People's Democratic Republic of Algeria

Ministry of Higher Education and Scientific Research

Ibn Khaldoun University of Tiaret

Faculty of Letters and Languages

Department of English

Exploring Consonantal Phonological Processes in Algerian Arabic Dialect as Spoken in Tiaret:

An Optimality Theoretic- Analysis

A Dissertation Submitted in Partial Fulfilment of the Requirements for the Master's Degree in Linguistics

Submitted by:

Ms. Fatima Zohra SADJI

Ms. Noura TALEB

Supervised by:

Dr. Amina ABDELHADI

Panel members

Dr. Ghlamallah HEMAIDIA	Chairperson	Ibn Khaldoun University of Tiaret
Dr. Amina ABDELHADI	Supervisor	Ibn Khaldoun University of Tiaret
Prof. Mohamed HEMAIDIA	Examiner	Ibn Khaldoun University of Tiaret

Academic Year: 2024/2025

Dedications

I dedicate this research work to:

My dear father, who left this world too soon—this was your dream, and today I carry it in your name.

My mother, whose love, strength, and prayers have been the foundation of every step I've taken.

My husband, "Thank you for your endless support, patience, and faith in me".

My precious children, Aimen, Nadjib, Aïssa, and our newest joy, little Safouane.

My sister and brothers, thank you for your love and presence in my life.

Fatima, the sister my mother didn't give birth to, but life blessed me with.

Noara

I dedicate this research work to:

My beloved family, my mother, father, and little brother, for their love, encouragement, trust, and patience.

My incredible friend and partner Noura for her love, trust and great support.

To myself, for willing to make the dreams come true.

Thank you for your love and support.

Fatima Zohra

Acknowledgements

Our greatest gratitude goes to our teacher and supervisor **Dr. Amina ABDELHADI**. We have truly been fascinated by her luminous and deep insights which were, luckily, what guided our dissertation, and influenced us at many levels. THANK YOU, we appreciate your wholehearted devotion and sincerity towards your work.

We would also like to address our gratitude to the members of the examination panel, namely **Prof. Mohamed HEMAIDIA** and **Dr. Ghlamallah HEMAIDIA** for honoring us with their time and effort in reading and evaluating this study. Their comments and remarks will certainly be valuable additions to the credibility and plausibility of this attempt in the field.

Our gratitude also goes to the participants of this study, as this work would not have been actualized without their valuable contribution. We, thus, thank all those who agreed to participate in the questionnaires and elicitation tasks and unquestionably agreed that their responses be part of the corpus of the present study.

Abstract

The study explores the phonological phenomena peculiar to the Algerian Arabic dialect as spoken in Tiaret, within the framework of Optimality Theory. It aims to identify the phonological processes occurring particularly in the regions of Ain Kermes and Ain Bouchekkif, and to examine the influence of age and gender, along with the underlying factors contributing to the phonological variation. To this end, a mixed-method approach is adopted. A semi-structured questionnaire is used to collect quantitative data, while an elicitation task is employed mainly wordlist where students articulate sounds in words. Eighty (80) participants are purposively selected and equally divided between the two regions. The findings reveal several phonological processes classified as substitution, metathesis, deletion, insertion, lengthening, and assimilation. The present research also highlights a notable gender difference and a generational gap, identifying geographical and social factors as key influences on pronunciation adjustment. It concludes with several recommendations and implications for future research.

***Key words**:* Algerian Arabic; Dialectal Pronunciation; Optimality Theory; Phonological Processes; Phonology

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List of Abbreviations

CON: Constraint

EVAL: Evaluator

GEN: Generator

List of Acronyms

AA: Algerian Arabic

ADA: Algerian Dialectal Arabic

CA: Classical Arabic

MAR : Mostaganem Arabic

MIT: Massachusetts Institute of Technology

MMR: Mixed-methods research

MSA: Modern Standard Arabic

OT: Optimality Theory

PV: Phonological Variation

TDA: Tiaretian Dialectal Arabic

TGG: Transformational Generative Grammar

List of Phonemic Symbols

1. Consonants in Algerian Arabic

Consonants	Symbols in IPA
ء	/ʔ/
ب	/b/
ت	/t/
ث	/Ɵ/
ج	/dz/
ح	/ħ/
خ	/x/
د	/d/
ذ	/ð/
ر	/r/
ز	/z/
س	/s/
ش	/ʃ/
ص	/sʕ/
ض	/dʕ/
ط	/tʕ/
ظ	/ðʕ/
ع	/ʕ/
غ	/ɣ/
ف	/f/
ڤ	/v/
ق	/q/
گ	/g/
ك	/k/
ل	/l/
م	/m/
ن	/n/
ه	/h/
و	/w/
ي	/j/

2. Vowels in Algerian Arabic

Vowel (IPA)	Description
/i/	Front high unrounded short vowel
/i:/	Front high unrounded long vowel
/a/	Front low unrounded short vowel
/a:/	Front low unrounded long vowel
/u/	Back high rounded short vowel
/u:/	Back high rounded long vowel
/e/	Front mid unrounded short vowel
/ə/	Mid central vowel
/ɔ/	Back mid rounded short vowel
/ɔ:/	Back mid rounded long vowel

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General Introduction

General Introduction

Language serves as the primary medium of communication within any speech community. It naturally varies across countries and even within a single country, where various local dialects emerge, and individuals may use multiple linguistic forms. Sociolinguists define this phenomenon as language variation, recognizing it as a fundamental aspect of linguistic diversity. In other words, the historical evolution of sociolinguistics underscores the significance of studying these variations as they manifest across phonological, morphological, syntactic, and semantic dimensions. These linguistic variations reflect the dynamic nature of language shaped by cultural and communicative practices, highlighting the impact of demographic factors such as age, region, and gender on language use and attitudes toward variation, revealing the meanings and underlying reasons behind linguistic choices. Against this backdrop, these insights reinforce the idea that language is not static but continuously evolves within its sociolinguistic contexts. This serves as a key motivation for the present research, which was sparked by our curiosity and driven by the need to examine the various phonological processes shaping our native speech community.

It is noteworthy that, although some previous studies have examined phonological processes, certain phenomena—such as deletion, addition, insertion, and metathesis—remain underexplored, particularly in the Algerian context. The existing literature primarily focuses on phonological variations across Algerian Spoken Arabic, yet it lacks a detailed analysis of the phonetic and phonological characteristics unique to specific areas, such as the Tiaret region. This gap in research highlights the need for a more in-depth investigation into the phonological landscape of Algerian Arabic as spoken in Tiaret, contributing to a deeper understanding within the broader fields of sociolinguistics and phonological studies in Algeria.

Building on this research gap, the present study aims to explore the phonological processes affecting consonants and their role as identity markers in Algerian Arabic as spoken in the Tiaret region, particularly in Bouchekkif and Ain Kermes. In addition, it examines the influence of gender and age on these phonological variations, investigating mainly the factors contributing to these phonological variations.

To achieve these objectives, the study at hand seeks to answer the following questions:

1. What phonological processes affect consonants and serve as identity markers in the Algerian Arabic dialect spoken in Bouchekkif and Ain Kermes?
2. How do gender and age differences influence the occurrence of phonological processes in the Algerian Arabic dialect spoken in Bouchekkif and Ain Kermes?
3. What are the key factors underlying phonological variation in the Algerian Arabic dialects of Bouchekkif and Ain Kermes?

Considering this, the following hypotheses are suggested as anticipated answers to the previously addressed research questions:

1. The main phonological processes affecting consonants in the Algerian Arabic dialect of Bouchekkif and Ain Kermes are deletion, substitution, metathesis, and insertion.
2. Men favor phonological simplification through deletion, women prefer standardized forms, and older speakers preserve traditional processes like dissimilation, metathesis, and insertion.
3. These variations stem from dialectal influence, geographical distance, and social identity, as speakers adjust their speech to align with specific social groups.

This study employs a mixed-method approach to explore phonological processes in the Algerian Arabic dialect spoken in Tiaret, specifically in Bouchekkif and Ain Kermes. A semi-structured questionnaire provides quantitative insights into attitudes based on gender and

age, as well as key factors influencing phonological variation. Additionally, an elicitation task captures qualitative data by having participants transcribe a list of Modern Standard Arabic (MSA) words into their native dialects. The selection of the word list is based on native speaker observations of phonological variations. Data is transcribed and analyzed using Optimality Theory (OT) to identify dominant phonological processes and their variation. Purposive sampling, a non-probability sampling method, is opted for, with 80 participants equally representing gender and age groups across both regions.

This study aims to obtain a comprehensive understanding of language structure and use by analyzing different linguistic phenomena. As the following sections will help in having clear vision, mainly about language variation across regions. This research is structured into three chapters. Chapter one establishes theoretical foundation, distinguishing language from dialect and covering topics like the dialect continuum, mutual intelligibility, linguistic variations, with a focus on concepts related to phonological variation. Chapter two presents the methodological framework, detailing the research design, data collection tools, sampling, corpus selection, and the use of Optimality Theory (OT) for analysis. Chapter three focuses on data analysis and discussion, addressing the research questions and testing the hypotheses. It is worth mentioning that the study follows APA 7th edition formatting. This study is capable of exploring the core keys of linguistic variation based on strong theoretical and practical framework. insights will be gained from the usage of OT theory and it will pave the way for future researchers in expanding the area of study.

Chapter One:

Literature Review

Introduction

This chapter explores key concepts in phonological analysis, beginning with the distinction between language and dialect. It examines the dialect continuum, mutual intelligibility, and linguistic variation, with a specific focus on phonological variation. Additionally, it reviews phonological processes such as assimilation, elision, epenthesis, and gemination, highlighting studies that illustrate their impact on pronunciation and word structure. The chapter concludes with a discussion of studies, though rare in the Algerian context, that analyze these processes to demonstrate their role in phonological structures.

1.1. Language versus Dialect

Language is a systematic means of communication that combines a number of words, phrases, and sentences. Noam Chomsky (1957) says, "A language is a set of a finite or infinite number of sentences, each finite in length and constructed out of a finite set of elements"(p. 13). Edward Sapir (1921) mentions in his book 'An Introduction to the Study of Speech' that language is an arbitrary system of symbolism. People perceive languages as symbolic, systematic, and arbitrary. Additionally, linguists view language as a communication system consisting of arbitrary elements that hold a shared significance within a community. According to Edward (2009), these rules connect in rules-governed ways.

Conversely, dialect is one of the most influential components in shaping the social structures and identities of language communities. Understanding dialect is important as it leads to an understanding of the people who use it as a language. Dialect is a variety of language that is characterized by several features. The word dialect in most cases is defined as a variety or form of language. Wardhaugh (1986) explains that variety is defined in terms of a specific set of linguistic items or human speech patterns (sounds, words, and grammatical

features) that can be uniquely associated with some external factors (such as geographical areas or social groups).

Dialect is considered a corrupt form of language that is associated with rural values, and this can be gleaned from the following quote:

> In common usage, of course, a dialect is a substandard, low-status, often rustic form of language, generally associated with the peasantry, the working class, or other groups lacking in prestige, but when talking about a dialect in linguistic terms, after exploring languages, it can be said that all speakers are speakers of at least one dialect, and this dialect is the standard language, because standard English, for example, is just as much a dialect as any other form of English, so that we cannot say that some dialects are superior to others. (Chambers and Trudgill, 2004, p. 3)

Language differs from dialect in several ways. According to Haugen (1966), from a very general perspective, a language is always a superordinate entity, and a dialect is a subordinate one. Language is perceived as a standard variety that occupies a prestigious status among speakers. Dialect, however, is a nonstandard variety with low status in communities. Kamusella (2016) also demonstrates that those known as languages are perceived positively as true and legitimate, whereas those pushed into the netherworld of often generalized contempt and neglect are branded as dialects.

There are several criteria to distinguish between language and dialect. For instance, the pair of concepts of heteronomy and autonomy often explains this difference in a way in which heteronomy suggests some kind of dependence rather than independence. This means that when there is a dialect of a language, that dialect is heteronomous with respect to the standard language. Autonomy, in turn, would imply a lack of such dependence (Chambers and Trudgill, 2004).

1.2. Dialect Continuum

The idea of the dialect continuum has always existed, but in varying forms and depths. It can be thought of as an array of dialects spoken across geographic space that exhibit varying degrees of mutual intelligibility. Chambers and Trudgill (2004) explain that a geographical dialect continuum occurs when linguistic differences gradually increase between neighboring villages along a given route. While adjacent dialects remain mutually intelligible, comprehension becomes more difficult as geographical distance grows. However, there is no sharp linguistic break between regions.

In a continuum, dialects gradually blend into each other over geography, and any line drawn through the map could be considered arbitrary (Burridge, 2017). Instead, the group regarding dialects is defined by mutual intelligibility; speakers of mutually intelligible dialects can understand each other, at least to some extent, whereas speakers of mutually unintelligible dialects cannot.

There are many factors driving the creation of dialect continua, such as geographical barriers like seas, mountains, or deserts, which influence the diffusion of linguistic innovations. Trudgill (1990) stated that geographical barriers such as mountain ranges, large rivers, and seas act to limit communication and hence linguistic diffusion, creating regional differences in language. Flat and open terrains, however, facilitate greater interaction, leading to gradual language variation. Additionally, historical migration, trade, and conquests contribute to the creation of dialect continua where the persistent interaction between language communities leads to linguistic changes over time, resulting in a spectrum of dialects that evolve gradually and maintain mutual intelligibility (Çelikkol et al., 2024).

1.3. Mutual Intelligibility

In the vast field of languages across the globe, some of the most interesting are those that are closely related. This is where problems and phenomena such as mutual intelligibility arise. The term mutual intelligibility denotes the phenomenon where two speakers of different but related languages can understand each other. This is an important phenomenon in language for many reasons (Nieder & List, 2024). Mutual intelligibility is the ability of people who speak related dialects to understand each other (Simon, 2019). That is to say, they can comprehend their speech, despite phonological and lexical variation. For example, intercomprehension allows speakers of Spanish, Portuguese, Italian, and French to understand each other.

Mutual intelligibility is a linguistic concept relating to the relationship between related language varieties where speakers of one variety can understand speakers of another. This phenomenon refers to the degree to which speakers of one language can understand each other without any formal instruction and is affected by a complex interplay of factors, which are believed to operate at lexical, phonological, and grammatical levels (Nieder & List, 2024).

Mutual intelligibility serves as a useful criterion for differentiating dialects from languages; however, it often proves inadequate when examining varieties organized along a dialect continuum. In such a continuum, neighboring varieties may exhibit only minor differences, allowing for mutual intelligibility. Nevertheless, varieties located at one end of the continuum may not be understandable to those at the opposite end, which could be situated hundreds of kilometers apart. In instances involving a dialect continuum, the concept of mutual intelligibility should be treated as a transitive relationship: if individual A comprehends individual B, and individual B comprehends individual C, then individual A is presumed to also comprehend individual C (Gooskens & van Heuven, 2021).

1.4. Linguistic Variation

Linguistic variation is a multifaceted phenomenon encompassing phonology, morphology, syntax, and lexicon, shaping both social interactions and language change (Camp & Nowak, 2025). Influenced by geographic, cultural, and contextual factors, linguistic variation manifests in various settings, from regional dialects to multilingual environments, highlighting its role in regional identity and functional adaptability in different communicative contexts (Medeiros & Oliveira, 2024).

Moreover, linguistic variation extends to digital spaces, where EFL students on social media platforms engage in code-switching and dialect mixing, reflecting evolving communication patterns (Putri & Putra, 2024). Beyond its immediate social functions, linguistic variation also drives language change, with new variants emerging cyclically and spreading through speech communities. These interconnected aspects highlight the dynamic nature of linguistic variation, demonstrating its impact on both language use and linguistic evolution, particularly in phonology.

1.5. Phonological Variation

Phonological variation (PV) shapes speech perception and production through interactions between social, cultural, and cognitive factors. Studies show that PV is influenced by age, gender, education, and socioeconomic status, particularly in multilingual communities where younger and more educated individuals demonstrate greater linguistic awareness (Jacobs, 2024; Shen, 2024). While PV is crucial for inclusive communication and language education, research on its patterns in the Algerian context remains limited. To address this gap, the following section explores key concepts and areas of phonology, providing a foundational understanding of phonological variation and its broader implications.

15.1. Phonology: Scope and Key aspects

Phonology, as a fundamental branch of linguistics, encompasses various key aspects that contribute to the understanding of sound systems and their functions within a language, shaping its overall structure and pronunciation patterns.

15.2. Morphophonology

Morphophonology is a branch of linguistics that combines morphology and phonology. It is the study of the interplay of phonology and morphology; more specifically, it concerns how the sound patterns of a language relate to the structure of words in that language (Dolatian, 2019). Morphophonology focuses on how morphological rules affect the phonological structure of words and, conversely, how phonological rules influence morphological processes. This discipline seeks to understand how the two types of rules interplay to create variations in word forms.

The Greek words "morph" and "log," which mean "structure" and "study," respectively, are the origins of morphology. In linguistics, morphology is the scientific study of the forms and structures of words in a language (Alagbe et al., 2022). Morphology is the study of the smallest units of meaning in a language, such as prefixes and suffixes. Alagbe (2022) says that a morpheme is the main part of morphological analysis that explains how words are put together. This is further studied through processes like affixation, borrowing, reduplication, compounding, neologism, and so on.

Phonology, however, is the study of how speech sounds behave in a particular language or languages. It is the link between phonetics and the rest of linguistics (Alagbe, 2022). Phonology is the branch of linguistics that studies how languages systematically organize their sounds or signs to convey meaning, and it can be divided into two subfields:

diachronic phonology and synchronic phonology. Diachronic phonology examines how sound systems change over time, while synchronic phonology describes the sound patterns that occur within a language at a given point in its history. Some of the topics that phonology deals with are phonemes, allophones, syllables, stress, intonation, etc.

15.3. Generative Phonology

Generative phonology is a subfield of generative grammar. It was founded by Noam Chomsky and Morris Halle at the Massachusetts Institute of Technology (MIT) in the late 1950s. Noam Chomsky proposes the term generative in his book "Syntactic Structures" (1957) to demonstrate how grammar has the ability to define all the grammatical sentences in language (Crystal, 2008). According to Crystal (2008), within generative linguistics, two main branches are named: generative phonology and generative syntax.

Generative phonology is one of the famous approaches to phonology. As it works on how spoken languages are represented phonetically, it seeks to reveal native speakers' internalized grammar. Chapman and Routledge (2009) state that in order to generate the actual phonetic forms of languages, the school's main objective is to create several rules, principles, and constraints and to model the unconscious linguistic knowledge of native speakers.

Kenstowicz and Kisseberth (1979), in their work *Generative Phonology: Description and Theory*, assert that generative phonology posits two fundamental levels of phonological representation:

1. An underlying representation is created before any phonological rules are applied (the most fundamental form of the word). It shows what native speakers realize about the abstract underlying phonology of language.
2. The form of words that are heard or spoken is known as a phonetic representation.

Generative phonology remains the dominant framework for many advancements in phonological theory. Despite all modifications and changes in later decades, it was a prime idea in the linguistic research in the 1960s (Kenstowicz & Kisseberth, 1979).

15.4. Auto-segmental Phonology

Auto-segmental phonology is an approach introduced by Goldsmith in 1976 at the Massachusetts Institute of Technology (MIT) to phonological analysis as a response to certain problems in the phonological theory of that time. "Auto-segmental phonology is a model in which phonological representations consist of multiple tiers that are linearly ordered, with associations linking the elements of these tiers." (Goldsmith, 1990, p. 1).

In this framework, some phonological features, such as tone, intonation, and stress, are termed "autosegments"; they function independently of the segment they are associated with and exist on a separate tier from the linear sequence of phonological segments. The first smaller and independent phonological feature analyzed by Goldsmith in his dissertation at MIT in 1976 was the autosegmental property: tone (Van de Weijer, 2006).

Auto-segmental representations show that phonological structure consists of multiple tiers, with each tier having several internal components. These tiers are horizontal lines, with no limit to the number of tiers one can employ. Tiers can entirely represent a phonological structure or be associated with other phonological representations in various ways.

The core of auto-segmental phonology is tiers, which are used to represent phonological symbols. That is, each tier consists of nodes, and each node has a symbol (or nothing) associated with it. There is a set of rules for how to write an association line in a phonological representation. These rules say how an association line can connect the nodes on a tier. The first level of these rules is designed to link two specific nodes, while the second level can connect any appropriate nodes on two different tiers (Frazier, 2014).

One of the earliest manifestations of interest in auto-segmental phonology has been in the analysis of tonal systems. Tone, where the pitch of the voice on a vowel can serve to distinguish words, is one example of this. There are more languages where pitch is used with the set of separate consonants and vowels to make a sound unique than any other single feature variable (Karlin, 2018). Since the auto-segmental model was first proposed 40 years ago, researchers have looked into how tones may relate to segmental material in more detail and with more complexity. This framework suggests that tones are part of a phonological level of representation that is separate from the segmental level. The two levels interact with each other in different ways; however, they are controlled by different rules and limits. So, this tier gives a way to record that tones are separate from the segments they occur with: the rule that tone changes will not usually affect the overall number of sharp sounds and the fact that tones can skip certain segments. The auto-segmental model was created to show how tone distributions are complicated in terms of a certain type of suprasegmental structure, which is also called prosodic structure. The analysis of tone in autosegmental terms has by no means yielded a precise solution to all tonal problems in phonological theory. But it nevertheless constitutes a valuable basis and set of tools for pursuing the questions further (Frazier, 2014).

15.5. Consonantal Phonology

Consonants are speech sounds produced with closure or near-complete constriction of the vocal tract (Ladefoged, 2001). It is also known as consonant sounds that are being produced with some degree of constriction in the vocal tract, which differentiates them from vowel or voiced sounds (Campos-Astorkiza, 2018). Ladefoged (2001) states that there are about 600 consonants existing in the world's languages; their roles lie in the segregation of vowels. According to Ladefoged (2001), consonantal phonology is a part of phonology that is concerned with the study of consonants and their productions, classifications, and the phonological processes that control their position in a language.

Consonants can be categorized based on their features, including place, manner of articulation, and voicing.

a. Voicing: O'Connor (1980) defines a consonant as voiced if the vocal folds vibrate during its production. Aitchison (2003), however, defines it as voiceless if there is no vibration during its production.

b. Manner of articulation: It must address various types of obstructions that occur when air passes through the vocal folds (Forel & Puskás, 2005).

c. The place of articulation: These places determine which articulators are involved in the production of a certain sound (Spahiu et al., 2021).

1.6. Phonological Processes

Grammar as a field of study possesses a special place in linguistics; it deals with rules and principles that govern language. Native speakers, as part of this language, accept the constraints that arrange the structure and interpretation of sentences. This discipline encompasses all levels of language, including phonology, morphology, syntax, and semantics.

Generative linguistics, known as generative grammar, was proposed by the American linguist Noam Chomsky in 1957, mainly in his famous book ‘Syntactic Structures.’ The introduction of this theory comes as a reaction against behaviorism and structuralism.

The central suppositions of this theory indicate that native speakers know the grammar of their language; they can form correct words, phrases, and sentences. It denotes that all humans have an implicit knowledge about their native language that enables them to produce correct grammatical sentences. Dealing with generative grammar is crucial for gaining a clear image of how language works.

Transformational generative grammar, known as TGG, is one of the notable types of generative grammar developed around the 1950s and 1960s. Its main idea is that language includes two things: deep structure and surface structure.

Deep structure represents the basic form and abstract picture of words, phrases, and sentences. For the surface structure is the result of deep structure with some transformational rules. According to the Oxford Dictionary of English Grammar (2014), deep and surface structure are often used as terms in simple binary opposition, with deep structure representing meaning and the surface structure being the actual sentence we see.

Phonological processes are a set of rules that speakers rely on when shifting from the abstract form to the actual use of language. From Bruce Hayes' perspective (2009), phonological rules are described as generalizations about the different ways a sound can be pronounced in different environments. What speakers actually pronounce is the result of data stored in the mind with a combination of phonological rules.

For John Golden Smith (1995), "phonological rules are mapping between two different levels of sound representation, in this case the abstract or the underlying level and the surface one."

"Underlying representation →→→ Phonological rules →→→ Phonetic representation" (Mohanan, 1982, p.112).

There are several phonological processes that influence how sounds are produced in languages:

1.6.1. Assimilation

Assimilation is one of the phonological operations whereby one sound may also change one of its features to become more like a neighboring sound. According to Ramelan

(1994), “Assimilation is the process of converting one phoneme into another phoneme as the result of putting morphemes together” (p. 171).

From Hymen's (1952) perspective, assimilation refers to all adaptive modifications of a segment in a chain of segments by a neighboring segment. Three main types can be named within assimilation:

1.6.1.1. Regressive Assimilation

It is one of assimilation's subcategories, known as right-to-left or backward assimilation. According to Odden (2013), regressive assimilation occurs when a sound begins to resemble a subsequent sound based on one or more phonetic features. As the sound that goes throughout modifications known as the ‘target’ comes before the sound that is responsible for the change, the trigger. For instance, the sound /n/ becomes /ŋ/ under the influence of the voiceless velar plosive /k/. This occurs in words such as tank" (/tæŋk/), think (/Θɪŋk/), and bank (/bæŋk/). (Jolayemi, 2010).

- /n/ becomes /m/ under the influence of a labial consonant that follows. For example, ten minutes → /tem'minits/.
- /d/ becomes /t/ when followed by a voiceless consonant. For example, used to → /'ju:st tu/.
- /z/ becomes /s/ when followed by /p/ or /t/, for example: newspaper → /'nju:speipə/.
- /n/ sound is influenced by the following sound and changes to an /m/ sound, e.g., (information) /ɪnfəmeɪʃən/ → (imformation) /ɪmfəmeɪʃən/.

1.6.1.2. Progressive Assimilation

It is the opposite of regressive assimilation, from left to right. As the target comes after the trigger. Ladefoged & Johnson (2015) state, “Progressive assimilation occurs when a sound

becomes more like the preceding sound" (p. 278). These cases highlight progressive assimilation:

- The /-s/ morpheme of the plural becomes /-z/ when preceded by a voiced consonant, e.g., bag + s → /bagz/, pencil + s → /penslz/.
- /-d/ becomes /-t/ when preceded by a voiceless consonant: e.g., kick + ed →/kikt/.
- /-t/ after voiceless consonants: looked, stopped, reached.
- /-id/ after /t/ and /d/: wanted, added.
- The word *print* [prInt], [r] becomes partially devoiced under the influence of the preceding voiceless [p].
- The verb *comes* [kAmz], [s] is changed into [z] under the influence of the preceding voiced consonants.

1.6.1.3. Reciprocal Assimilation

It is the third type of assimilation. When there is a mutual effect between sounds, reciprocal assimilation occurs. According to Jones (1980), "Coalescent reciprocal assimilation is a process in which two segments merge into one, and a qualitatively new sound (assimilant) is formed" (p. 218). "In the example: televise + ion. The interaction between /s/ and /ɪ/, which occurs while turning the verb to the noun form, results in /ʒ/, which gives /tɛlɪvɪʒn/" (Jolayemi, 2010, p.101).

a. When a morpheme-final alveolar plosive or fricative /t, d/ or /s, z/ is followed by [j], a palato–alveolar fricative results, mostly when the segment is followed by the suffixion (Eka et al. 2010).

b. In the phrase "would you, the /d/ from "would" and the /j/ from "you," the fusion of these two sounds leads to the new one /wʊdʒə/.

c. As in the phrase “what you,” the mutual effect of the sounds /t/ and /j/ leads to a new sound (/ʧ/) as /wɑːtʃə/.

d. The blending of the two sounds /d/ and /j/ in the phrase “did you” leads to the sound /dʒ/, as in the phrase /dɪdʒə/.

1.6.2. Elision

Elision is one of the phonological processes that can be defined as the deletion or omission of a sound that can be a consonant or vowel. It occurs mainly to make the language faster and quicker. Due to phonological cases in certain environments, a sound is deleted from the phonetic form. According to Roach (1983), under certain circumstances sounds disappear, or in specific situations a phoneme may be realized as zero or have zero realization.

From Lass's perspective (1984), three main types of deletion are highlighted:

A. Aphaeresis: This type happens when there is an initial omission of the sound, as in "I am (I'm) or I have (I've).

B. Syncope: It is the medial or internal sound's elision; the omission usually takes place with vowels but occasionally may expand to consonants, for instance, going—gonna, want—wanna.

C. Apocope: It is the loss of the last sound, as the /t/ before a word beginning with another consonant, 'last time.

- For example, in the phrase “Last week,” the /t/ is deleted to avoid difficulties in pronunciation. “Last week” → “Las week.”
- • The deletion of /e/ in the word camera: camera → /kamra/.
- Omission of schwa /ə/ in words like tomato /təˈmɑːtəʊ/ → /tˈmɑːtəʊ/, today /təˈdeɪ/ → /tˈdeɪ/ , and police /pəˈliːs/ → /pˈliːs/.
- Elision in weak form: had/would → /d/ → I’d rather not.

1.6.3. Epenthesis/Insertion

Epenthesis/insertion is an important phenomenon in phonology and morphology. It is the addition of one or more sounds to a word, especially to its interior. This is a common process in word formation for the purpose of altering phonetic structures. Various methods employ epenthesis to enhance rhythm in the phonology of sound strings. It can also be understood by analyzing the sound separation of feet by the apparatus of the onset (the beginning consonant of a syllable), nucleus (a vowel sound in the syllable), and coda (the terminal consonant of a syllable).

The most straightforward definition of epenthesis is the insertion of a sound within a word. Specifically, it involves the insertion of a vowel or consonant to break up a consonantal cluster or vowel sequence for phonotactic reasons (Kobayashi & M. Skaer, 2017). Epenthesis can be categorized in various ways depending on the phonological context such as, morpheme and stress into which the sound is inserted. Based on the type of inserted segment, it is typically classified as either consonant epenthesis or vowel epenthesis.

Consonant epenthesis is a phonological process in which a consonant is added to a word to make it easier or more natural to pronounce. This phonological regularity is attested in most natural languages, including English and Japanese (Kobayashi & M. Skaer, 2017). In English, consonant epenthesis is not very common, but it can be observed in certain contexts. For instance, some English speakers insert a [p] sound to break up the difficult cluster /mst/, like in the word hamster /ˈhæm.stɚ/ → which becomes /ˈhæmp.stɚ/. Also, a [p] sound is sometimes added between /m/ and /θ/ in casual speech, as in the word something /ˈsʌm.θɪŋ/ → that becomes /ˈsʌmp.θɪŋ/. Additionally, in the evolution of the English language, the words "empty" and "thunder," derived from the Old English words ǣmetig and thunor, over time, the [p] sound and [d] sound were inserted to ease pronunciation /ˈæː.me.tig/ → /ˈɛm.p-ti/, /ˈθʌn.ɚ/→/ˈθʌn.dɚ/.“As a phonological phenomenon, epenthesis is also found in Arabic,

especially in the Middle East, as illustrated in the following example: ‘Science or knowledge’ is /ʕɪlm/ → [ʕɪləm] with the insertion of ‘ə’; this also occurs with borrowings like /fɪlm/ → [fɪləm]" (Abdelhadi, p. 102).

Vowel epenthesis typically involves a preceding vowel placed before a coda consisting of one consonant or a consonant cluster in order to facilitate smoother pronunciation. It functions similarly in that the word’s original pronunciation is preserved with the addition of the epenthesized vowel. In English, this can occur for various reasons, such as linguistic borrowing, morphological processes, or dialectal variation. For instance, to form plurals, English speakers use epenthesis to break up difficult consonant clusters, like "Buses" → [bʌsɪz] instead of [bʌss], "Churches" → [ʧɜːʧɪz] instead of [ʧɜːʧs]. This insertion of the vowel /ɪ/ makes the plural easier to pronounce (Ladefoged & Johnson, 2014).

The insertion of schwa is very common in English; for example, the word ‘input’ is pronounced with a schwa between the “t” and the “u,” [‘ɪn.pət]. Epenthetic sounds are not always vowels. For instance, we know that the indefinite articles 'a' and 'an' precede consonant sounds and vowel sounds, respectively. Thus, we may view this [n] as an epenthetic sound that breaks up a sequence of two vowels: *"a apple*." (Anita K., 2002).

1.6.4. Gemination

Gemination is a phonological process observed in a wide range of languages. It is a common property of many languages but not a universal feature. It is often described as the occurrence of a long (i.e., double) consonant in a position where only short consonants are found.

In other words, gemination in phonology is a feature by which consonants are lengthened or doubled. It is considered to be one of the substantial features in the sound

patterns of languages across the world, in that a language may have geminate consonants contrasted with respect to non-geminated counterparts.

In the phonological literature, two types of gemination are typically recognized: long-distance gemination and assimilatory gemination. The former refers to the phenomenon by which geminates are realized across a word boundary even though the extra consonant does not appear in the lexicon, i.e., this involves the repetition or doubling of a consonant at a distance within a word or across words. For example, in "unnecessary," the /n/ sound is geminated across the morpheme boundary of "un-" and "necessary." The pronunciation often results in a longer /n/ sound ([ʌnˈnɛsəˌsɛri]).

Assimilatory gemination, on the other hand, refers to the process of lengthening or strengthening a consonant after another of the same type. However, this phonological account does not confine the discussion of gemination. Here, we perceive gemination as a strategy that displays the capacity to produce a specific sequence of sounds. Gemination is a prominent feature of many languages around the world and has a long history of investigation on many overlapping levels. Nonetheless, even when treated from a strictly phonological perspective, gemination is a multifaceted phenomenon (Gabriella Di Benedetto et al., 2021).

1.7. Previous Studies on Consonantal Phonology in Algerian Arabic

A number of studies have examined the consonantal phonology of Algerian Arabic (AA), one of which is “Exploring Consonantal Variation in French-Arabic Code-Switched Speech,” which places a focus on gemination processes. Amazouz et al. (2019) found that Algerian Arabic (AA) exhibits frequent gemination processes, especially in code-switched speech with French. An example of that is the automatic gemination of coronal consonants that follows the definite article /ال//ʔal/, where the article’s consonant assimilates to the following coronal. In this study, it is stated that “beyond the phonological status of geminates

and gemination of consonants in Arabic, they are orthographically marked by a diacritic called *Shadda*" (Amazouz et al., 2019, p. 233).

"Phonological Processes in Algerian Arabic as Spoken in Mostaganem: An Optimality Perspective" is another study that has found that there are four types of phonological processes identified in AA, particularly in Mostaganem, a seaside town that is located in the northwest of Algeria and has Roman origins. As indicated by Belhmissi (1982), Mostaganem has its origins in Roman Africa during the reign of the Roman emperor Gallien in the 3rd century. It lies in the Gulf of Arzew in the Mediterranean Sea and is bordered by the Al-Dahra mountains in the east and the Al-Macta river in the west. These processes are epenthesis (vowel epenthesis and consonant epenthesis), deletion, assimilation, and major class change. To collect this study's corpus of data, the researcher implemented a number of procedures, including speech recordings that were accomplished through a digital voice recorder model and conversations in settings such as taxis, restaurants, supermarkets, beaches, and occasions like family gatherings, neighbors chatting, and so on, where participants' speech was spontaneous and natural. The speech was transcribed in MostaganeMARabic (MAR) and then analyzed. Such analysis branched into different accounts, viz., a rule-based account and an OT account, resulting in the identification of the aforementioned phonological processes. Each type of phonological process was regarded as being the outcome of the domination of certain types of markedness constraints over certain types of faithfulness constraints.

Conclusion

This chapter introduced key concepts in language and dialect, focusing on the distinctions between them and how mutual intelligibility and the dialect continuum influence linguistic boundaries. Along with consonantal phonology and processes like assimilation, elision, epenthesis, and gemination, it also looked at morphophonology and auto-segmental phonology to show how sounds and morphology interact. The study concluded by using some

previous studies on consonantal phonology in Algerian Arabic as illustrations. The next chapter shifts to the methodological aspect of the study, outlining the research design, data collection procedures, sampling, and analytical framework through the lens of Optimality Theory (OT).

Chapter Two:

Research Framework and Methodology

Introduction

This chapter outlines the methodological framework adopted in the study. It details the research design, sample description, data collection tools, and the approach used to analyze the gathered corpus. It initially begins by explaining the linguistic features of ADA and identifying the gap in research on phonological processes specific to the dialect and how studies on the matter are limited. It also describes the research design that relies on a mixed-method approach, combining a quantitative semi-structured questionnaire with qualitative elicitation tasks (wordlist) to examine pronunciation patterns of participants from Ain Kermes and Ain Bouchekkif who are selected through purposive sampling, a non-probability method. The corpus is then analyzed using the Optimality Theory as a framework to offer a systematic approach to understanding phonological processes.

2.1. Research on Algerian Dialectal Arabic: Gap Identification

Arabic, a widely spoken language with over 380 million speakers, belongs to the Afro-Asiatic family and is classified into three major types: Classical Arabic (CA), Modern Standard Arabic (MSA), and Arabic dialects (AA). CA, the oldest form, is primarily used in religious contexts and is the language of the Quran. MSA, a variety of Arabic that is considered the official language in all Arab countries, is not acquired as a mother tongue, but rather it is learned as a second language at school and through exposure to formal broadcast programs such as the daily news, religious practice, and newspapers (Harrat et al., 2016).

Despite their shared linguistic roots, CA and MSA exhibit notable phonetic differences. One key distinction involves the letter "ض," pronounced as an emphatic voiced dental stop [ḍ] in MSA, while historical sources suggest a lateral articulation in CA. Another variation is found in the letter "ق," which is realized as a voiceless uvular stop [q] in MSA but may have been a voiced uvular stop [G] in CA (Mustafawi, 2019). These phonetic

discrepancies highlight the evolution of Arabic phonology over time and across different linguistic contexts.

Arabic has a complex phonological system characterized by 28 consonant phonemes and six vowels, which contrast between short and long forms. Short vowels (Fatha, Kasrah, and Dammah) are represented by diacritical marks, whereas long vowels (Alif, Waw, and Yaa) function as independent letters (Elkhateeb, 2006). Additionally, diphthongs are formed through combinations of semivowels with short vowels. Arabic consonants exhibit a range of articulatory features, including emphatic coronals, uvular, and pharyngeal sounds, making its phonetic inventory distinct from many other languages. The table below provides a detailed description of Arabic consonants, categorizing them based on their place and manner of articulation along with relevant examples:

Phonetic Symbol	Arabic Letter	Three-Term Label	Example
B	ب	Bilabial plosive	ḥʊb (love)
T	ت	Denti-alveolar plosive	təṭabIq (match)
D	د	Denti-alveolar plosive	daxIl (inner)
K	ك	Velar plosive	kita:b (book)
ʒ	ج	Palate-alveolar affricate	ʒuç (hunger)
Q	ق	Uvular plosive	qəmər (moon)
L	ل	Alveolar lateral	la: (no)
M	م	Bilabial nasal	mətər (rain)
N	ن	Alveolar nasal	nu:r (light)
F	ف	Labio-dental fricative	fən (art)
Θ	ث	Inter-dental fricative	θəlaθəh (three)
Đ	ذ	Inter-dental fricative	ðəki (intelligent)
S	س	Alveolar fricative	su:q (market)
Ṣ	ص	Velarised alveolar fricative	ṣəḥḥəh (health)
Z	ز	Alveolar fricative	ruz (rice)
ʃ	ش	Palate-alveolar fricative	ʃəms (sun)
X	خ	Uvular fricative	xəsarəh (lose)
ɣ	غ	Uvular fricative	ɣuba:r (dust)
ḥ	ح	Pharyngeal fricative	ḥima:r (donkey)
H	ه	Glottal fricative	hawa:ʔ (air)
R	ر	Alveolar trill	rəb (lord)
Σ	ع	Pharyngeal frictionless continuant	çəql (mind)

J	ي	Palatal approximant semi-vowel	jəd (hand)
W	و	Labio-velar semi-vowel	wahid (one)
∂	ظ	Velarised alveolar fricative	∂ərf (envelope)
ʔ	أ	Epiglottal plosive	faʔr (rat)

Table 2.1: Arabic Consonants (based on Iram Sabir & Nora Alsaeed, 2014)

Each and every Arab country has its own daily life Arabic that speakers think of as their mother tongue. These different types of Arabic are considered dialects. In the Algerian context, Algerian dialectal Arabic (ADA) is the most frequently spoken native dialect in Algeria, commonly referred to as Darija. It is the mother tongue of more than 83% of the inhabitants (Jacques, 2009). This dialect reflects the rich and complex linguistic history of Algeria that is influenced by Berber, French colonialism, Spanish, and the Classical Arabic heritage.

Among the characteristics of ADA is the absence of writing resources and standardization, making it difficult to document its linguistic aspects (Sadaane & Habash, 2019). The lack of comprehensive phonetic and phonological studies on ADA contributes to raising the challenges in terms of analyzing the sound system, especially with the presence of borrowed words and localized pronunciation. Researchers (Salima Harrat et al., 2016) face difficulties in analyzing the phonological structure of Algerian Arabic, as the dialect is primarily transmitted orally and lacks extensive academic documentation.

Despite the studies that are conducted on Arabic phonology, research on Algerian Arabic dialects remains limited in terms of phonological processes. While studies have analyzed phonetic disparities in CA, MSA, and some dialects, there is a noticeable gap in the analysis of phonological phenomena specific to ADA. Further investigation is needed to document its phonetic inventory, vowel system, and consonantal changes, as well as the impact of language contact on its evolution. Addressing this gap would provide valuable insights into the linguistic diversity of Arabic and contribute to a more comprehensive

understanding of its dialectal variations, which is the focus and the significance of the current research.

2.2. Research Design

As mentioned in the general introduction, the main objective of this study is to investigate the different phonological processes in Tiaretian dialectal Arabic. Specifically, it focuses on the phonological processes that influence the consonants in the dialect, particularly within Ain Kermes and Ain Bouchekkif communities, and how they function as identity markers across these areas. Additionally, the study aims to explore the influence of gender on these phonological variations by examining whether men and women exhibit distinct patterns in their pronunciations. To further enrich the analysis, the study also delves into generational differences in phonological processes, comparing younger and older speeches, how they might differ, and what factors contribute to these linguistic shifts. Furthermore, this study seeks to explore the underlying reasons behind these variations, aiming to provide insights into the role of sociolinguistic influence, language contact, and geographical separation in shaping dialectal differences.

The study employs a mixed-method approach to provide comprehensive insights into the phenomenon being investigated. The qualitative component involves an elicitation task that appears to be effective to document and obtain authentic speech data. To complement the qualitative data, a semi-structured questionnaire is distributed among participants from both regions to yield quantitative insights into language usage patterns. Since the study aims to examine how phonological processes serve as identity markers and vary according to gender and age, the questionnaire helps quantify these variations, providing measurable evidence for linguistic shifts.

The Optimality Theory (Prince & Smolensky, 1993) serves as the theoretical foundation for this study, as it provides a solid framework for analyzing data and allows for

the identification of ranked constraints that govern phonological processes in Tiaretian dialectal Arabic.

2.3. Population and Sampling

The study at hand employs a purposive sampling, a type of non-probability sampling in which participants from both Ain Kermes and Ain Bouchekkif are deliberately selected to gain in-depth insights. By focusing on these speakers who exhibit distinct linguistic features, this method ensures that the data collected will be rich, contextually grounded, and relevant to the study's exploration of phonological processes in these two dialectal areas. While a random sampling could have been chosen for broader generalization, the nature of the study necessitates purposive sampling, as it allows selecting individuals who manifest specific linguistic traits to guarantee a more effective data collection process. Additionally, the wordlist elicitation task supports this choice, as it requires participants who can actively engage and provide the necessary linguistic data for the study.

2.3.1. Group of Speakers

Language variation is a fundamental characteristic of any speech community, and the regions of Ain Kermes and Ain Bouchekkif exemplify this through their distinct phonological and sociolinguistic features.

2.3.1.1. Group of Speakers: Ain Kermes

Ain Kermes is a commune located in the wilaya of Tiaret province in northwestern Algeria, situated approximately 60 kilometers southwest of Tiaret. It contains 17,541 inhabitants, according to the 2008 census. This speaking community of Ain Kermes is characterized by a Bedouin-type Arabic dialect, which belongs to the Hilalian group of Algerian Arabic. As a matter of fact, the local dialect of Ain Kermes exhibits phonological similarities with the neighboring dialect of Tiaret while also displaying distinct phonological

traits, such as the realization of qaf (ق) as /g/. Additionally, it is known for its use of different phonological processes that make it distinguishable from other areas of Tiaret, with these differences being age-based in most cases. Despite external linguistic influences from urban areas and media, the dialect of Aïn Kermes remains a strong marker of regional identity. The speaking community continues to preserve its linguistic heritage while adapting to broader sociolinguistic changes.

2.3.1.2. Group of Speakers: Ain Bouchekkif

Ain Bouchekkif is identified as a municipality that belongs to the Dahmouni district. It serves as a small community 'commune,' meaning a local administrative division that falls under the authority of Tiaret wilaya. Geographically, the town is located in the northwestern region of Algeria with an altitude around 964 meters. According to 2008 statistics, the population is nearly 15,022 inhabitants. Being part of the country means Arabic is the dominant language, yet differences within the Algerian dialects are recognized. Like many other provinces and municipalities in Algeria. Linguistic variation is noticed within the Tiartian community. Despite that, there is a distance between Tiaret and Ain Bouchekif; nearly the same dialect is used in daily life communication. The Ain Bouchekif dialect is characterized by the presence of the western Algerian dialect with the influence of the French language. In this town, half of the inhabitants are retired, and due to their integration with Germans and French previously and their work, their dialect is recognized by the presence of foreign words and code-switching between languages. As for the non-workers, they tend to use old and difficult words. The younger generation speaks in a modern way, as the use of English and French words is identified. Generally, speakers of Ain Bouchekkif tend to switch between languages, and within the Arabic language, they manipulate letters.

2.3.2. Sample Description

For an effective analysis of the phonological variation between Ain Kermes and Ain Bouchekkif regions, a purposive sampling strategy is utilized to ensure the selection of participants who best represent specific speech characteristics within and between the two localities. The study consists of 80 participants, evenly distributed (40 from Ain Kermes, 40 from Ain Bouchekkif), with the sample balanced by gender and age groups. Participants are classified into three distinct age groups: young adults (under 25), middle-aged adults (25-50), and older adults (above 50), following an approximate 14-14-12 distribution pattern per region. The table below illustrates the participants' distribution by region, gender, and age group.

Personal demographics variables	**Location**	**Gender**		**Age**		
	Regions in Tiaret-Algeria	**Female**	**Male**	**Age Group <25**	**Age Group 25-50**	**Age Group >50**
	Aïn Kermes	20	20	14	14	12
	Aïn Bouchekkif	20	20	14	14	12
Total		40	40	28	28	24

Table 2.2: Sample description

2.4. Data Collection Procedures

With the purpose of answering the research questions, testing the hypotheses and meeting the objectives of this study, a mixed-method approach is adopted.

2.4.1. Mixed-Method Approach

Mixed-methods research (MMR) is a research methodology that incorporates multiple methods to address research questions in an appropriate and principled manner (Bryman, 2012; Creswell, 2015; Creswell & Plano Clark, 2011). It involves collecting, analyzing, interpreting and reporting both qualitative and quantitative data.

2.4.1.1. Qualitative Method

Qualitative research in linguistics concentrates on the comprehension of languages and their natural context, as it goes beyond understanding the ‘why’ and ‘how’ behind language use. Furthermore, it is recognized as an important method in understanding the nature of language and how it is shaped by human experiences (Pandey, 2025).

2.4.1.2. Quantitative Method

Quantitative research, however, is a type of research methodology that involves the use of numerical data to gather and analyze information about a particular phenomenon or problem (Creswell, 2013). In linguistics, this method of research is used for quantifying linguistic variables, in which researchers can easily examine how languages vary among different social groups or shift in the course of time. From this perspective, a semi-structured questionnaire is employed in this study. According to Milroy and Gordon (2003), "semi-structured questionnaires facilitate the exploration of language variation by allowing researchers to compare responses systematically while also gaining insight into the social factors influencing linguistic choices" (p. 57).

2.4.2. Semi-structured Questionnaire

The primary tool for data collection in this study was a semi-structured questionnaire. It is defined as "a data collection instrument that uses a blend of closed- and open-ended questions, allowing for both standardized data collection and the exploration of deeper

insights" (Adams, 2015, p. 493). The chosen questionnaire was primarily written in English then it was translated into Arabic. It comprises three main sections and includes multiple-choice questions, Likert scale items, and open-ended questions. Section one gathers background information about the participants, including region of origin (Ain Kermes or Ain Bouchekkif), gender, and age group (under 25, between 25 and 50, and above 50). The second section, entitled: Pronunciation Differences by Gender, Age, and Location, combines Likert scale, multiple-choice, and descriptive items designed to identify participants' perceptions and experiences regarding pronunciation differences and measure the different types of phonological processes occurring in their dialects. Section three is dedicated to exploring the social and contextual factors influencing the pronunciation. This section by the end gathers concrete examples of pronunciation differences to further support the analysis of phonetic variation.

2.4.3. Elicitation Task Description

The study at hand employs an elicitation task using a structured word list to analyze phonological processes, in which participants are presented with a set of words in MSA and asked to transcribe their pronunciation in their dialects. The word list is guided by several key criteria, including the selection of words based on the researchers' observations of phonological variations occurring in the natural speech of native speakers from both regions. Also, priority is given to words that are commonly used in almost everyday communication and believed to include phonemes that are known to undergo modifications in one or both regions.

The table below presents the list of words selected for the elicitation task. It covers a variety of parts of speech, such as verbs, nouns, adjectives, and phrases, to ensure a broad observation of phonological processes across different word types in both dialects.

Word (MSA)	English Meaning	Part of Speech
دَاسَ	To step on	Verb
تَرَجَّى	To ask/beg	Verb
قَبَضَ / أَمْسَكَ	To grab/hold	Verb
قَصَّ (from مقص)	To cut	Verb
قُلْتُ له	I told him	Phrase (verb + pronoun)
لم أرَ	I did not see	Phrase (negation + verb)
تشقق	To crack	Verb
نحلة	Bee	Noun
قشرة	Peel	Noun
حماة	Mother-in-law	Noun
جهاز العروس	Bride's trousseau	Noun phrase
شمس	Sun	Noun
أنبوب	Tube	Noun
زرّ	Button	Noun
أَلْثَغُ	Lisp (s→θ)	Verb (description)
مُهَذَّب	Well-mannered	Adjective
رقائق البطاطس	Potato chips	Noun phrase
أشجار	Trees	Noun
فراش	Bed/mattress	Noun
أواني	Dishes/utensils	Noun (plural)
قرميد	Roof tiles	Noun
ماذا تفعل؟	What are you doing?	Question phrase
ماذا بك؟	What's wrong with you?	Question phrase
ماذا تريد؟	What do you want?	Question phrase
هؤلاء	These (people)	Demonstrative pronoun
أقلام	Pens	Noun (plural)

Table2.3: List of selected words for the elicitation task and their parts of speech

2.4.4. Pilot Study

According to Van Teijlingen and Hundley (2001), "A pilot study is a small version of a full-scale study designed to test the logistics and gather information prior to a larger study, in order to improve the quality and efficiency of the main research" (p. 1).

Before starting the process of distributing the questionnaire to the full sample, a pilot study was conducted with a small group of participants, consisting of some friends, to assess the feasibility and validity of this instrument and identify any potential issues in the questionnaire's design, clarity, and structure. After gathering feedback and reviewing the

primary responses, it became clear that the questionnaire was feasible and deemed ready for the data collection process.

2.5. Optimality Theory as a Framework

The optimality theory, or OT, is a linguistic model that explains how languages organize sounds and structures or how the surface form is derived from underlying representations. "OT was originally proposed by the duo of Paul Smolensky and Alan Prince in 1993 from a course taught by them in the Summer Institute of the Linguistic Society of America" (Osifeso, 2020, p. 284). The theory was later expanded by McCarthy and Prince (1995) and McCarthy (2001). This expanded version was applied in one of McCarthy's (2008) works titled Doing Optimality Theory: Applying Theory to Data (Osifeso, 2020).

The OT encompasses three main components: (GEN) from generator, (CON) from constraints, and (EVAL) from evaluator.

1. Generator (GEN): "GEN takes an input and provides the candidate set, a potentially infinite set of output candidates that compete for optimality." (Kager, 1999, p. 20). This component is responsible for producing all possible output forms (referred to as candidates) from a given input. For example, if the input is the word 'bags,' the GEN might produce a list of candidates: bags, bagz, baz, and many other possible outputs.

2. Constraints (CON): They are universal rules that evaluate the candidates and dictate what makes an output acceptable or not. As Clark et al. (2007) state, "Constraints are universal, are governed by markedness principles, and are violable" (p. 358). These constraints are categorized into two main types: markedness and faithfulness constraints.

2.1. Markedness Constraints: "Markedness constraints relate to the concept of 'marked,' which implies a form that is uncommon and usually banned. The markedness of such a form may result from its rarity in the languages of the world or its clash with the principle of ease

of pronunciation" (Kager, 1999, p. 5). They select the simplest form and prevent the structures that are difficult to produce and comprehend, such as consonant clusters or phrases without overt heads (Zuraw, 2003).

2.2. Faithfulness Constraints: Prince and Smolensky (2002) state, "Faithfulness constraints evaluate the relationship between input and output forms, demanding exact replication of the input along some specified structural dimension" (p. 2). That is to say, they require the output to be faithful to the input, as it seeks to preserve the original or underlying form of words and prevent any modifications unless necessary. For instance, requiring all input consonants to appear in the output or all morphosyntactic features in the input to be overtly realized in the output (Zuraw, 2003).

3. Evaluator (EVAL): "EVAL is the component that selects the optimal output from the candidate set generated by GEN by consulting the hierarchy of constraints." (Kager, 1999, p. 20). The role of EVAL is to assess all the candidates produced by GEN in light of the ranked constraints provided by CON. It selects the optimal candidate based on constraints, as it compares all the outputs produced by the GEN and chooses the optimal one that violates the fewest high-ranking constraints.

The following example illustrates an Optimality Theory (OT) analysis of the word /ktəb/ (he wrote) as realized in two varieties of Algerian dialectal Arabic.

input	Dialect A output	Dialect B output
/ktəb/	[ktəb](no change)	[kətəb] (epenthesis)

Table 2.4:Outputs of /ktəb/ in dialect A and dialect B

In dialect B, a vowel is inserted (epenthesis), resulting in [kətəb]. Whereas, dialect A shows no change, retaining the original cluster [ktəb].

➡Key Constraints:

1. ONSET: Prefers syllables with onsets.
2. DEP-IO: No epenthesis.
3. *COMPLEX: Avoids consonant clusters.

➡Constraint Rankings:

1. Dialect A: DEP-IO ≫ *COMPLEX (No insertion, so no vowel added).
2. Dialect B: *COMPLEX ≫ DEP-IO (Cluster avoided via vowel insertion).

This means Dialect B ranks COMPLEX higher, forcing vowel insertion.

1. **Dialect A (No epenthesis):**

Input /ktəb/	ONSET	*COMPLEX	DEP-IO	Optimal?
(a) ktəb	✓	*!	✓	☞ Optimal
(b) kətəb	✓	✓	*!	✗

Table 2.5: Evaluating the optimal output of /ktəb/ in dialect A

For Dialect B (Epenthesis):

Input:/ktəb/	*COMPLEX	DEP-IO	Optimal?
(a) ktəb	*!	✓	✗
(b) kətəb	✓	*!	☞ Optimal

Table 2.6:Evaluating the optimal output of /ktəb/ in dialect B

As the current study attempts to explore the phonological variation occurring in Ain Kermes and Ain Bouchekkif regions. The OT provides a valuable framework that allows accounting for these differences by posting slightly distinct constraint rankings. As speakers of each community may articulate words differently based on surrounding words or the speaking rate, the OT can capture this by suggesting that constraint rankings can be affected by contextual factors. Adopting this framework enables a more profound understanding of the phonological rules that govern each region while also shedding light on the interaction between phonological processes and the relative importance of specific constraints.

2.6. Ethical Considerations

Ethical issues arise in all types of research, particularly between the researcher and the participant. Therefore, researchers must consider ethical concerns before designing their study and collecting data. In this regard, the participation was voluntary, in which participants were provided with a clear explanation of the study's objectives to obtain their consent and ensure their willingness to contribute to the research. Moreover, the confidentiality and data security were maintained. Participants' personal information were neither recorded nor shared, and their responses were anonymized to guarantee their privacy.

Conclusion

In summary, this chapter presented the methodological foundation of the study, it started by detailing the research design, followed by description of the sample, and clear elucidation of the data collection procedures that combine a quantitative semi-structured questionnaire and qualitative elicitation tasks, corpus selection, and the application of Optimality Theory as the primary framework for analyzing the dominant phonological processes observed in both regions. It also emphasized the significance of employing a mixed-methods approach, as it allowed for a more comprehensive understanding of the

linguistic phenomena under investigation. This chapter outlined how this study was conducted by clarifying the main point of the study. By doing so, it laid the groundwork for the empirical analysis that follows. This methodology serves as a basis for the next chapter, which focuses on the analysis and discussion of the data collected. The upcoming chapter will build upon these procedures to interpret the findings and relate them to the theoretical framework and research objectives.

Chapter Three:

Data Analysis and Discussion of the Findings

Introduction

The present chapter is devoted to the analysis of the data collected through the semi-structured questionnaire and elicitation wordlist, along with an interpretation of the findings using Optimality Theory by identifying the linguistic constraints that govern the observed phonological variations. The chapter also tests the proposed hypotheses, synthesizes the results, and provides relevant recommendations and suggestions for future research. Additionally, the limitations of the current study are discussed.

3.1. Analysis of Questionnaire Results

The semi-structured questionnaire employed in the current study was divided into three main sections.

3.1.1. Section One: Participants Distribution

This section provides the basic information about the sample, including region, gender, and age group. It aims to understand how demographic factors may correlate with pronunciation patterns.

Age group	**The rate of recurrence of Ain Kermes participants**			
	Males	**Percentages**	**Females**	**Percentages**
25<	7	8.75%	7	8.75%
25-50	7	8.75%	7	8.75%
50>	6	7.50%	6	7.50%
Total	20	25%	20	25%
Age	**The rate of recurrence of Ain Bouchekkif participants**			
	Males	**Percentages**	**Females**	**Percentages**
25<	7	8.75%	7	8.75%

25-50	7	8.75%	7	8.75%
50>	6	7.50%	6	7.50%
Total	20	25%	20	25%

Table3.1: The distributions of participants according to age, location, and gender

Table 3.1 indicates an equal split of the sample in both regions by location, gender, and age: 40 participants from Ain Kermes(50%) and similarly from Ain Bouchekkif. Within each region, the sample consists of 20 males (25%) and 20 females (25%). Female participants from Ain Kermes under the age of 25 represent 8.75%, and another 8.75% are between the ages of 25 and 50; identical distributions were found among females in Ain Bouchekkif. Similarly, in each region, 8.75% of males are under the age of 25, and another 8.75% fall within the 25–50 age group. Participants over the age of 50 account for 7.5% of males and 7.5% of females in each region.

3.1.2. Section Two: Phonetic Differences by Gender, Age, and Location

This section explores how pronunciation may differ according to gender, age, and regional background. It aims to identify common phonological processes and patterns of variation within and across these groups.

Question1: People in my community pronounce some words differently from one another.

Response options	Percentage
Strongly agree	38.75%
Agree	60%
Neutral	0%
Disagree	0%
Strongly disagree	1.25%

Table3.2: Variation in word pronunciation

Table 3.2 reveals that the majority of participants agreed that there is a variation in pronunciation, with their percentage reaching 60%, which corresponds to 48 individuals. Additionally, 38.75%, equivalent to 31 individuals, also strongly agreed. In contrast, no percentage was recorded for neutral or disagreeing responses, except for a single individual (1.25%) who strongly disagreed. Therefore, most respondents are aware of the existence of phonetic differences within their community. This reflects a clear regional awareness and supports the sociolinguistic view that variation is a recognized and accepted feature of local dialects.

Question 02: Which phonological processes are most common in your dialect?

Response options	Percentage
Substitution: Replacing one sound with another (e.g., pronouncing /ج/ as /ʒ/).	30%
Deletion: Omitting a specific sound during pronunciation	22.5%
Insertion: Adding sounds that are not in the original word.	25%
Lengthening: Prolonging a vowel or consonant sound	12.5%
Assimilation: Merging two sounds into one	3.75%
Others	6.25%

Table 3.3: Distribution of common phonological processes

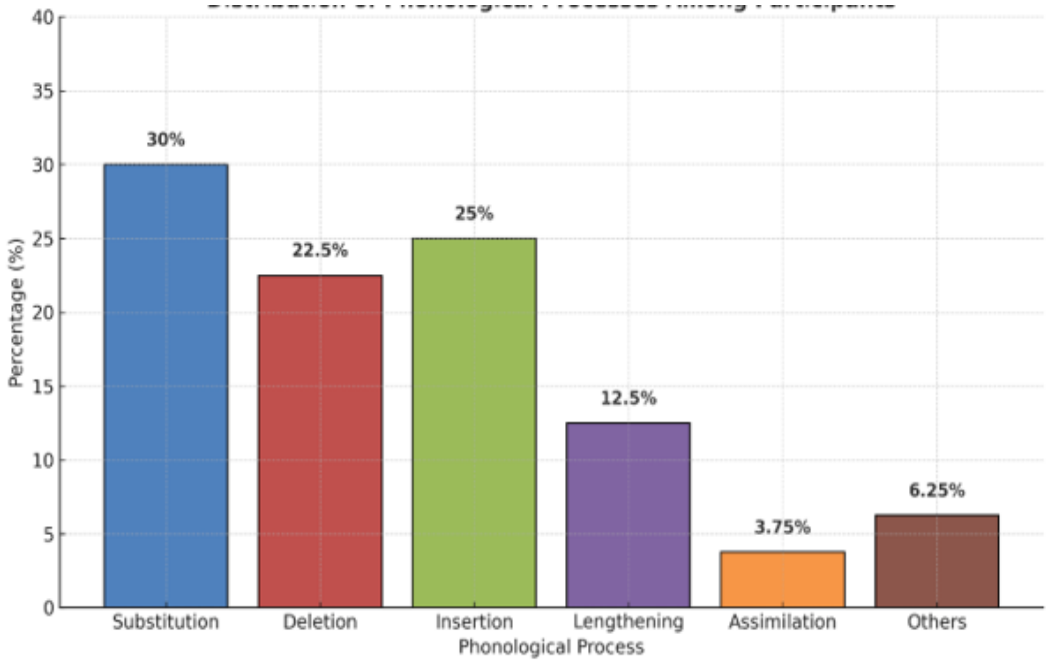

Figure 3.1: Distribution of phonological processes among participants

Figure 3.1 illustrates the distribution of the most common phonological processes, in which substitution ranks first with a percentage of 30%, reflecting its prominence in local speech patterns. It is followed by sound insertion at 25%, and deletion of sounds at 22.5%, both of which also indicate regular strategies of variation in the dialects. In contrast, lengthening and assimilation appear less frequently (12.5% and 3.75% respectively), suggesting they are less characteristic of the regional phonological system. Moreover, 6.25% of the responses reflect other, less conventional processes, pointing to additional layers of variation shaped by individual or sub-regional speech habits.

Question 03: Men and women in my region pronounce certain sounds differently.

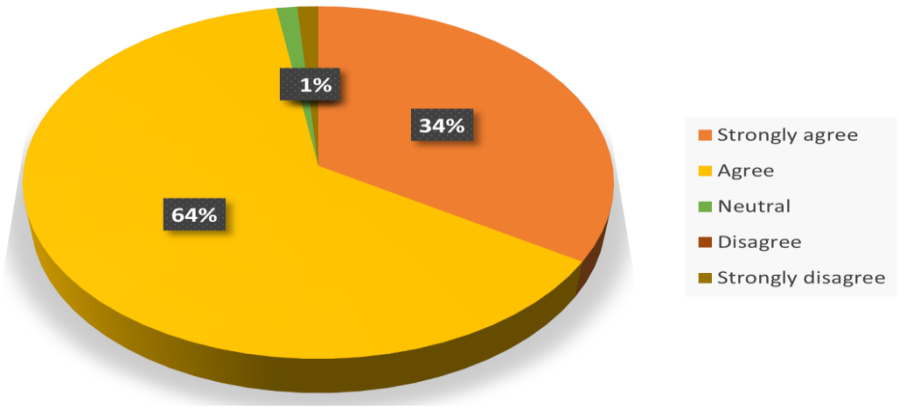

Figure 3.2: Community perceptions of gender differences in sound pronunciation

Figure 3.2 represents the percentages of participants' responses regarding the difference in pronunciation between men and women in their region. The results revealed that a high percentage of individuals (63.75%) agreed that this difference exists, while 33.75% strongly agreed. In contrast, the percentage of those who disagreed (either slightly or strongly) and those who were neutral was almost absent, at 1.25% for each. This strong agreement suggests that gender-based variation is a socially recognized feature in the community, reflecting awareness of how pronunciation can index gender identity within the local dialect.

Question 04: If you notice a difference, what types of phonological processes characterize each gender's speech?

Response options	Percentage (%)
Pronounce certain sounds more emphatically (e.g., a stronger /ق/ sound).	58.75%
Omit some sounds more frequently than women (e.g., dropping the final /n/ in fast speech).	15%
Use more contracted pronunciations for certain words.	22.5%
Others	3.75

Table 3.4: Phonological features characterizing male speech

Table 3.4 reveals that the most prominent phonetic feature that distinguishes men's pronunciation is the pronunciation of some sounds in a more emphatic manner, as it obtained the highest percentage at 58.75%. This suggests that emphasis may serve as a marker of masculinity or assertiveness in local speech styles. It is followed by the abbreviated pronunciation of words, at a rate of 22.5%, while omitting sounds more frequently than women in fast speech was 15%, reflecting how speech economy and reduction may also be linked to gendered patterns of communication.

Response options	**Percentage (%)**
Pronounce certain sounds in a softer manner (e.g., pronouncing /ق/ as /ʔ/).	50%
Lengthen certain sounds more than men.	50%

Table3.5: Phonological features characterizing female speech

Table 3.5 shows that the participants were equally divided in their responses regarding the characteristics of women's pronunciation of certain sounds. Fifty percent indicated that women pronounce some sounds in a softer manner, while another fifty percent noted that women lengthen these sounds more than men. This division highlights two socially recognized features of female speech in the region, both associated with softness and clarity, suggesting that gendered speech norms influence how variation is perceived and categorized within the community.

Question 05: Do you notice pronunciation differences between different generations in your region?

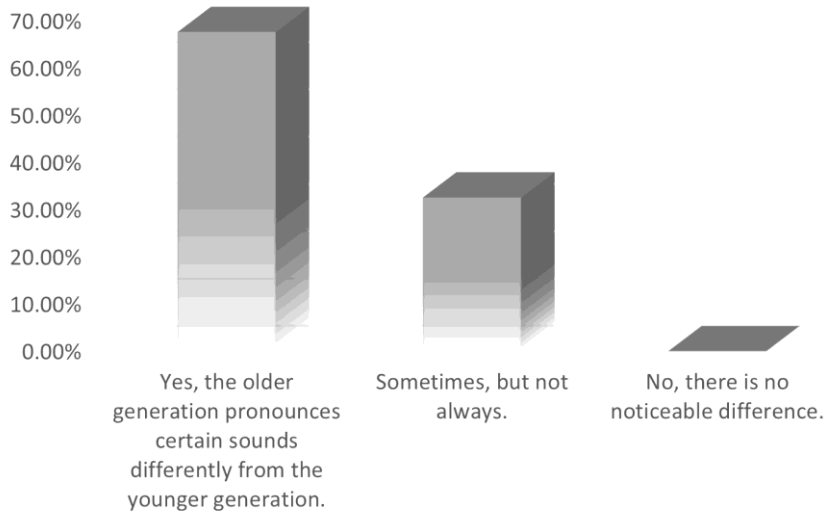

Figure 3.3: Community views on generational differences in pronunciation

Response options	Percentage
Yes, the older generation pronounces certain sounds differently from the younger generation.	67.5%
Sometimes, but not always.	32.5%
No, there is no noticeable difference.	0%

Table 3.6: Community perceptions of pronunciation differences across generations

Table 3.6 indicates that the majority of individuals (67.5%) acknowledge the existence of pronunciation differences between the older and younger generations, as they noticed that the older generation pronounces some sounds differently than the younger generation. This points to generational variation as a key factor in dialectal change, reflecting how pronunciation evolves over time. On the other hand, 32.5% of them reported that they sometimes notice differences in pronunciation, but they are neither permanent nor stable, suggesting an awareness of ongoing linguistic shifts rather than fixed distinctions.

Question 5.1: What phonological processes distinguish each generation?

Generation	Response options	Percentage
Younger Generation	Replacing older sounds with newer ones (e.g., pronouncing /ث/ as /ت/)	48.75%
	Omitting certain sounds during speech (e.g., dropping the initial glottal stop)	21.25%
	Using more contracted or rapid speech patterns	30%
Older Generation	Retaining older sounds (e.g., pronouncing /ق/ with a distinct emphasis)	57.5%
	Lengthening certain sounds more than the younger generation	2.5%
	Pronouncing words more clearly without omitting sounds	40%

Table 3.7: Phonological tendencies by generation

Table 3.7 shows that 39 individuals noted that the most prominent phonological process that characterizes the younger generation is the replacement of some old sounds with new ones, as this option received the highest percentage of support among the sample members (48.75%). This reflects a shift in linguistic norms among youth, likely influenced by modernization and changing social identities. Additionally, 24 participants (30%) displayed a preference for more rapid, contracted speech, while 17 participants (21.25%) exhibited the omission of some sounds during speech, highlighting a trend toward economy and informality in younger speakers' pronunciation.

In contrast, 46 participants, accounting for 57.5% of the responses, indicate that the older generation adheres to more traditional pronunciation by retaining older sounds. This suggests a preservation of conservative phonological forms as a marker of generational identity. Moreover, pronouncing words clearly without omission of sounds was noted by 32 partici-

pants (40%). Whereas, only 2 participants (2.5%) noted that this generation lengthens sounds more than the younger generation.

3.1.3. Section Three: Reasons Behind Phonological Variations

This section examines the possible reasons behind pronunciation changes and the factors that influence how people speak in different contexts. The aim is to explore the social, geographic, and communicative motivations for phonological variation.

Question 01: Do you adjust your pronunciation based on certain factors during a conversation?

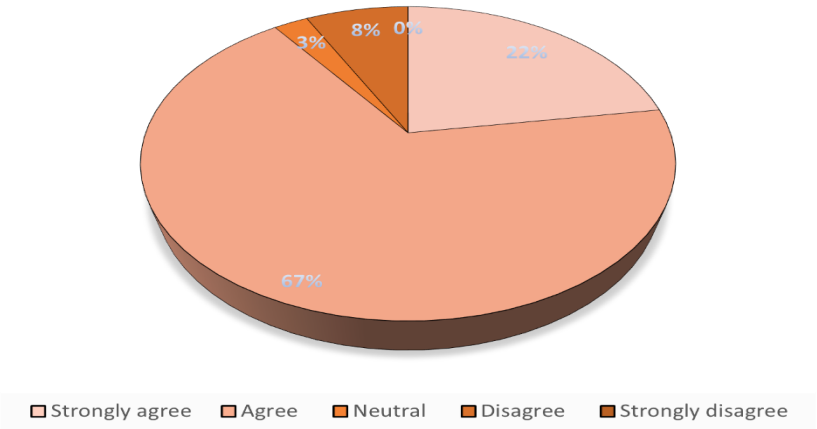

Figure 3.4: Pronunciation adjustment in conversation

Figure 3.4 reveals that the vast majority of participants, 67%, agreed to changing their pronunciation during conversation to suit certain factors, and another 22% strongly agreed. This indicates a high level of sociolinguistic awareness and adaptability, as speakers consciously adjust their speech based on context. Whereas only a small portion were neutral (8%). Even fewer disagreed (3%), and none (0%) strongly disagreed, indicating very little opposition to the idea.

Question 02: If you do, which factor most influences your pronunciation adjustments?

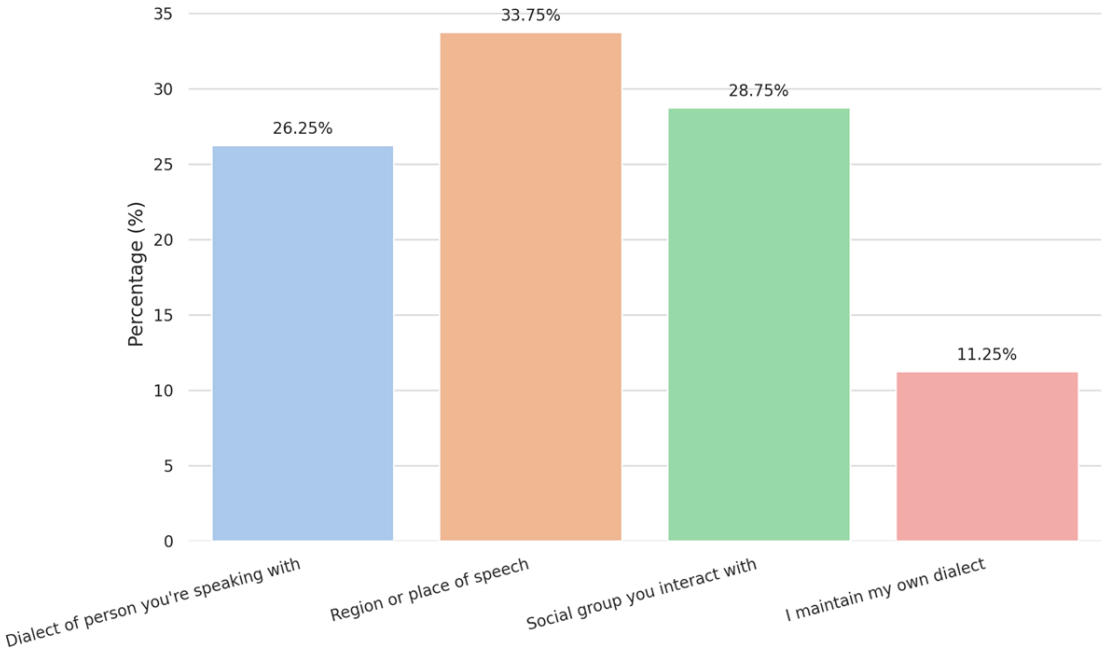

Figure 3.5: Factors influencing pronunciation

Figure 3.5 shows that the geographical factor ranks first in influencing pronunciation adjustment, with a percentage of 33.75% indicating its impact. This highlights the strong role of regional identity in shaping speech behavior. Additionally, 23 participants (28.75%) acknowledged that the social group they interact with affects their speech, reflecting how social context guides linguistic choices. A significant portion of participants, 26.75%, also reported that the dialect of the person they are speaking with influences their pronunciation choices, suggesting an awareness of accommodation strategies in interaction. However, 9 participants (11.25%) stated that they maintain their own pronunciation, pointing to individual linguistic stability or resistance to variation.

Question 03: What factors do you think contribute to the emergence or disappearance of pronunciation differences among speakers?

Response options	Percentage

Education and upbringing	32.5%
Media and technology	16.25%
Social interaction and communication between different groups	37.5%
Linguistic influences from other languages and dialects	13.75%

Table3.8: Factors contributing to the emergence or disappearance of pronunciation differences

Table 3.8 indicates that the most influential factor in the emergence or disappearance of phonetic differences between speakers is social interaction and communication between different groups at a rate of 37.5%. This is followed by the education and upbringing factor, with a percentage of 32.5%. As for media and technology, it accounted for 16.25%, a significant percentage indicating that digital media, including television and radio channels and social networks, has become an effective tool in disseminating certain linguistic and pronunciation patterns. Finally, linguistic influences from other languages and dialects accounted for 13.75%, indicating that linguistic influences remain relatively less influential compared to social, educational, and media factors.

Questions	Standard Deviation	Mean
People in my community pronounce some words differently from one another.	0,61	4,35
Which phonological processes are most common in your dialect?	1,51	2,58
Men and women in my region pronounce certain sounds differently.	0.62	4,28
If you notice a difference, what types of phonological processes characterize each gender's speech?(Men)	1,17	1,78

If you notice a difference, what types of phonological processes characterize each gender's speech?(Women)	0,50	1,50
Do you notice pronunciation differences between different generations in your region?	0,47	1,32
What phonological processes distinguish each generation? Younger generation	0,87	1,81
What phonological processes distinguish each generation? Older generation	0,94	1,91
Do you adjust your pronunciation based on certain factors during a conversation?	0,74	4,05
If you do, which factor most influences your pronunciation adjustments?	1,003	2,26
What factors do you think contribute to the emergence or disappearance of pronunciation differences among speakers?	1,07	2,32

Table 3.9: The means and standard deviations of the sample's responses

Table 3.9 represents the means and standard deviations of the sample's responses, in which the highest recorded means were 4.35 and 4.28, meaning that participants strongly agreed with the statements. The lowest means were 1.32 and 1.5, indicating that participants disagreed with or rejected these statements. The standard deviations were mostly between 0.4 and 1.5, indicating variance in participants' answers; lower deviations (such as 0.47) mean greater agreement among participants, while higher deviations (such as 1.51) indicate significant variance in opinions.

3.2. Wordlist Reading Analysis

The elicitation data collected from Ain Kermes and Ain Bouchekkif is based on observed phonological processes that reveal notable sound variation, indicating both shared and distinct features across the two regions.

Word Variant	Transcription	Process	Region
فعس → عفس	/ʕfes/→ /fʕas/	Metathesis	Both
قضب → قبض	/gbaɖ/→/gɖab/	Metathesis	Both
قشرة → شقرة	/ʃegra/→/geʃra/	Metathesis	Both
قرمود → قمرود	/qamru:d/→/qarmu:d/	Metathesis	Both
جهاز → زهاج	/zhæʒ/→/dʒhæ:z/	Metathesis	Both
شييس → سييش	/si:bʃ/→/ʃi:bs/	Metathesis	Both
عزوج → عجوز	/ʕdʒu:z/→/ʕzu:ʒ/	Metathesis	Both
تَقَشَمْ→ تَشْقَمْ	/teʃqam/→/teqʃem/	Metathesis	Both
ماشتش → ماشفتش	/maʃeftʃ/→/maʃetʃ/	Consonant Deletion	Bouchekkif
فطس → فرطاس	/ferta:s/→/ftas/	Consonant Deletion	Bouchekkif
مربّي→ متربّي	/mtrabbi/→/mrabbi/	Consonant Deletion	Bouchekkif
وحود → حود	/ħu:d/→/wħu:d/	Consonant Insertion	Ain Kermes
هذو → ذو	/ðu:/→/haðu:/	Consonant insertion	Ain Kermes
ثْويّو →تيّو	/tijju:/ →/twijju:/	Consonant Insertion	Bouchekkif
سجرات →شجرات	/ʃadʒra:t/→/sadʒra:t/	Consonant Substitution	Ain Kermes
ستيلويات → ستيلووات	/sti :lu :wet/→/sti :lu :jet/	Consonant Substitution	Both
شاك→ شاراك	/ʃæra:k/→/ʃæk/	Vowel Reduction	Both

Table 3.10: Ranked phonological processes in both regions

Table 3.10 presents the ranked phonological processes identified in the speech data from both Ain Kermes and Ain Bouchekkif. It highlights some examples about word variants and their transcriptions, the type of process, and the region where each process occurs.

The most frequent and dominant observed phonological process is metathesis, in which consonants within a single word are reordered. This is evident in examples such as فعس/fʕes/ → عفس /ʕfas/, where the initial pharyngeal /ʕ/ and the labiodental /f/ switch places. Also in جهاز /dʒhæ:z/ → زهاج /zhæʒ/, the affricate /dʒ/ moves from initial to final position.

Consonant deletion occurs solely in Ain Bouchekkif, with examples such as ماشفتش /maʃeftʃ/ → ماشتش /maʃetʃ/, where the deletion of the fricative /f/ simplifies the consonant cluster, possibly reducing articulatory effort in rapid speech. Another instance is فرطاس /ferta:s/→ فطس /ftas/, where the disyllabic form /ferta:s/, used in Ain Kermes, is reduced in Bouchekkif to the monosyllabic form /ftas/. This process often affects medial or final consonantal positions, often resulting in simplifying complex consonant clusters.

Conversely, consonant insertion appears in Ain Kermes, as seen in حود /ħu:d/ → وحود /wħu:d/, the glide /w/ is inserted, likely as a prosthetic consonant to avoid word-initial vowel onset. The initial /h/ is retained in Ain Kermes, while it is dropped in Bouchekkif in ذو /ðu:/ → هذو /haðu:/. In تيّو /tijju:/ →/تْويّو/ /twijju:/, the glide /w/ is inserted to break up the homogeneity of the front vowel sounds. This suggests one instance of the insertion process in Bouchekkif , indicating a possible but limited presence.

Consonant substitution is found in both regions, as in شجرات /ʃadʒra:t/ → سجرات/sadʒra:t/), in which the voiceless postalveolar fricative /ʃ/ is substituted with the voiceless alveolar fricative /s/. In "ستيلووات → ستيلويات", /sti:lu:wet/ → /sti:lu:jet/), the labio-velar glide /w/ is substituted with the palatal glide /j/. This process is less frequent in Bouchekkif and exclusive to Ain Kermes. It highlights how place of articulation can vary across dialect boundaries.

Vowel reduction, in which vowels are weakened, centralized, or deleted, is another notable process occurring in both regions, as in شاراك /ʃæra:k/ → شاك /ʃæk/. In this example, the medial vowel /a:/ is dropped, resulting in compressing a disyllabic form into a monosyllable.

3.3. Optimality Theory Analysis

As posited by the Optimality Theory, the different phonological processes attested in Ain Kermes and Ain Bouchekkif dialects reflect the interaction of universal constraints whose rankings determine the selection of the optimal outputs. The analysis is carried out by selecting a set of verbs and plural nouns, identifying their phonological constraints and possible candidates, and constructing an OT tableau to evaluate and interpret the constraint violations in order to determine the most optimal outputs.

Constraint	Type	Meaning
ONSET	Markedness	Every syllable must have an onset (i.e., begin with a consonant).
***COMPLEX**	Markedness	Complex onsets or codas (clusters of two or more consonants) are dispreferred.
***CODA**	Markedness	Syllables should not end in a consonant (no coda allowed).
***FINAL-V**	Markedness	Words should not end in a vowel.
IDENT (voice)	Faithfulness	Output consonants must preserve the voicing of input consonants.
IDENT (place)	Faithfulness	Output consonants must preserve the place of articulation of input consonants.
AGREE (voice)	Markedness	Adjacent consonants should agree in voicing (both voiced or both voiceless).
MAX	Faithfulness	Do not delete segments from the input.
DEP	Faithfulness	Do not insert (epenthesize) segments in the output.
LINEARITY	Faithfulness	Concerned with preserving the order of segments between input and output forms.

Table 3.11: Universal constraints in Optimality Theory (OT)

Table 3.11 shows the common universal constraints in OT, their classification as either markedness or faithfulness constraints, and a brief explanation of each. Building on this, the

following examples of selected verbs and plural nouns illustrate how these constraints apply in the phonological analysis of the present analysis.

3.3.1. Shared Constraints Analysis: Verbs

a. فْعَسْ /fʕas/

- *COMPLEX ONSET:* The onset /fʕ/ is permissible, suggesting that the dialect allows combinations of fricatives and emphatic sounds.

- **FINAL-V (the presence of CODA):* There is no final vowel, which supports the *FINAL-V constraint but does not support the one that disfavors the presence of a coda.

- *IDENT (voice):* Both /f/ and /ʕ/ are voiced; no occurrence of voicing changes. This aligns with the IDENT (voice) constraint.

b. يْحَاوُلْ /jħawel/

- *COMPLEX ONSET:* The cluster /jħ/ is acceptable, showing tolerance for palatal and pharyngealized consonant combinations.

- **FINAL-V:* Ends in the consonant /l/, suggesting satisfaction of the *FINAL-V constraint.

- *IDENT(voice) & AGREE (place/voice):* No voicing changes observed, supporting the IDENT(voice) and AGREE(voice) constraints.

c. قْضَبْ /gɖab/

- *COMPLEX ONSET* : The onset /gɖ/ is allowed, indicating support for complex onsets.

- **FINAL-V:* Absence of a final vowel supports *FINAL-V.

- *IDENT (voice):* The shift from /q/ to /g/ (voiceless to voiced) shows voicing flexibility and a violation of IDENT (voice).

- *LINEARITY / Metathesis:* Changes like /b/ → /ɖ/ may reflect tolerated metathesis or segment reordering.

d. يْمَقَّصْ /jmaqqaš/

- *COMPLEX ONSET*: the initial cluster /jm/ is allowed, consistent with dialectal tolerance for complex onsets.

- **FINAL-V:* No final vowel is present, satisfying *FINAL-V.

- *IDENT(voice):* All segments preserve their voicing, supporting IDENT (voice).

e. قَتْلَهْ /goltleh, gotleh/

- **FINAL-V:* The presence of a final consonant /l/ shows a violation of CODA but a satisfaction of *FINAL-V.

- *LINEARITY / Metathesis:* Alternation between /l/ and /t/ suggests metathesis, indicating linearity is not strictly enforced.

- *IDENT (voice):* Voicing is maintained, satisfying IDENT (voice).

f. ماشُفْتشْ /maʃetʃ, maʃeftʃ/

- *LINEARITY / Metathesis:* The alternation between /tʃ/ and /ftʃ/ suggests segment reordering, reflecting flexible linearity.

- **FINAL-V:* The /maʃetʃ/ form ends without a vowel, respecting *FINAL-V.

- *IDENT (voice):* Shifts between voiced and voiceless stops (e.g., /t/ to /f/) point to partial violation of IDENT (voice) or influence from a voicing assimilation rule.

g. تَقْشَمْ /teqʃem/

- **FINAL-V:* This form lacks a final vowel, satisfying the *FINAL-V constraint.

After examining the above examples, it is noticeable that the dialects strongly permit COMPLEX ONSETS. This is evident in examples such as /fʕas/, /jħawel/, /jmaqqaš/, and /gḍab/, which indicate a tolerance for initial consonant clusters. Additionally, the verb forms largely respect the *FINAL-V constraint, with most of them avoiding final short vowels. Furthermore, IDENT (voice) is mostly satisfied; nonetheless, the shift from /q/ to /g/ in /gḍab/ indicates some flexibility in voicing. In some cases, the dialects also favor adjacent segments that share place features, making AGREE (place) a relevant constraint. Finally, instances like /goltleh/ and /maʃetʃ/ reflect a violation of LINEARITY and suggest that the dialects tolerate metathesis.

- **3.3.2. Constraint Hierarchy**

These dialects display distinctive phonological preferences that are reflected in the ranking of key universal constraints. Both dialects permit complex onsets, indicating that the markedness constraint *COMPLEX is ranked low (since it is violated). It strongly disallows final vowels, favoring closed syllables that end in consonants; therefore, CODA (*FINAL-V) is highly ranked to penalize outputs with word-final vowels. The dialects also tolerate both metathesis and deletion, which suggests that the faithfulness constraints LINEARITY and MAX are ranked low. Furthermore, it shows a strong preference for adjacent segments to agree in voicing, as reflected by a high-ranking AGREE (voice) constraint. In some cases, these dialects also favor adjacent segments that share place features, making AGREE (place) a relevant, though possibly lower-ranked, constraint. As a result, constraints ranking from highest to lowest are as follows: **ONSET**, ***Final V , MAX » LINEARITY, and *COMPLEX ONSET.**

The following OT tableaux assess the candidate outputs for the representative verbs (inputs) */gbaḍ/* and */gltlh/*, based on the aforementioned ranking constraints to determine their optimal outputs. The optimal candidate is stigmatized by the pointing hand (☞); the symbol (*) marks violation, while the symbol (!) marks fatal violations (Jouini, 2015).

Input: /gbḍ/

Candidates	ONSET	*FINAL-V	MAX	LINEARITY	*Complex Onset	Optimal
a. gḍab	✓	✓	✓	*	*	
b. gbaḍ	✓	✓	✓	✓	*	☞
c. əqbad	*	✓	*	✓	✓	
d. əqdab	*	✓	*	*	✓	

Table 3.12: Evaluating candidate outputs for /gbaḍ/

The optimal candidate is /gbaḍ/, as it satisfies the highest-ranked constraints. It begins with ONSET, respects the FINAL-V constraint, and prohibits the deletion of input segments in the output. It also maintains the original segments' order, as ensured by the LINEARITY constraint. However, it contains a complex onset cluster (/gb/), which violates the COMPLEX ONSET constraint. Candidate /gḍab/ is suboptimal. It preserves the onset structure, manages to avoid final vowels, and satisfies MAX. Nevertheless, it begins with a complex onset cluster and involves metathesis, which violates LINEARITY. Finally, candidate /əqbad/ and /əqdab/ perform poorly because they violate the high-ranked constraints ONSET and MAX.

Input: /gltlh/

Candidates	ONSET	*FINAL-V	MAX	COMPLEX	LINEARITY	Optimal
a. goltleh	✓	✓	✓	✓	✓	☞
b. gotleh	✓	✓	*	✓	✓	
c. goltlu:	✓	*	*	✓	✓	
d. gotlu:	✓	*	!*	✓	✓	

Table3.13: Evaluating candidate outputs for /gltlh/

Candidate /goltleh/ satisfies all the constraints without any violations, making it the optimal output. In contrast, /gotleh/ performs similarly but violates MAX, as it deletes the /l/

segment from the input. Meanwhile, /goltlu:/ violates FINAL-V due to the presence of a final long vowel /u:/ and violates MAX because segments from the input are deleted. However, it satisfies both COMPLEX and LINEARITY constraints. Lastly, /gotlu:/ meets ONSET, COMPLEX, and LINEARITY, but it fails to satisfy FINAL-V and MAX.

3.3.3. Shared Constraints Analysis: Plural Nouns

The following table presents examples of singular and plural noun forms from the dialects to highlight the phonological processes used in pluralization and to identify the shared constraints observed across these plural forms.

Dialect Singular	Dialect Plural	Rule Applied	Explanation
نَمْلة /namla/	نْمَل /nmel/	Vowel deletion & final vowel truncation (removal or reduction)	Short internal vowel /a/ is reduced to /e/ or elided; /-a/ dropped.
قَرْعة /qarʕa/	قْرُع /qrʊʕ/	Vowel deletion, internal vowel raising, final vowel truncation	/a/ → /u/ raising; /a/ deleted.
حَجْرة /ħadʒra/	حْجَرْ /ħdʒar/	Vowel deletion & cluster simplification	Suffix /-a/ deleted; mid vowel /a/ dropped.
بَقَرة /bagra/	بْقَرْ /bgar/	Initial vowel deletion & final vowel truncation	/ba/ → /b/; /a/ → deleted; syllable compressed.
تَاقة /ta:qa/	تْيُقْ /tyuq/	vowel raising, metathesis	/ta:/ → /tyu/, /a/ raised to /u/, metathesis occurred.

Table 3.14: Phonological processes in dialectal plural formation

As shown in table 3.14, the plural forms share a range of phonological constraints. The most commonly observed one is the COMPLEX ONSET, which permits consonant clusters following vowel deletion, as seen in forms like /nmel/ and /bgar/. The *FINAL-V constraint, which prohibits words ending with a vowel, is respected in all cases (e.g., /qrʊʕ/, /ħdʒar/, /bgar/), all of which end in consonants. Additionally, LINEARITY, which requires preservation of the input order, is occasionally violated through metathesis. This is evident in examples such as /bgar/ and /ħdʒar/. Furthermore, the deletion of vowels in the plural forms violates the MAX constraint. Despite structural changes, AGREE (voice/place) remains intact

across all outputs, with consonants preserving voicing and place of articulation. Finally, IDENT(V), which indicates that output consonants must preserve the voicing of input consonants, is variably respected.

Building on this, the following OT tableau evaluates the possible candidates of the plural noun (input) /aʃd͡ʒa:r/ and identifies its optimal output.

Candidates	ONSET	FINAL-V	DEP-V	Linearity	MAX	IDENT(V)	Optimal
ʃd͡ʒar	✓	✓	✓	✓	*	✓	☞
ʃd͡ʒɒr	✓	✓	*	✓	*	*	
sd͡ʒɒr	✓	✓	*	*	!*	*	
ʃad͡ʒra:t	✓	✓	!*	!*	*	*	

Table 3.15: Evaluating candidate outputs for /aʃd͡ʒa:r/

The optimal candidate is /ʃd͡ʒar/, as it is the one that best satisfies the highest-ranked constraints; it begins with ONSET, respects the FINAL-V constraint, prohibits the epenthesis of vowels DEP-V, and preserves the original order of the input segments LINEARITY, with a minor violation in the MAX constraint. Candidate /ʃd͡ʒɒr/ is suboptimal. It preserves the onset structure, manages to avoid final vowels, and maintains LINEARITY, but the vowel /ɒ/ is inserted, violating DEP-V. In contrast, candidate /sd͡ʒɒr/ is less optimal, as it severely violates MAX, LINEARITY, IDENT-V, and DEP-V. Lastly, candidate /ʃad͡ʒra:t/ is disqualified as an optimal choice in the tableau since it severely violates DEP-V and LINEARITY.

3.4. Hypotheses Testing

Hypothesis 01: The main phonological processes affecting consonants in the Algerian Arabic dialect of Bouchekkif and Ain Kermes are deletion, substitution, metathesis, and insertion.

The results of table 3.3 reveal that the prominent phonological processes mentioned in the first hypothesis were recorded in the participants' responses at varying rates. Substitution at 30%, followed by deletion at 22.5% and insertion at 25%, indicating the prevalence of

these phonological processes in the dialects of Bouchekkif and Ain Kermes. Other processes such as lengthening and assimilation were also present but at lower rates. Additionally, table 3.10 further reveals that the aforementioned processes, along with metathesis, which appears as the most frequent process, are indeed the dominant ones across the two regions. Thus, it can be said that the hypothesis has been confirmed based on the statistical and qualitative data derived from the questionnaire and elicitation wordlist, as the phonological processes referred to in the hypothesis were represented in the participants' responses.

Hypothesis 02: Men favor phonological simplification through deletion, women prefer standardized forms, and older speakers preserve traditional processes like dissimilation, metathe-sis, and insertion.

The T-Test for two independent variables was used to analyze the presence of statistically significant differences between male and female responses to questions related to phonological differences.

Axis	Mean	Standard deviation	T	Degree of freedom	Sig
Males	2.34	0.34998	-2.244	78	0.055
Females	2.55	0.46834	-2.244	78	0.055

Table 3.16: T-Test results by gender on phonological differences

The results of the T-test indicated a significant difference between males and females in their preference for types of phonological processes. The mean response score for males was 2.34, while that for females was 2.55. This reflects a greater tendency among females to preserve and use standardized forms, whereas males are more inclined toward pronunciation simplification, particularly through deletion processes.

Although the significance value (Sig = 0.055) is very close to the conventional significance threshold (0.05), it does not meet the strict criterion for statistical significance. This suggests that differences between males and females do exist. Therefore, it can be stated that the second hypothesis has been partially confirmed, as there are indicators supporting the existence of gender-based patterns in the preferred types of phonological processes.

Hypothesis 03: These variations stem from dialectal influence, geographical distance, and social identity, as speakers adjust their speech to align with specific social groups.

Figure 3.5 shows that the geographical factor and social group influence rank first in affecting pronunciation adjustment. This reflects individuals' awareness of the importance of adapting to the geographical context to ensure ease of communication and social acceptance, thereby confirming the validity of the hypothesis.

3.5. Synthesis of Findings

This section presents a summary of the current research's core findings. This synthesis seeks to provide a comprehensive view of the data gathered from the two scientific instruments. The semi-structured questionnaire aims to examine linguistic change among participants according to age, gender, and region, while the elicitation wordlist is mainly designed to explore the kinds of phonological processes occurring in speakers' speech.

The results of the data obtained from the semi-structured questionnaire demonstrate that there is linguistic variation among speakers of both Ain Kermes and Ain Bouchekkif, which reflects the participants' awareness of the phonetic distinction within each community. According to the numbers, substitution, deletion, insertion, lengthening, and assimilation are the common phonological processes that occur in each region. Additionally, gender plays a significant role in sound change, as men and women pronounce certain sounds differently. On the one hand, men tend to avoid complicated pronunciation and are more inclined toward deletion forms. On the other hand, women tend to preserve a more standardized form.

Furthermore, the older generation relies on traditional pronunciation by preserving older sounds, unlike the younger generation, which is attached to the newer, modern sounds. Moreover, speech adjustment is a natural and often subconscious process that occurs due to the integration of external factors such as geographical factors, social groups, and dialectal influence. The emergence or disappearance of pronunciation differences among speakers is also related to some aspects like social interaction and communication within groups, as well as education and upbringing factors.

As for the elicitation task, a word list was presented to the participants in order to transcribe specific words in their local dialect. The data collected from this scientific instrument elucidates that sounds can change based on age, gender, and region. The task was recognized as the basis of this study to explore the predominant phonological processes and to establish the constraints that were perceived as the foundation of the Optimality Theory analysis.

3.6. Implications and Recommendations for Further Research

Several recommendations are proposed to guide future researchers and enhance the quality of subsequent findings:

1-Future researchers are encouraged to utilize other research instruments, including audio recordings, sociolinguistic interviews, and ethnographic observation, to capture natural and more spontaneous speech, as it will offer a deeper insight into how different phonological processes are applied in daily interactions across different age groups and genders.

2- Researchers are advised to gather a comprehensive set of lexical items that exhibit phonological processes, thereby establishing a strong foundation for formulating and testing phonological constraints within theoretical frameworks such as Optimality Theory.

3- Future work may benefit from comparing the Arabic dialects spoken in Tiaret with those used in other Algerian regions to uncover broader phonological trends and regional variations.

4- Researchers are strongly recommended to studying how children acquire phonological processes in Tiaret and its regions to contribute to a better understanding of language development.

3.7. Limitations

Like many other research studies, this one also presents certain limitations that future studies may address. This research represents the first attempt to explore the phonological processes in dialectal Arabic as used in Tiaret, and applying the Optimality Theory proved to be challenging, as it is a new and complex framework that requires a deep understanding of its principles. Additionally, analyzing these Arabic varieties as spoken in Tiaret region was difficult due to the lack of standardized orthography and written documentation. Moreover, the elicitation task was time-consuming because it required collecting enough words that exhibit noticeable phonological processes. Finally, reaching native speakers over 50 was challenging. Many of them had a limited familiarity with academic research; some struggled to understand the questionnaire, while others refused to participate altogether.

Conclusion

This chapter provided a comprehensive analysis of the questionnaire and elicitation word list, through which key phonological processes were identified and examined using Optimality Theory constraints. The findings were synthesized, and the validity of the proposed hypotheses was also evaluated and confirmed. Finally, recommendations and limitations were outlined to guide future work.

General Conclusion

General Conclusion

Algeria is one of the Maghrebian countries perceived as a multifaceted sociolinguistic environment due to the presence of numerous dialects. The regional diversity for which Algeria is recognized reflects a mirror of the diverse, complex linguistic landscape. Despite Arabic being the official language of the country, noticeable differences exist across each region and community in pronunciation, vocabulary, and the local expressions. Based on these observations and the linguistic variation that differs from one region to another, the present academic research is conducted, specifically focusing on Ain Kermes and Ain Bouchekkif regions to explore the main phonological processes that occur. To this end, this study examines the effects of age and gender on phonological variations and seeks to identify the factors behind these distinctions.

This research adopts a mixed-method approach to explore the main phonological processes found in Algerian Arabic dialects, focusing primarily on Tiaret region, particularly Ain Bouchekkif and Ain Kermes. To obtain qualitative data, an elicitation task was used, involving a list of Modern Standard Arabic words transcribed into local dialects by the selected sample. In parallel, quantitative data were collected through a semi-structured questionnaire. Together, these two instruments were equally distributed to 80 participants from both regions. For data analysis, Optimality Theory was chosen as the guiding framework to identify the dominant phonological processes in accordance with OT principles.

The obtained results of the research revealed that the dominant phonological processes in the regions of Ain Kermes and Ain Bouchekkif are substitution, metathesis, deletion, and insertion. Substitution and metathesis hold the top positions, followed by deletion and insertion, with lower values observed for both assimilation and lengthening. Furthermore, a significant distinction between males and females was identified. Females are more likely to preserve and use standardized forms, unlike males, who tend to favor simpler pronunciation

and deletion forms in their speech. Moreover, the gathered data show that the factor that stands behind the linguistic variation is the geographical factor, which highlights that speakers are conscious of linguistic adaptation.

This study distinguishes itself from previous works by revealing the dominant phonological processes occurring in Ain Kermes and Ain Bouchekkif. The gathered data are not compared to other findings due to the lack of prior research on this topic. In addition, this research is considered the first investigation conducted in Tiaret region that relies on the Optimality Theory analysis. The findings of the study are expected to form a foundational base for future researchers conducting further studies in this area.

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Appendices

Questionnaire

This questionnaire is part of a research study on phonetic variations in the dialects of Ain Kermes and Ain Bouchekkif. It aims to examine how pronunciation differences occur between these two regions, particularly across different gender and age groups. Your responses will help identify linguistic patterns, potential influences on speech, and the reasons behind pronunciation differences.

Participation is voluntary, and your responses will remain anonymous. Thank you for your time and contribution to this study.

Section One: Demographic Information *(Please check the appropriate boxes.)*

1. **Region of origin:**
   ☐ Ain Kermes
   ☐ Ain Bouchekkif
2. **Gender:**
   ☐ Male
   ☐ Female
3. **Age group:**
   ☐ Under 25 years old
   ☐ Between 25 and 50 years old
   ☐ Over 50 years old

Section Two: Pronunciation Differences by Gender, Age, and Location

1. **People in my community pronounce some words differently from one another.**
   ☐ Strongly agree
   ☐ Agree
   ☐ Neutral
   ☐ Disagree
   ☐ Strongly disagree
2. **Which phonological processes are most common in your dialect?** *(You may select more than one answer.)*
   ☐ **Substitution:** Replacing one sound with another (e.g., pronouncing /ج/ as /ʒ/).
   ☐ **Deletion:** Omitting a specific sound during pronunciation.
   ☐ **Insertion:** Adding sounds that are not in the original word.
   ☐ **Lengthening:** Prolonging a vowel or consonant sound.
   ☐ **Assimilation:** Merging two sounds into one.
   ☐ **Other:** ……
3. **Men and women in my region pronounce certain sounds differently.**
   ☐ Strongly agree
   ☐ Agree
   ☐ Neutral

☐ Disagree
☐ Strongly disagree

4. **If you notice a difference, what types of phonological processes characterize each gender's speech?**

4.1 Men:

☐ Pronounce certain sounds more emphatically (e.g., a stronger /ق/ sound).
☐ Omit some sounds more frequently than women (e.g., dropping the final /n/ in fast speech).
☐ Use more contracted pronunciations for certain words.
☐ Other: …….

4.2 Women:

☐ Pronounce certain sounds in a softer manner (e.g., pronouncing /ق/ as /ʔ/).
☐ Lengthen certain sounds more than men.

5. **Do you notice pronunciation differences between different generations in your region?**

☐ Yes, the older generation pronounces certain sounds differently from the younger generation.
☐ Sometimes, but not always.
☐ No, there is no noticeable difference.

What phonological processes distinguish each generation?

5.1 Younger Generation:

☐ Replacing older sounds with newer ones (e.g., pronouncing /ث/ as /ت/).
☐ Omitting certain sounds during speech (e.g., dropping the initial glottal stop in words).
☐ Using more contracted or rapid speech patterns.
☐ Other: …….

5.2 Older Generation:

☐ Retaining older sounds that the younger generation does not use (e.g., pronouncing /ق/ with a distinct emphasis).
☐ Lengthening certain sounds more than the younger generation.
☐ Pronouncing words more clearly without omitting sounds.
☐ Other: …….

Section Three: Reasons for Phonological Differences

1. **Do you adjust your pronunciation based on certain factors during a conversation?**

☐ Strongly agree
☐ Agree
☐ Neutral
☐ Disagree
☐ Strongly disagree

2. **If you do, which factor most influences your pronunciation adjustments?**
   ☐ The dialect of the person you are speaking with (dialectal influence)
   ☐ The region or setting where you are speaking (geographical factor)
   ☐ The social group you are interacting with (social identity)
   ☐ Other (please specify): ……..
3. **What factors do you think contribute to the emergence or disappearance of pronunciation differences among speakers?**

   ☐ Education and upbringing
   ☐ Media and technology
   ☐ Social interaction and communication between different groups
   ☐ Linguistic influences from other languages and dialects
   ☐ Other (please specify):…….

4. **Please list some words that you have noticed are pronounced differently among speakers in your region, based on age, gender, or geographical location. Indicate how the pronunciations differ.**

   - **Word 1:**…….. | **Pronunciation 1:** …….. | **Pronunciation 2:**…….
   - **Word 2:** …….. | **Pronunciation 1:**…….. | **Pronunciation 2:**…….
   - **Word 3:** ……. | **Pronunciation 1:** …….| **Pronunciation 2:** ……

استبيان

هذا الاستبيان هو جزء من دراسة بحثية حول الاختلافات الصوتية في لهجتي عين كرمس وعين بوشقيف. يهدف إلى دراسة كيفية حدوث اختلافات النطق بين هاتين المنطقتين، وخاصةً بين مختلف الفئات النوعية والعمرية. ستساعد إجاباتكم في تحديد الأنماط اللغوية، والتأثيرات المحتملة على الكلام، والأسباب وراء اختلافات النطق.

مشاركتكم طوعية، وستبقى إجاباتكم مجهولة. شكرًا لكم على وقتكم ومساهمتكم في هذه الدراسة.

القسم الأول: المعلومات الديموغرافية *(يرجى تحديد المربعات المناسبة).*

1. **منطقة المنشأ:**
   - ☐ عين كرمس
   - ☐ عين بوشقيف
2. **الجنس:**
   - ☐ ذكر
   - ☐ أنثى
3. **الفئة العمرية:**
   - ☐ أقل من 25 عامًا
   - ☐ بين 25 و50 عامًا
   - ☐ أكثر من 50 عامًا

القسم الثاني: الفروقات النطقية حسب الجنس، العمر، والموقع

1. **المتحدثون في مجتمعي ينطقون بعض الكلمات بطرق مختلفة عن بعضهم البعض.**
   - ☐ موافق جدًا
   - ☐ موافق
   - ☐ محايد
   - ☐ غير موافق
   - ☐ غير موافق جدًا
2. **ما العمليات الصوتية الأكثر شيوعًا في لهجتك؟** (يمكنك اختيار أكثر من إجابة)
   - ☐ **الإبدال:** استبدال صوت بآخر (مثل نطق /ج/ كـ /ʒ/).
   - ☐ **الحذف:** إسقاط صوت معين أثناء النطق.
   - ☐ **الإضافة:** إدخال أصوات غير موجودة في الكلمة الأصلية.
   - ☐ **الإطالة أو المدّ الصوتي.**
   - ☐ **الإدغام:** دمج صوتين في صوت واحد.
   - ☐ أخرى: .....
3. **الرجال والنساء في منطقتي ينطقون بعض الأصوات بشكل مختلف.**
   - ☐ موافق جدًا
   - ☐ موافق
   - ☐ محايد
   - ☐ غير موافق
   - ☐ غير موافق جدًا
4. **إذا كنت تلاحظ فرقًا، فما نوع العمليات الصوتية التي تميز نطق كل جنس؟**

1.4. الرجال:

- ☐ نطق بعض الأصوات بشكل أكثر تفخيمًا (مثل نطق /ق/ بصوت قوي).
- ☐ حذف بعض الأصوات أكثر من النساء (مثل حذف نون التنوين في الكلام السريع).

☐ نطق أكثر اختصارًا لبعض الكلمات.
☐ أخرى: .....

2.4. النساء:

☐ نطق بعض الأصوات بطريقة أكثر ترقيقًا (مثل نطق /ق/ كـ /ʔ/).
☐ مدّ بعض الأصوات أكثر من الرجال.

5. **هل تلاحظ فروقات في النطق بين الأجيال المختلفة في منطقتك؟**

☐ نعم، الجيل الأكبر سنًا ينطق بعض الأصوات بشكل مختلف عن الجيل الأصغر.
☐ أحيانًا، لكنها ليست دائمة.
☐ لا، لا يوجد فرق واضح.

ما العمليات الصوتية التي تميز كل جيل؟

1.5. الجيل الأصغر:

☐ استبدال أصوات قديمة بأخرى جديدة (مثل نطق /ث/ كـ /ت/).
☐ حذف بعض الأصوات أثناء النطق (مثل حذف همزة الوصل).
☐ استخدام نطق أكثر اختصارًا أو دمج الأصوات بشكل أسرع.
☐ أخرى: .....

2.5. الجيل الأكبر:

☐ الاحتفاظ بأصوات قديمة لا يستخدمها الجيل الأصغر (مثل نطق /ق/ بتفخيم واضح).
☐ مدّ بعض الأصوات أكثر من الجيل الأصغر.
☐ نطق أكثر وضوحًا وعدم إسقاط بعض الحروف.
☐ أخرى: .....

القسم الثالث: أسباب الاختلافات الفروقات النطقية

1. **هل تقوم بتعديل نطقك ليتناسب مع عوامل معينة أثناء المحادثة؟**

☐ موافق جدًا
☐ موافق
☐ محايد
☐ غير موافق
☐ غير موافق جدًا

2. **إذا كنت تقوم بذلك، فما العامل الأكثر تأثيرًا على تعديل نطقك؟**

☐ لهجة الشخص الذي تتحدث معه (التأثير اللهجي)
☐ المنطقة أو المكان الذي تتحدث فيه (البعد الجغرافي)
☐ المجموعة الاجتماعية التي تتفاعل معها (الهوية الاجتماعية)
☐ أخرى (يرجى التحديد): .....

3. **ما العوامل التي تعتقد أنها تساهم في ظهور أو اختفاء الفروقات الصوتية بين المتحدثين؟**

☐ التعليم والتنشئة
☐ وسائل الإعلام والتكنولوجيا
☐ التفاعل الاجتماعي والتواصل بين الفئات المختلفة
☐ التأثيرات اللغوية من لغات ولهجات أخرى
☐ أخرى (يرجى التحديد): .....

4. **يرجى ذكر بعض الكلمات التي لاحظت أن نطقها يختلف بين المتحدثين في منطقتك، سواء حسب العمر، الجنس، أو الموقع الجغرافي، مع ذكر كيفية اختلاف نطقها:**

- **الكلمة1:** ..... | **النطق 1:** .....| **النطق 2:** .....
- **الكلمة2:** .....| **النطق 1:** .....| **النطق 2:** .....
- **الكلمة3:** .....| **النطق 1:** .....| **النطق 2:** .....

قائمة كلمات مهمة الاستنباط

كجزء من دراسة لغوية، نهدف إلى تحليل اختلافات النطق في مختلف اللهجات في تيارت. تجد أدناه قائمة بكلمات اللغة العربية الفصحى، مُصنّفة إلى أفعال وأسماء وصفات. يُرجى كتابة طريقة نطقك الطبيعية لكل كلمة في حديثك اليومي. ستساهم إجاباتك في فهم أعمق للعمليات الصوتية في اللهجات الإقليمية.

1. **أفعال:**

الكلمة باللغة العربية الفصحى	كيف تنطقها بلهجتك
1. دَاسَ	
2. تَرَجَّى	
3. قَبَضَ أو أَمْسَكَ	
4. قَصَّ(من مقص)	
5. عَرَجَ أو يَعْرُجُ	
6. قُلْتُ له	
7. لم أرَ	
8. تشقّقَ	

2. **أسماء وصفات:**

الكملة باللغة العربية الفصحى	كيف تنطقها بلهجتك
1. نحلة	
2. قشرة(الثمار)	
3. حماة(أم الزوج/الزوجة)	
4. جهاز العروس	
5. شمس	

6. **أنبوب**	
7. **زرّ(ملابس)**	
8. **أَلْثَغْ(نطق السين ثاء)**	
9. مُهَذَّب	
10. **أصْلَع**	
11. **رقائق البطاطس**	
12. **أشجار**	
13. **فراش**	
14. **أواني**	
15. **أقلام**	
16. **قرميد**	
17. **ماذا تفعل؟**	
18. **ماذا بك؟**	
19. **بعض الأشخاص**	
20. هؤلاء	

يُرجى ملء الجدول بعناية. نقدر مشاركتك كثيرًا. شكرًا لك!

ملخص

تستكشف هذه الدراسة العمليات الصوتية في اللهجة العربية الجزائرية كما يُتحدّث بها في تيارت، خاصة في منطقتي عين كرمس وعين بوشقيف. كما تهدف إلى الكشف عن تأثير العمر والجنس على التنوع اللغوي، بالإضافة إلى العوامل الأساسية التي تؤدي إلى هذا التغيير. وقد تم اعتماد منهج بحثي مختلط ، حيث يتضمن أدوات كمية ونوعية، بما في ذلك استبيان شبه منظم ومهمة استنباط. توضح النتائج الأساسية أن الاستبدال والقلب والحذف والإدراج هي العمليات الصوتية الرئيسية، مرتبة من الأكثر إلى الأقل هيمنة. يندرج التحليل ضمن نظرية المثالية ، التي توجه تفسير الأنماط الفونولوجية. علاوة على ذلك، تكشف البيانات عن فروقات قائمة على كل من الجنس والعمر، مع ملاحظة اختلافات واضحة بين المتحدثين الذكور والإناث، وكذلك بين الأجيال الأكبر سنًا والأصغر سنًا. كما تظهر العوامل الجغرافية كعناصر حاسمة في تحديد التنوع والتغيير اللغوي.

Résumé

Cette étude explore les processus phonologiques du dialecte arabe algérien parlé à Tiaret, principalement dans les régions d'Ain Kermes et d'Ain Bouchekif. Il vise à révéler l'influence de l'âge et du sexe sur la variation linguistique, ainsi que les facteurs sous-jacents qui entraînent ce changement. Une approche mixte est adoptée ; elle intègre des outils quantitatifs et qualitatifs, y compris un questionnaire semi-structuré et une tâche d'élicitation. Les principales conclusions indiquent que la substitution, la métathèse, la délétion et l'insertion sont les principaux processus phonologiques, classés de la plus dominante à la moins dominante. L'analyse est encadrée dans la théorie de l'optimalité (TO), qui guide l'interprétation des modèles phonologiques. En outre, les données révèlent des distinctions fondées à la fois sur le sexe et l'âge, avec de nettes différences observées entre les locuteurs masculins et féminins, ainsi qu'entre les générations plus âgées et plus jeunes. Les facteurs géographiques apparaissent également comme des déterminants importants de la variation et du changement linguistiques.

Summary

This study explores the phonological processes in Algerian Arabic dialect as spoken in Tiaret, mainly in the regions of Ain Kermes and Ain Bouchekkif. It aims to reveal the influence of age and gender on linguistic variation, as well as the underlying factors driving such change. A mixed-method approach is adopted, incorporating both quantitative and qualitative tools, including a semi-structured questionnaire and elicitation task. The core findings elucidate that substitution, metathesis, deletion, and insertion are the main phonological processes, ranked from the most to the least dominant. The analysis is framed within Optimality Theory (OT), which guides the interpretation of phonological patterns. Furthermore, the data reveal distinctions based on both gender and age, with clear differences observed between male and female speakers, as well as between older and younger generations. Geographical factors also emerge as significant determinants of linguistic variation and change.