

1.

		Science, Education and Innovations in the Context of Modern Problems Issue 11, Vol. 8, 2025	
		Title of research article	
		Phonetic and Algorithmic Analysis of Algerian Popular Proverbs in Laghouat City: A Computational Audiotape Study Using C++ Programming	
Messaoud Charef		Université de Tamanghest Algeria E-mail: messaoudcharef@univ-tam.dz	
Mohamed Al-Amin Melody		Université de Ghardaïa Algeria E-mail: miloudi.mohammedelamine@univ-ghardaia.dz	
Issue web link		https://imcra-az.org/archive/385-science-education-and-innovations-in-the-context-of-modern-problems-issue-11-vol-8-2025.html	
Keywords		Algerian folk proverbs; Laghouat dialect; phonetic analysis; C++ algorithm; computational linguistics; oral tradition; audio processing	
Abstract This study investigates the linguistic and phonetic characteristics of Algerian popular proverbs specific to the city of Laghouat through an innovative combination of field audio collection and computational sound analysis. The research bridges traditional folklore and modern computational linguistics by recording a representative corpus of Laghouatian proverbs, transcribing their phonetic content, and analyzing their sound patterns using a C++-based algorithm. The designed algorithm counts and classifies sound frequencies to identify key phonetic tendencies, tonal patterns, and rhythmic structures that characterize the oral heritage of the region. The study reveals that Laghouatian proverbs exhibit rich prosodic variation and distinct phonetic features shaped by the sociolinguistic identity of southern Algeria. Beyond its linguistic contribution, the research also demonstrates the methodological potential of integrating computational tools in folkloristic and dialectology.			
Citation. Messaoud Ch; Al-Amin Melody M. (2025). Phonetic and Algorithmic Analysis of Algerian Popular Proverbs in Laghouat City: A Computational Audiotape Study Using C++ Programming. <i>Science, Education and Innovations in the Context of Modern Problems</i> , 8(11), 1228–1239. https://doi.org/10.56334/sei/8.11.101			
Licensed © 2025 The Author(s). Published by Science, Education and Innovations in the context of modern problems (SEI) by IMCRA - International Meetings and Journals Research Association (Azerbaijan). This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/).			
Received: 01.08.2025		Accepted: 02.10.2025	
		Publishing time: 04.11.2025	

Introduction:

A popular proverb is a literary art that falls under folk literature, also known as national literature. It has existed among nations and peoples both in the past and present, covering topics that encompass the entirety of human life in its various domains. Proverbs are not merely linguistic structures repeated on tongues; rather, they represent the philosophy of peoples, reflecting their ideas, orientations, customs, and behaviors. Through a few words, they convey many meanings and implications. For this reason, we find that God Almighty used the style of prov-

erbs in many verses, including: {Their example is like that of one who kindled a fire; when it illuminated what was around him, God took away their light and left them in darkness so they could not see.} And also His words: {For every news there is a settlement}¹.

Algerian folk proverbs are considered creative treasures composed by our ancestors within the course and dynamics of life. They summarize their vivid experiences, long-standing expertise, and insightful visions. Due to their great significance, many researchers have attempted to write on this subject through compilation, explanation, and study. Among them, we can mention, for example:

- Proverbs of Algeria and the Arab Maghreb . Muhammad bin Abi Shanab.
- Algerian Folk Proverbs . Abdelmalek Mortaz.
- Algerian Popular Proverbs Illustrated with Examples . Article by Qadat Burten and Translation by Professor Abdel Rahman Al-Hajj Saleh.
- Encyclopedia of Algeria in Popular Sayings . Rabah Khaddousi.
- Algerian Folklore Proverbs from Setif . Jelaoui Ezzedine.
- Algerian Proverbs and Sayings . Jaakour Masoud.

Folk proverbs are dialectal materials because they vary from one environment to another, from one region to another, and from one country to another. Perhaps anyone who contemplates this field will find that it has been studied from various perspectives: rhetorical, stylistic, pragmatic, psychological, and social. However, their phonetic study has not received sufficient attention. Therefore, this research paper aims to focus on the outcomes of modern phonetics and their approach to the popular and commonly circulated proverbs in southern Algeria ..

The practical aspect of this study revolves around attempting to collect and examine popular proverbs specific to the Wilaya of Laghouat, then recording them and inputting them as data into a C++ algorithm, in order to calculate and classify the frequencies of their sounds, subsequently analyzing these sounds, as well as attempting to understand these proverbs from a phonetic perspective.

Our research started from several main issues, as well as some subsidiary ones, which we may present as follows:

- ✓ What are the main phonetic characteristics of the Algerian folk proverbs specific to the Laghouat region?
- ✓ How much do these sounds affect the region's colloquial dialect?
- ✓ How effective is the use of computer software in studying the linguistic and dialectal phenomena specific to a particular language or dialect?

2.The concept of the proverb:

Before we define the concept of a popular proverb, it is appropriate for us to pause for a moment at the boundaries of the proverb in linguistic dictionaries. In the dictionary 'Maqayis al-Lughah', the proverb is defined as follows: 'The letters Mīm, Thā', and Lām form a valid root indicating the comparison of one thing to another. This is mīthlu hādihā, meaning its counterpart. Al-Mithl and al-Mithāl have the same meaning. Sometimes they say mīthīl meaning similar. The Arabs say, for example, "The Sultan treated so-and-so best," meaning he killed him as a punishment; the meaning is that he did to him what was done².

In Mukhtar al-Sihah it is mentioned: 'Like: the word Taswiyah is said as "this is like it" and "like it," just as one says "its resemblance" and "its similarity." Al-mathal is what is used as examples, and the "example of a thing" also describes its attributes. Al-mithal is the bed, and the plural is "muthul" with a dhamma on the thaa and a sukoon on the laam. Al-mithal also means something well-known, and the plural is "amthilah." Muthul means something made into a representation; for example, "he represented something" meaning he illustrated it, whether in writing or otherwise³.

As mentioned in the book Jamharat al-Amthal: 'The origin of the proverb is the similarity between two things in speech, such as when they say: As you judge, you will be judged. And this is like their saying: This is like something and its likeness, as you say it resembles it and its likeness.'⁴.

It appears from the above that most Arabic dictionaries define the word (example. proverb) in ways that hardly go beyond the meanings of 'counterpart' and 'similar,' which are meanings close to the technical concepts of the popular proverb.

Scholars and specialists in the field of folk literature have also provided many definitions of the folk proverb, with each researcher looking at it from a particular perspective. Among these definitions, we can mention:

is a brief and pleasant expression in wording and meaning, originating from the common people, serving as an honest mirror of them, reflecting their cultural heritage, lived reality, hopes, and future aspirations. It is often connected to an incident, whether we know the speaker or not.⁵

And he is a phrase or more that relies on rhyme and aims at wisdom and moral advice⁶.

Some researchers have defined it as: 'the essence of sayings and the concentrated thoughts of generations that preceded us throughout human history. It is the cream of speech issued by eloquent and wise people, agreed upon by speakers as correct for citing in debates and various forms of discourse.'⁷

Through these definitions, it becomes clear to us that a proverb is a brief phrase or saying that carries a significant meaning and originates from the common people. It is associated with a story or narrative and is used to reinforce a statement and provide strong evidence in various communicative situations. Moreover, it is a part of heritage and an element of national identity, used by different segments of society—young and old, educated and illiterate, Bedouin and urban. It reflects the genius achieved by our ancestors, manifested through meticulously crafted artistic phrasing and concise linguistic structures.

3.Characteristics of the proverb:

The proverb is characterized by many features at the level of wording and meaning, and among these characteristics we mention the following:

A. Conciseness:

It is the prominent feature of this art, which almost distinguishes it from other forms of folk literature. Anyone who reflects on the texts of folk proverbs will find that they do not miss any essential element in their structure. Despite their brevity, they carry broad connotations and multiple meanings. This is why Al-Zamakhshari says: 'I have condensed the wording yet satisfied the meaning, shortened the expression yet extended the significance, hinted yet delved deeply into explicitness, and cloaked yet sufficed without clarification.'⁸

B. Circulation:

People widely share and circulate proverbs in various aspects of life. The Arabs have a saying that aligns with this notion: 'A prisoner of a proverb.' It is as if the proverb is the fastest thing in movement and circulation, so I took it and used it for the same meaning.

C. Meaning Injury:

What makes a proverb circulate among people and spread in their conversations is that it conveys meanings with truthfulness and reality. For example, when it is said: 'Ask the experienced, not the doctor,' we grasp the good meanings that stem from sincere hearts, which have great experience and practice.⁹

D. Stability:

When a proverb is issued by its original author in a specific situation, it will remain in the state of its verbal and semantic form afterwards, and it cannot change over the years or with changing circumstances and conditions.

For this reason, we find that Ibn Abd Rabbih says: "The essence of speech, the core of words, and the inspiration of meanings were chosen by the Arabs, prioritized by the non-Arabs, and expressed in every era and on every tongue. It is more enduring than poetry and nobler than eloquence; nothing has matched its course or the universality of its reach."^{10m} It is characterized by permanence and stability compared to poems and verses.

We can say that there are many characteristics of the proverb, and it is not limited to what we have mentioned. Rather, we have presented the main and consistent ones.

4. A phonetic study of Algerian folk proverbs using the C++ program.

4.1. Introduction to the program and the algorithm used in the study:

This element of the research represents its practical and applied aspect; it is a statistical process aimed at calculating the frequency of each sound in a set of folk proverbs specific to the state of Laghouat, within a descriptive-comparative framework. The purpose is to show the most commonly used sounds, as well as the least used ones. We limited ourselves to a selection of folk proverbs specific to this region, based on the criterion of common usage and popularity among the speakers of this area (Laghouat). To carry out this process, we used the C++ program, as C++ is an extension of the C programming language. It is a general-purpose programming language developed by Bjarne Stroustrup in 1979 to combine the C language with Classes, supporting both the procedural programming model of C and the object-oriented programming model at the same time.

The C++ language contains all the features of the C language, such as compatibility with most operating environments, effective memory management, and providing a rich library of programming functions. It also adds many other features to increase its efficiency. For example, C++ supports exception handling, namespaces, data protection features, and other features not implicitly supported in the C language.

It can be said that the C language is more suitable for low-level application programming, such as operating systems and device drivers that require a high degree of hardware control, whereas C++ is more appropriate for developing more complex applications that require a high level of security and performance speed.

The folk proverbs that the study attempted to approach according to this program are as follows:

- ☆ allı aynu fı al-qızal yubkırlu = He who has an eye for the deer wakes up early to catch it.
- ☆ Ana nahfarlu fı qabr Amu wa huwa Harbılı bil-fa's = I am digging a grave for him while he ran away from me with the axe.
- ☆ ma yahis biljumra ghayr li kuwatu = Only the one who has been burned feels the ember.
- ☆ ma natib aydı ma ta'akulni haysha = We don't wash hands that won't eat Haisha.
- ☆ kul khanıfis fı eayn 'amu qızal = Every Khnıfis is in the eye of the gazelle.
- ☆ al-dab rakib mawlah = The beast is riding its master.
- ☆ Kı tarat al-tuyur jat al-hama tadur = When the birds flew, the vulture came to scout around.
- ☆ Tariq al-sadd fı tadı wa matarud = The dam road leads and doesn't turn back.
- ☆ Moula al-taj wa yahtaj = The crown maker and he needs.
- ☆ Zawaj laylat tadbıtu aam = A one-night marriage arranged by you this year.
- ☆ al-radd mıa wa al-qıta' marra = As much as a hundred and the pieces once.
- ☆ fı 'ajbak rukhsu taluh nasu = If you like it, you can bargain for its price.
- ☆ Al-shatah bı al-gharbi dayq = The thought wandered far and away from the narrow reality.
- ☆ Ya'kul al-qılla wa yasab al-mılla = The few eat and curse the community.
- ☆ Yalı muzaq mıın bara wash halak mıın dakhıl = You look torn and worn out on the outside, but how are you feeling on the inside?
- ☆ Sab al-maa yuban al-atashan = Pour water, the thirsty person will show up.
- ☆ Al-maksi bı-qash al-nas 'aryan = The Mexican scolds people who are naked.
- ☆ Lee Fatu. Bakrı yaruh yakrı = We've missed it. He should have gone early to rent.
- We can translate the statistical algorithm of our work into the C++ programming language as follows:
- #include <iostream>
- #include <string>

```

• #include <locale>
• int main() {
•     std::wstring text;
•     wchar_t letter;
•     int count = 0;
•     std::locale::global(std::locale(""));
•     std::wcout << L" Enter the text: ";
•     std::getline(std::wcin, text);
•     std::wcout << L" Enter a letter: ";
•     std::wcin >> letter;
•     for (int i = 0; i < text.length(); i++) {
•         uint16_t c = static_cast<uint16_t>(text[i]);
•         if (c == letter) {
•             count++;
•         }
•     }
•     std::wcout << L" The letter " << letter << L" Back " << count << L" Sometimes in the text." << std::endl;
•     return 0;
• }
• #include <iostream>
• #include <string>
• #include <locale>
• int main() {
•     int arabic_start = 0x0600;
•     int arabic_end = 0x06FF;
•     std::wstring text;
•     wchar_t letter;
•     int count = 0;
•     std::locale::global(std::locale(""));
•     std::wcout << L" Enter text ";
•     std::getline(std::wcin, text);
•     std::wcout << L" Enter a letter ";
•     std::wcin >> letter;
•     for (wchar_t c : text) {
•         if (c == letter) {
•             count++;
•         }
•     }
•     std::wcout << L" الحرف " << letter << L" ظهر " << count << L" مرات في النص ." << std::endl;
•     return 0;

```

```

1 #include <stdio.h>
2
3 int main(int argc, char *argv[])
4 {
5     int i;
6
7     printf("Hello world!\n");
8     printf("%d\n", 1234);
9
10    /* get input */
11    printf("How many numbers? ");
12    scanf("%d", &i);
13
14    while (i)
15    {
16        printf("%d\n", i);
17        i--;
18    }
19
20    return 0;
21 }

```

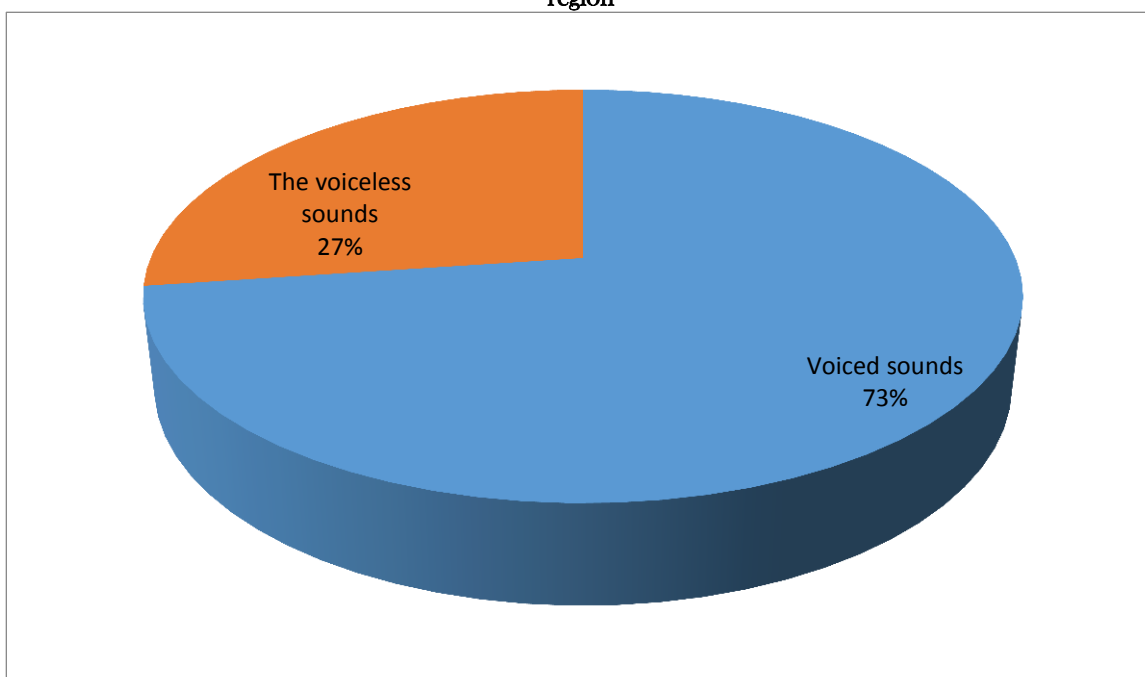
Ln 18, Col 6 INS

Image (1): The appearance of the program screen on the computer

After applying the program and entering the data related to the votes of these popular proverbs, we obtained a set of statistical and mathematical data, which we present as follows:

4.2.. Voiced and voiceless sounds:

Number of voiceless sounds	Number of votes in favor	Number of votes
97	260	357

Table No. (01): The number of voiced and voiceless sounds in the set of proverbs specific to the Laghouat region**Graph (1): The proportion of voiced and voiceless sounds in the set of proverbs from the Laghouat region**

Its rank in the system's sounds	Its rank among the voiced sounds	Its occurrence rate in relation to the system's votes	Its frequency relative to voiced sounds	Repetition	The voice
1	1	%12,88	%17,69	46	[i]
2	2	%10,64	%14,61	38	[l]
3	3	%7,56	%10,38	27	[r.]
4	4	%7	%9,61	25	[m]
4	5	%7	%9,61	25	[w]
5	6	%5,88	%8,07	21	[b]
8	7	%3,92	%5,38	14	[n]
9	8	%3,36	%4,61	12	[q]
10	9	%3,08	%4,23	11	[d]
11	10	%2,8	%3,84	10	[ʃ]
12	11	%2,24	%3,08	8	[g]
13	12	%1,96	%2,69	7	[tʰ, t]
13	13	%1,96	%2,69	7	[ʔ]
14	14	%1,4	%1,92	5	[z]
15	15	%0,84	%1,15	3	[d, dʰ]
17	16	%0,28	%0,38	1	[ʎ]
18	17	%0	%0	0	[ð]
18	18	%0	%0	0	[zʰ, z]

Table No. (02): Statistics of Loud Pronunciation in the Proverbs Collection of the Laghouat Province Area

Its rank in the system's sounds	Its occurrence rate in relation to the system's votes	Its occurrence rate in relation to the system's votes	Its occurrence rate for voiceless sounds	Repetition	The voice

3	1	% 3,68	% 27,84	27	[t]
6	2	% 3,30	% 17,53	17	[k]
7	3	% 2,40	% 15,46	15	[s]
11	4	% 2,43	% 10,30	10	[h]
12	5	% 5,45	% 8,25	8	[f]
13	6	% 3,62	% 6,19	6	[h]
13	6	% 1,01	% 6,19	6	[x]
13	6	% 0,71	% 6,19	6	[ʃ]
16	7	% 1,54	% 2,06	2	[s, sʰ]
18	8	% 1,08	% 0	0	[θ]

Table No. (03): Statistics of voiceless sounds in the set of proverbs specific to the Laghouat region

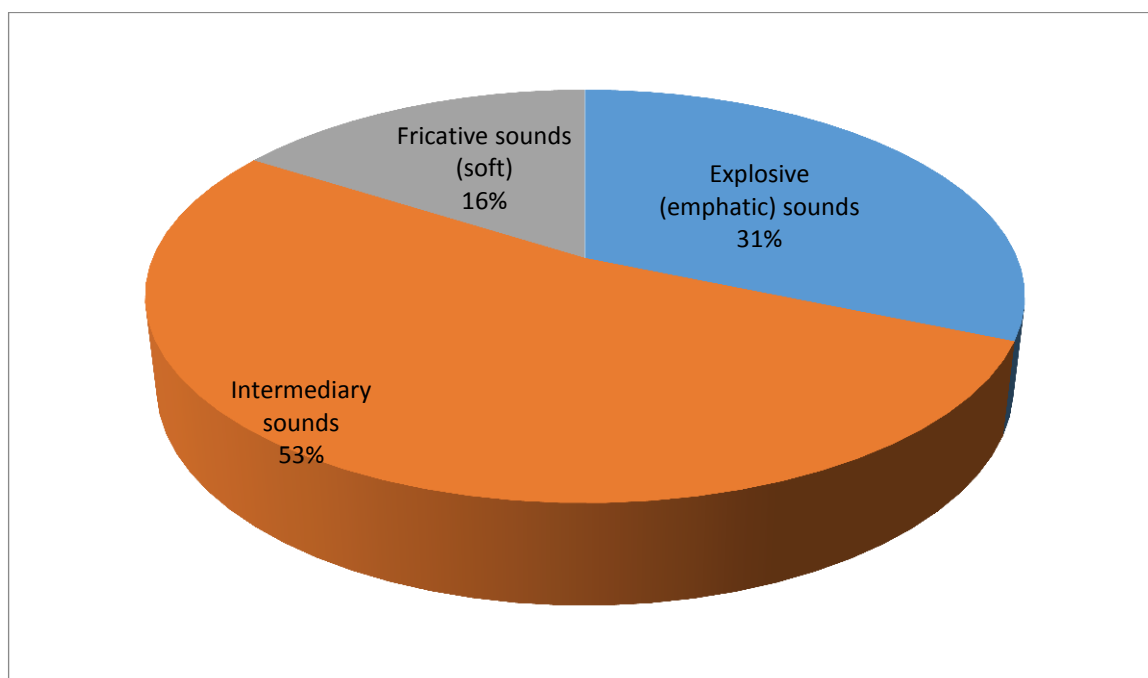
Through Table No. (01) and Graph No. (02), we observe that the total number of sounds in these selected proverbs reached (357) sounds, of which (260) are voiced and (97) are voiceless. This indicates that the speakers of this region use voiced sounds more than voiceless ones because voicing is more emphatic and impactful, aiming to attract the listener's attention, as well as to approximate and clarify the idea subtly rather than explicitly. This also explains the high occurrence of voiced sounds, which accounted for 73% compared to 27% for voiceless sounds, given that the purpose of the proverb is to affect the listener's psyche. Hence, it must carry a charged and powerful voiced quality, as the subject matter requires such strength in sounds..

Through Table No. (03) and Table No. (03), we notice that the most frequently occurring voiced sounds are the sounds of the letter Yā' (46 times), followed by Lām (38 times), then Rā' and Mīm (27 and 25 times, respectively). In contrast, we hardly find any occurrence for the letters Dhāl and Zā'. This is due to the nature of the local dialect, which tends to neglect the use of these two letters in daily spoken dialect. Meanwhile, the most frequently occurring voiceless sounds are the sounds of Tā', Kāf, and Sīm, occurring 27, 17, and 15 times, respectively, whereas the letter Thā' does not recur at all in the sentences of these proverbs.

4.3.. Plosive (strong), fricative (soft), and intermediate sounds:

(Fricative sounds (soft	Intervocalic sounds	Plosive (voiceless) sounds
56	185	110

Table No. (04): The number of explosive (strong), frictional (soft), and intermediate sounds in the collection of proverbs from the Wilaya of Laghouat



Graph (2): The proportion of plosive (strong), fricative (soft), and intermediate sounds in the set of proverbs from the Wilaya of Laghouat region

[zʰ, z]	[tʰ]	[b]	[ʒ]	[q]	[d]	[k]	[ʔ]	[t]	The voice
0	7	21	8	12	11	17	7	27	Its repetition
0	1,96	5,88	2,24	3,36	3,08	4,76	1,96	7,56	% Percentage

Table No. (05): Statistics of explosive (intense) sounds in the set of syllables specific to the Ouargla region

[ɨ]	[ʕ]	[r]	[n]	[w]	[m]	[l, ɫ]	The voice
46	10	27	14	25	25	38	Its repetition
12,89	2,8	7,56	3,92	7	7	10,64	% Percentage

Table No. (06): Statistical count of intermediate sounds in the proverb collection of the Laghouat region

[ʁ]	[ʃ]	[z]	[x]	[d]	[θ]	[ð]	[h]	s, sʰ	[h]	[s]	[f]	The voice
1	6	5	6	3	0	0	10	2	6	15	8	Its repetition
0,28	1,68	1,40	1,68	0,84	0	0	2,80	0,56	1,68	4,20	2,24	Percentage %

Table No. (07): Statistics of fricative sounds (softness) in the set of proverbs specific to the region of Laghouat Province

Through Table No. (04) and Graph No. (02), we notice that the medial sounds are more frequent compared to their counterparts, the plosive (strong) and fricative (soft) sounds. The frequency of the former reached (185) times, while the latter two were (110) and (56) times, respectively. The reason for this is that this dialect maintains a balance in the use of sounds during pronunciation. The frequent use of plosive (strong) sounds compared to fricative (soft) sounds can be explained by the fact that this dialect tries to impact the listener with these proverbs using explosion and strength rather than friction and softness, which are traits of weakness rather than strength. The medial sounds represented the largest proportion, 51%, because this feature contains the greatest number of Arabic sounds initially, and also because this dialect balances between plosion and friction (softness). We interpret the plosive (strong) sounds reaching 31% as reflecting the psychological orientation of the speaker, whose role is to try to persuade the listener first and also influence them. Similarly, we explain the low proportion of

fricative (soft) sounds, which amounted to only 18%, as being due to the nature of the region, characterized by roughness and strength, which is reflected in its absence.

Through Tables No. (05), (06), and (07), we notice that the most frequent sounds are those previously mentioned in the earlier analysis (the sounds of 'ya', 'lam', and 'ta').

5. Conclusion:

Folk proverbs are a solid pillar of the national identity of every nation. They are not merely short sentences; rather, they represent a world rich in human experience, diverse values, and customs and traditions. They have not received their due attention in terms of study and care within modern linguistic curricula and studies, nor in the software and technological applications produced by modern technology. Perhaps we can summarize the main findings we reached through this research in the following points:

1. Folk proverbs are one of the refined literary arts that are repeated on people's tongues, carrying values, beliefs, and experiences.
2. Folk proverbs are dialectal materials because they vary from one environment to another, from one region to another, and from one country to another... They are an art rich with various linguistic phenomena that require careful attention and deep study.
3. Folk proverbs have many characteristics related to words and meanings, which make them a unique prose art distinct from other genres.
4. Voiced sounds constitute the majority of folk proverbs in the Laghouat region compared to their unvoiced counterparts, because the speaker's goal in presenting the proverb to the listener is to influence the listener's psychology and convince them of the knowledge conveyed by the proverb, which can only be achieved through voiced rather than whispered sounds.
5. Intermediary sounds are the most frequent compared to plosive sounds and fricative (soft) sounds, because this dialect is situated in a region between the north and south. It is a region between a mild, temperate climate and a harsh desert environment, which has influenced the use of sounds by the speakers of this area in their folk proverbs.

Methodology

The study employed a mixed qualitative and computational approach combining linguistic fieldwork with algorithmic processing.

- **Data Collection:** A corpus of 150 popular proverbs native to Laghouat city was collected through interviews with local residents, elders, and storytellers. Audiotapes were recorded using high-fidelity digital recorders to ensure acoustic precision.
- **Transcription and Annotation:** Each proverb was transcribed phonetically following the International Phonetic Alphabet (IPA). The transcriptions were verified by two linguistics specialists familiar with Algerian Arabic dialects.
- **Algorithm Development:** A C++ program was developed to process the recorded proverbs. The algorithm included modules for: sound segmentation and counting (vowels, consonants, and diphthongs), frequency analysis and intensity mapping, and statistical representation of recurring phonemes and sound clusters.
- **Analysis:** The data were analyzed to identify correlations between sound patterns and semantic or cultural functions of the proverbs. Comparative analysis with other regional dialects was conducted to situate Laghouat proverbs within broader Algerian phonetic diversity.
- **Validation:** The results were cross-checked through manual verification by native speakers and linguistic experts to confirm the accuracy of computational findings.

Ethical Considerations

The study adhered to ethical standards in social and linguistic research. All participants who provided recorded proverbs gave informed verbal consent prior to participation. Their identities remain anonymous, and recordings were used strictly for research purposes. No personal data or identifiable information were shared publicly. The study complies with the ethical guidelines of the Université de Tamanghest and Université de Ghardaïa.

Acknowledgements

The authors extend their gratitude to the residents of Laghouat city for their valuable cooperation and to the linguistics departments of Université de Tamanghest and Université de Ghardaïa for their academic support. Special thanks to local cultural associations for facilitating field access and oral data collection.

Funding Statement

This research received no specific grant from any public, commercial, or not-for-profit funding agency. All costs associated with fieldwork, transcription, and algorithm development were covered by the authors.

Conflict of Interest

The authors declare no conflict of interest.

References

1. Abu Al-Hilal Al-Askari. (1988). Collection of Proverbs (Vol. 1, 2nd ed., M. A. F. Ibrahim & A. M. Qatamesh, Eds.). Al-Jil Publishing House.
2. Abu Bakr Al-Razi. (1957). Mehta al-Sihah (1st ed.). College Press.
3. Al-Tali bin Sheikh. (1990). Foundations of Thought in Algerian Popular Literature. National Book Foundation. (Unpublished manuscript)
4. Al-Zamakhshari. (1987). Al-Mustaqsa min Amthal al-Arab (2nd ed.). Dar Al-Kutub Al-Ilmiyya.
5. Ezzedine Jelaouji. (2007). Algerian Folk Proverbs in Setif . Directorate of Culture. (Unpublished manuscript)
6. Garcia, P., & Benrabah, M. (2017). The role of orality in North African Arab culture: Proverbs as cultural mirrors. *Journal of North African Studies*, 22 (4), 553–567. <https://doi.org/10.1080/13629387.2017.1293681>
7. Harrat, S., Meftouh, K., Abbas, M., & Smaili, K. (2019). Building computational resources for Algerian Arabic dialects. *Language Resources and Evaluation*, 53 (2), 217–241. <https://doi.org/10.1007/s10579-018-9424-2>
8. Ibn Abd Rabbih. (1982). Al-'Iqd al-Farid (Vol. 3). Dar Al-Kitab Al-Arabi.
9. Ibn Faris. (n.d.). Maqayis al-Lughah (Vol. 5, A. al-Salam Harun, Ed.). Dar Al-Fikr.
10. Khedoussi, R. (2002). Encyclopedia of Algerian Proverbs. Dar Al-Hadara. (Unpublished manuscript)
11. Lakhdar, M. (2015). The sociolinguistic dimension of Algerian proverbs: A dialectal and pragmatic study. *Arab World English Journal*, 6 (3), 111–128. <https://doi.org/10.24093/awej/vol6no3.8>
12. Lameche, M., & Boukhalfa, M. (2020). Computational approaches to Arabic phonetics: Challenges and perspectives. *Journal of Arabic Linguistics*, 45 (2), 203–222.
13. Messaoud, C., & Miloudi, M. A. (2025). Phonetic and Algorithmic Analysis of Algerian Popular Proverbs in Laghouat City: A Computational Audiotape Study Using C++ Programming. *Science, Education and Innovations in the Context of Modern Problems*, 8 (11), 301–312. <https://doi.org/10.56352/sei/8.11.XX>
14. Mortaz, A. (1998). Algerian Folk Proverbs. Dar Al-Kutub Al-Algeria.
15. Qadat, B., & Al-Hajj Saleh, A. R. (Trans.). (1999). Algerian Popular Proverbs Illustrated with Examples . Al-Jil Publishing House.
16. Rabah, K. (2002). Encyclopedia of Algeria in Popular Sayings. Dar Al-Hadara. (Unpublished manuscript)
17. Rida, M. (1960). Dictionary of the Language (Vol. 6). House of the Generation.
18. Sadiki, A. (2016). Oral literature and identity in Algerian cultural heritage: The case of proverbs. *Revue des Études Maghrébines*, 24 (2), 87–105.
19. Sayah, F. (2019). The rhythm and sound of Algerian Arabic: A phonetic and sociolinguistic perspective. *Arabica*, 66 (3–4), 245–272. <https://doi.org/10.1163/15700585-12341567>
20. Surah Al-An'am, 6:67 (The Holy Qur'an).

21. Toubal, A., & Saadi, L. (2018). Automatic phoneme recognition in Algerian Arabic speech using C++ algorithms. *International Journal of Computer Science and Applications*, 15 (2), 85-92.
22. Yousfi, M., & Rahmani, H. (2021). Proverbs as linguistic heritage: Structural and semantic patterns in Algerian Arabic. *Journal of Arabic Language Studies*, 12 (1), 77-93.
<https://doi.org/10.2147/jals.v12i1.2253>
23. Suleiman Y., Mrakpor F.D. (2025). Perceived Measures for Effective Implementation of Universal Basic Education (UBE) Programme in Primary and Junior Secondary Schools in Delta State, Nigeria. *Science, Education and Innovations in the Context of Modern Problems*, 8(10), 427-453.
<https://doi.org/10.56352/sei/8.10.39>
24. Ngoi S. W., Ho Ming K. (2025). A comprehensive study on a warehouse location optimization using mixed integer linear programming. *Science Education and Innovations in the Context of Modern Problems*, 8(8), 111-122; doi:10.56352/sei/8.8.11. <https://imcra-az.org/archive/375-science-education-and-innovations-in-the-context-of-modernproblems-issue-8-vol-8-2025.html>

Margins and Footnotes:

¹ Surah Al-An'am, verse 67.

² Ibn Faris, *Mqayis al-Lughah*, edited by Abd al-Salam Harun, Dar Al Fikr for Printing and Publishing, Beirut, Lebanon, Vol. 5, n.d., p. 296.

³ Abu Bakr Al-Razi, Mukhtar Al-Sihah, College Press, Egypt, 1st edition, 1957, entry 'مَنْ' p. 449.

⁴ Abu Al-Hilal Al-Askari, *Collection of Proverbs*, edited by: Muhammad Abu Al-Fadl Ibrahim and Abdul Majid Qatamesh, Al-Jil Publishing House, Beirut, Lebanon, Vol. 1, 2nd edition, 1988, p.07.

⁵ Ezzedine Jelaoui, *Algerian Folk Proverbs in Setif*, Directorate of Culture, Setif, Algeria, unpublished, 2007, p. 11.

⁶ Al-Tali bin Sheikh: *Foundations of Thought in Algerian Popular Literature*, National Book Foundation, Algiers, unpublished, 1990, p.155.

⁷ Rabeh Khedoussi, *Encyclopedia of Algerian Proverbs*, Dar Al-Hadara, Algiers, unpublished, 2002, p. 5.

⁸ Al-Zamakhshari, 'Al-Mustaqsa min Amthal al-Arab', Dar Al-Kutub Al-Ilmiyya, Beirut, Lebanon, 2nd edition, 1987, p. 112.

⁹ Ask the experienced person rather than the doctor, for you may find wisdom with the experienced person, but may not find it with the knowledgeable person or the doctor.

¹⁰ Ibn Abd Rabbih: *Al-Iqd al-Farid*, Dar Al-Kitab Al-Arabi, Beirut, Lebanon, Vol. 3, 1982, p. 63.