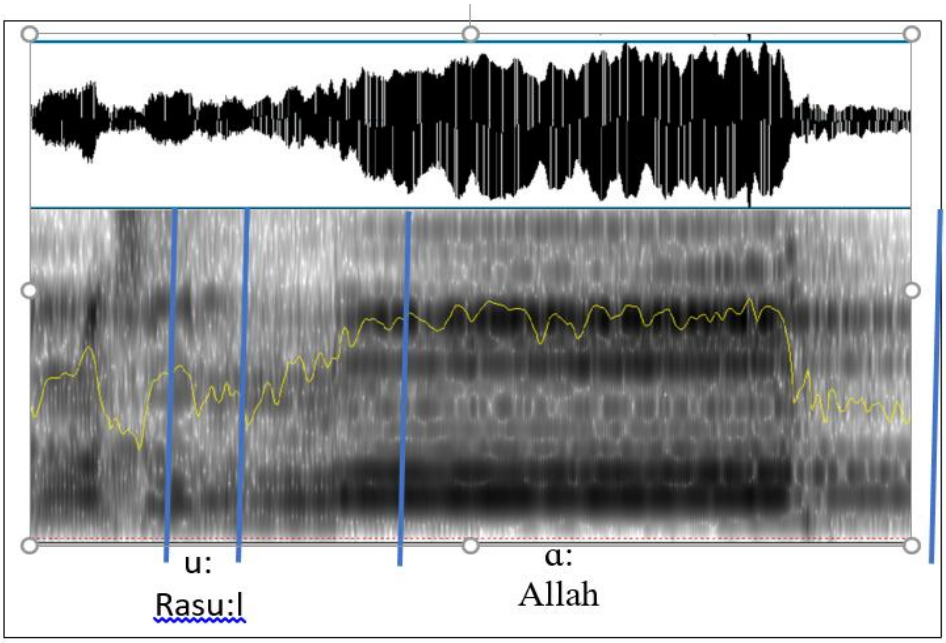


Figure (16): Intensity variation between "u:" in *rasu:l* and the emphatic /ɑ:/ in *Allah*

In conclusion, no matter how varied or distinct the lengths of the vowel /ɑ:/ in *Allah* or how the intensity levels fluctuate, the power of the name *Allah* always remains dominant in the context of *Adhan*. This is primarily due to the absolute divine sanctity associated with the name of *Allah*. Second, there is a strong phonetic emphasis inherent in the sounds of the word *Allah*, which grants it a higher sonority power compared to all other sounds. Additionally, the presence of the emphatic 'l' further increases the intensity, sonority and auditory clarity of the vowel's lengthening. In fact, "the strength of a word is referred to the strength of the sounds it comprises, and it is impossible for a word to exhibit intensity or strength without this being attributed to its sounds and how they are pronounced" (Tsur, 1992, 155).

6. The Acoustic Characteristics of the Long non-emphatic /æ:/ Vowel

The long non-emphatic /æ:/ vowel appears in *Adhan* in six words: *læ:* 'Neg particle', *ilæ:h* 'diety', *illæ* 'except' *ʕalæ* 'to', *aṣ-ṣalæ:* 'prayer', and *al-falæ:h* 'success'. In earlier discussions about monotheism, we analyzed the duration of the non-emphatic "æ:" vowel in *læ:* 'Neg particle' and *ilæ:h* 'diety' due to their phonetic comparison and semantic contrast in that context. Here, we will focus on the pronunciation duration of the non-emphatic /æ:/ vowel in words, *aṣ-ṣalæ:* 'prayer', and *al-falæ:h* 'success' as they appear in the repeated phrases below. The vowel in the exception particle *illæ* 'except' and *ʕalæ* 'to' has been shortened to prevent the formation of a proscribed syllable pattern (CVVC) in Arabic, a point we mentioned earlier in this study.

6.1 Duration

It is observed that the extended, melodious duration of the non-emaphatic /æ/ vowel in the repeated phrases *ħajja ʕala aṣ-ṣalæ:* 'Come to prayer' and *ħajja ʕala l-falæ:ħ* 'Come to success' is clearly realized in the words *aṣ-ṣalæ* and *l-falæ:ħ* with a noticeable variation in the duration of pronunciation. As shown in Table (5) and the sound wave images (Figure 17), the word *l-falæ:ħ* is pronounced longer in both repetitions compared to *aṣ-ṣalæ:*. This suggests an emphasis on the value derived from prayer and the expected reward following its performance—there is no success (*falæ:ħ*) in any matter without first establishing the pillar of prayer. This part of *Adhan*, *ħajja ʕala aṣ-ṣalæ:* 'Come to prayer' and *ħajja ʕala l-falæ:ħ* 'Come to success', when repeated, takes up a duration of 79.33 seconds, more than a third of the total time of *Adhan*. This has significant semantic implications, reinforced by the overall meaning of these phrases. The phrase *ħajja*, an imperative verb meaning 'come' or 'hasten' implies 'come quickly to prayer and success.' The word *ħajja* also relates to life, emphasizing that true life that is filled with righteousness and success is achieved only through the establishment of prayer, which leads to all forms of success.

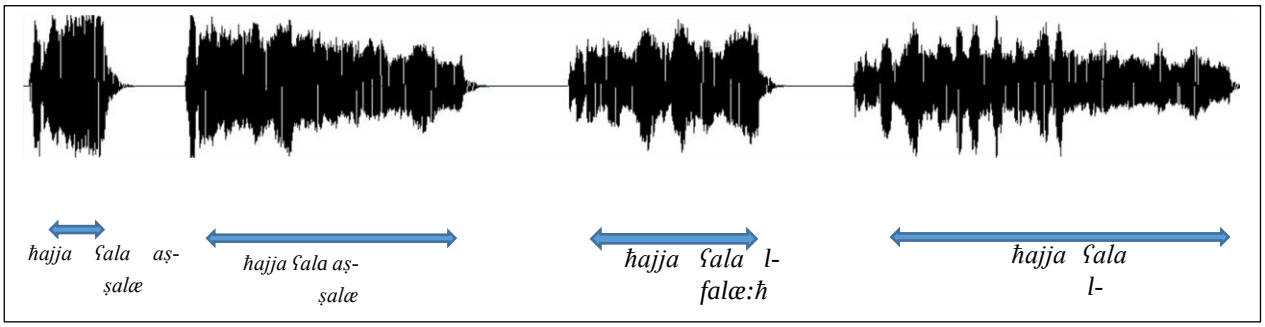


Figure (17): Soundwave reflection for the phrases *ħajja ʕala aṣ-ṣalæː* 'Come to prayer' and *ħajja ʕala l-falæːħ* 'Come to success'

Table (5): Duration measurements of /æː/ in the words *aṣ-ṣalæ* 'prayer' and *l-falæːħ* 'success', and duration of the complete phrases *ħajja ʕala aṣ-ṣalæː* 'Come to prayer' and *ħajja ʕala l-falæːħ* 'Come to success'

Word	Duration of /æː/ in the first utterance	Duration of /æː/ in the second utterance	Duration of the whole phrase in the first utterance	Duration of the whole phrase in the second utterance
aṣ-ṣalæ	3.93	16.49	6.02	18.91
l-falæːħ	10.98	22.87	13.35	24.94

6.2 Intensity

The intensity of the long non-emphatic vowel in the words *aṣ-ṣalæ* 'prayer' and *l-falæːħ* 'success' fluctuated. It peaked with the word *aṣ-ṣalæ* in the first instance, reaching 84.3dB. However, it significantly decreased to 75.7dB in the second instance of the word *aṣ-ṣalæ.* The sharp rise in the first occurrence seems to serve as a powerful reminder of the prayer time and the obligation to perform it, whereas the quieter tone in the second occurrence, coupled with a longer duration, appears to be an appeal to the heart to establish a connection with the Lord.

As for the long vowel in the word *l-falæːħ* 'success', the sound intensity was also high during its first occurrence, though not as high as in *aṣ-ṣalæ* measuring 80.1dB. The intensity slightly decreased to 78.1dB in the second repetition. Despite the significant variation in the duration of these phrases (as shown in Figure 5), this close similarity in intensity underscores the repeated emphasis on the benefits of prayer for both individuals and communities. As long as prayer is performed and maintained, the achievement of success is assured.

7. Conclusion and recommendations:

The key findings can be summarized as follows: The vowel sound "fatḥa," in both its emphatic and non-emphatic forms, was distinguished by its wide vocal presence throughout *Adhan*, which enabled the muezzin to prolong and modulate the melodious sound. This endowed *Adhan* with a powerful sonority and auditory strength that contributed to the widespread dissemination of its message. The study also concluded that the muezzin effectively utilized pitch variation in the repetitions of *Adhan* phrases, resulting in varying intensities of sounds and words. The position of each phrase within *Adhan* influenced the choice of pitch, thereby contributing to the realization of deep conceptual meanings.

In light of the findings, the study recommends further exploration of *Adhan* through more studies that highlight its various aspects and link them to intellectual, social, political, and cultural life. Such research could contribute to the service of *Adhan* and highlight its central role in elevating individuals and communities. This study is the first to examine some of the acoustic aspects of long vowels. Another forthcoming study will explore the consonants that are prominently featured in *Adhan* and their semantic, rhythmic, and melodic properties.

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