People's Democratic Republic of Algeria
Ministry of Higher Education and Scientific Research

University of Oran 2 Faculty of Foreign Languages

Department of English

Definitely Foreign ... Absolutely Arabic

The Difficulties Encountered by Foreigners Learning Arabic as a Foreign Language

This dissertation is submitted to the University of Oran 2 in partial fulfilment of the requirements for the Degree of Doctorate in Linguistics

Submitted by Amina ZITOUNI

Supervised by: Pr. Bachir BOUHANIA

Board of Examiners:

Chair:	Pr.Boukerires Louafia	Full professor Oran2
Supervisor:	Pr.Bouhania Bachir	Full Professor Adrar University
Examiner:	Ghlamalah Nahed Rajaa	Associate Professor Oran2
Examiner:	Mossadek Sarah	Associate Professor Oran2
Examiner	Benosmane Naziha	Associate Professor ENS Oran
Examiner:	Khelf Yakout	Associate Professor Béchar university

2023-2024

DEDICATION

"Papa, Even if you are not with me, you are always within me"

This work is the fruit of all the love, support, ambition, and enthusiasm you provided me with all the time.

To my beloved mother whose limitless love nurtured my spirit and shaped my dreams. To my beloved husband Mounir, my primary supporter, and my army that is never defeated. To my sunshine Tesnime.

To my brothers and sisters to whom I owe all my beautiful memories and support. Also, to their families.

To my niece Alaa.

To Dallel, my companion throughout the journey

To all my cousins and friends.

To all the teachers of Arabic to speakers of other languages on the planet.

AKNOWLEDGEMENTS

I want to express my deepest gratitude to my supervisor, Pr.Bachir Bouhania, for his guidance, support, and encouragement throughout my doctoral thesis journey.

I am also grateful to the members of my thesis jury for the constructive feedback and thoughtful remarks, which will undoubtedly enrich my work.

I am thankful to all the foreign students at Tahri Mohamed University Bechar for being part in the experimental study

To my friends; Fatima Zohra Melki, Souad Guessar, Kholoud Nebbou, and Mereim Boulekroun whose support and help are beyond all estimations.

To Dr. Tedj Gomri, Pr. Khalki Smaine, Dr. Benguettaf Abdel Hafid; your help has been amazing. Thank you for your support.

To all my colleagues at the department of Foreign Languages at Tahri Mohamed University Bechar.

This thesis is the reflection of the collective support and inspiration I have received from each of you.

ABSTRACT

The study of phonological differences encountered by foreigners learning Arabic as a foreign language is crucial in understanding the complexities of language acquisition in a bilingual or multilingual context. Arabic, a Semitic Language, exhibits a distinct phonetic system characterised by emphatic, pharyngeal, and guttural sounds. This unique phonological system can lead to significant challenges, such as mispronunciation and difficulty in recognizing similar sounds. This research aims to examine the perception and production of consonant contrasts among non-native speakers of Arabic, and it investigates the different sounds that seem challenging for speakers of other languages, mainly native speakers of English and French. Through a triangulation method, interviews were conducted with teachers of Arabic to speakers of other languages in Turkey. NVIVO software was used to analyse the interviews' transcripts. A questionnaire was designed for learners of Arabic as a foreign language in several institutions in Jordan, Egypt, and Turkey, besides a quasi-experiment held at the Department of Foreign Languages at Tahri Mohamed University Bechar. International students have been recorded, and their recordings were analyzed using PRAAT software. The findings revealed that AFL learners face difficulties producing pharyngeal and emphatic sounds with different levels of difficulty. This research contributes to the understanding of phonological challenges in learning Arabic as a foreign language. It offers practical recommendations for teachers and learners to enhance the learning and teaching process.

Keywords; Arabic, emphatic consonants, pharyngeal consonants, phonological challenges

TABLE OF CONTENTS

DEDICATION I

AKNOWLEDGEMENTS II

ABSTRACT III

TABLE OF CONTENTS IV

LIST OF TABLES XI

LIST OF FIGURES XIII

LIST OF ACRONYMS XV

English Consonants and Vowels ..... **i.**

GENERAL INTRODUCTION 1

Aims of the Research 1

Hypotheses 2

Research Questions 2

Research Tools 3

Structure of the Dissertation 3

CHAPTER ONE: MODERN STANDARD ARABIC CONTRASTIVE AND ERROR ANALYSIS 6

1.1 Introduction 6

1.2 A Brief History of the Arabic Language 6

1.3 Historic al Background 8

1.2.1 Classical Arabic vs Modern Standard Arabic 9

1.2.2. A Brief History of the Emergence of the Term Phonology 10

1.4 Arabic Sound System 10

1.3.1 Arabic Consonants 10

1.3.1.1 Arabic Consonants with Examples 11

1.3.1.2 Arabic Vowels 19

1.3.1.3 Arabic Short Vowels 20

1.3.1.4 Arabic Long vowels 21

1.5 Comparison between English and Arabic Sounds Regarding Place and manner of Articulation 22

1.4.1 Consonants 22

1.4.1.1 Place of Articulation 22

1.4.1.2 Manner of Articulation 25

1.6 Linguistic Complexity of Arabic 26

1.7 Phonology of Arabic 27

1.8 Arabic Phonemes and Their Variations 27
1.9 Guttural Sounds 28
1.10 Morphology of Arabic 29
1.11 Syntax 30
1. 12. Contrastive Analysis 30
1.12.1 Strengths and Limitations of Contrastive Analysis 32
1.12.2. Contrastive Analysis of English and Arabic 33
1.13 Error Analysis 35
1.13.1 Definition of Error Analysis 36
1.13.2 The Theoretical Foundation of EA 37
1.13.3 Steps of Error Analysis 38
1.13.4 Objectives of EA 39
1.14 Classification of Errors 39
1.14.1 Linguistic-Based Classification 39
1.14.2 Process-Based Classification 40
1.15 Analysis of Errors 40
1.15.1 Description of Learner's Errors 40
1.15.2 Interlanguage 41
1.15.3 Interlingual Errors 42
1.15.4 Intralingual Errors 43
1.15.5 Incomplete Application of Rules 43
1.16 Conclusion 44
CHAPTER TWO : SOUND PERCEPTION AND LANGUAGE ACQUISITION 46
2.1. Introduction 46
2.1 What is a sound? 46
2.3 Phonetics Versus Phonology 46
2.4 Sound perception 48
2.4.1 Definition 48
2.5 Theories of Speech Perception 49
2.5.1 Theories of Auditory Perception 49
2.5.1.1 The Ecological theory of auditory perception 49
2.5.1.2 Auditory affordances 50
2.5.1.3 Soundscape: The dynamic auditory environment 50
2.5.1.4 Informational invariants 52
2.6. Other Theories of Speech Perception 53
2.6.1 The Motor Theory 53

2.6.2 The TRACE Model 53
2.6.3 Interactive Activation Model 54
2.6.4 Top-Down and Bottom-Up Processing 57
2.7 Individual Differences in Sound Perception 58
2.7.1 Cognitive Factors in Sound Perception 59
2.7.2 The Significance of Age in Sound Perception 61
2.7.3 Cultural and Individual Variations 62
2.8 Cultural Influences on Sound Perception 63
2.8.1 The Role of Culture in Shaping Perceptual Systems 64
2.8.2 Cultural Variation in Speech Sounds and Phonemes 64
2.9 Sound Perception and Language Production 65
2.10 Spoken Language Acquisition 66
2.11 Pronunciation Challenges for Foreign Language Learners 66
2.12 Strategies for Improving Pronunciation 67
2.13 Conclusion 68
CHAPTER THREE TEACHING ARABIC AS A FOREIGN LANGUAGE TAFL 70
3.0 Introduction 70
3.1 The Importance of Learning a Foreign Language 70
3.2 Learning Arabic as a Foreign Language 71
3.3. Approach, Method, and Technique 71
3.3.1 Approach 72
3.3.2 Method 73
3.2.3 Technique 73
3.3 current communicative Approaches to Teaching Arabic as a Foreign Language 74
3.3.1 Communicative Language Teaching 74
3.3.2 Content-Based Instruction (CBI) 75
3.3.3 Task-Based Teaching (TBT) 76
3.4 Teaching Methods 77
3.4.1 Grammar Translation Method 77
3.4.2 The Audio-Lingual Method 77
3.5 Other Methods in Teaching Arabic as a Foreign Language ECRIF, PPU, PDP 78
3.5.1 ECRIF; Encounter, clarify, remember, Internalize. Fluency 78
The Stages of the ECRIF Framework 79
3.5.1.1.1 Encounter 79
3.5.1.1.2 Clarify 79
3.5.1.1.3 Remember 80

3.5.1.1.4 Internalize 80
3.5.1.1.5 Fluency 80
3.5.2 Presentation Practice Use PPU 80
3.5.3 Pre-During –Post-PDP 81
3.5.3.1 The stages of the PDP framework 81
3.5.3.1.1 Pre 81
3.5.3.1.2 During 82
3.5.3.1.2 Post 82
3.6 How to Teach the Arabic Language Four Skills 82
3.6.1 Teaching Listening 82
3.6.1.1 Authentic Listening Materials 83
3.6.1.2 Audio Resources and Technology 84
3.6.2 Teaching Speaking 84
3.6.2.1 Conversation and Dialogue Practice 85
3.6.2.2 Oral Presentation Strategies 86
3.7 Teaching Reading 87
3.7.1 Incorporating Literature in Teaching Reading 87
3.8 Teaching Writing 88
3.8.1 Proofreading and Editing Strategies 88
3.9 Conclusion 89
CHAPTER FOUR : METHODOLOGY 91
4.0 Introduction 91
4.1 Data Collection Procedure 91
4.2 Research Design: Tools and Instruments 92
4.34 Target Population 93
4.4 Sampling Methods 93
4.4.1 Sample selection 94
Stage 1: Clearly Define Target Population 94
Stage 2: Select Sampling Frame 94
Stage 3: Choose Sampling Technique 94
4.4.2 Stratified random sampling 94
4.4.2.1 Cluster Sampling 94
4.4.2.2 Assess Response Rate 95
4.5 The Questionnaire 95
4.5.1 Samples 96
4.5.2 Description of the Questions 96

4.6 The Interviews 97
4.6.1 Face-to-face Interviews 98
4.6.2 Analysis of Interview Data 98
4.6.3 Teachers' Interviews 101
4.6.3.1 Teachers' Interview Description 102
4.6.1.3.1 First Section of Questions 103
4.6.1.3.2 Second Section of Questions 103
4.6.1.3.3 Third Section of the Questions 104
4.7 The Experiment 105
4.7.1 Description of the Experiment 106
4.7.2 The Experiment Procedure 106
4.7.2.1 PRAAT Software Method 107
4.8 Description of the Recordings 108
4.8.1 Analysis of the Recordings 110
4.9 Conclusion 111
CHAPTER FIVE : DATA ANALYSIS 113
5.0 Introduction 113
5.1 Teachers' Interview Analysis 113
5.2 Analysis of Interview Data 114
5.3 Teachers' Profile 116
5.3.1 Mr. Wael Shawki 116
5.3.2 Mr. Ahmed Rohbane 117
5.3.4 Mr. Bilal Dabecha 117
5.4 The Outcome of the Coding 117
5.4.1 Teaching Arabic as a Foreign Language 118
5.4.2 Skills of Language Learning 122
5.5 Summary 127
5.6 Discussion of the Interview Findings 128
5.7 Learners' Questionnaire Analysis 129
5.7.1 Population of the second data collection 129
5.7.2 Sample of the second data collection 129
5.8 Questionnaire Analysis 129
5.9 Conclusion 146
CHAPTER SIX : RESULTS OF THE THIRD METHOD 148
6.0 Introduction 148
6.1 The Experiment Sample Size 148

6.2 Brief Description of the Experiment 148
6.3 Discussion of the Dialogue Recordings 149
6.4 Discussion of the Native Speaker Recordings 149
6.5 Results of the Students' Recordings Analysis 151
6.5.1 Participants' Pronunciation of [ÿ]ظ in Different Positions 151
6.5.2 Participants' Pronunciation of [À] ع in Different Positions 152
6.5.3 Participants' Pronunciation of [ð]ح in Different Positions 152
6.5.4 Participants' Pronunciation of [ë] ظin Different Positions 153
6.5.5 Participants' Pronunciation of [q] ق in Different Positions 153
6.5.6 Participants' Pronunciation of [X] خin Different Positions 154
6.5.7 Participants' Pronunciation of [§]صin Different Positions 155
6.5.8 Participants' Pronunciation of[h]ه in Different Positions 155
6.5.9 Participants' Pronunciation of[ê]ضin Different Positions 156
6.6 Discussion of the Participants Recordings 156
6.7 Comparing the Participants' Performance to the Native Speaker 157
6.8 Discussion of the Participants' Recordings Results 159
6.9 Discussion of the Findings of the Acoustic Analysis 159
6.9.1 The Significance of Gender Differences in Acoustic Analysis 160
6.9.2 The Significance of Duration in Acoustic Analysis 160
6.10 Procedure and Measurements: Results of Acoustic Analysis 161
6.10.1 Results of the Male Native Speaker's Recordings Analysis 161
6.10.2 Results of the Female Native Speaker's recording Analysis 163
6.12 Comparison of the Mean Duration between Male and Female Native Speakers 165
6.13 Results of the Participants' Acoustic Analysis 166
6.13.1 The Duration of [ÿ] ظin Initial, Middle, and Final Position 166
6.13.2 Duration of[À]ع in Initial. Middle and Final Position 166
6.13.3 Duration of[ð] حin Initial. Middle and Final Position 167
6.13.4 Duration of[ë] ظin Initial. Middle and Final Position 168
6.13.5 Duration of [q] قin Initial. Middle and Final Positions 168
6.13.6 Duration of [X]خin Initial, Middle, and Final Position 169
6.13.7 Duration of [§]صin Initial, Middle, and Final Positions 169
6.13.8 Duration of[h]ه in Initial, Middle, and Final Positions 170
4.13.9 Duration of [ê] ضin Initial, Middle, and Final Positions 171

6.14 Discussion of the Findings 171
6.15 Gender Differences 173
6.15.1 Comparison of the Mean Duration between Male and Female Native Speaker 173
6.15.2 Comparison between male native speakers means duration and male participants' mean duration 174
6.15.3 Comparison between female native speakers means duration and female participants' mean duration 175
6.15.4 Comparison between male and female participants 176
6.16 Summary of the Main Findings 177
6.17 Reliability of the Result 178
6.18 ANOVA TEST 181
6.19 Interpretation of T-test Results 182
6.20 Conclusion 183
GENERAL CONCLUSION 188
BIBLIOGRAPHY ..... 191.
APPENDICES 208

LIST OF TABLES

Table I- 1 Arabic Consonants **12**
Table I- 2 : Classification of Arabic Consonants **19**
Table I- 3 : Labial Sounds **22**
Table I- 4 : Dental Sounds **23**
Table I- 5 : Alveolar Sounds **23**
Table I- 6 : Uvular Sound **23**
Table I- 7 : Palato-alveolar Sounds **24**
Table I- 8 : Velar Sounds **24**
Table I- 9 : Pharyngeal Sounds **24**
Table I- 10 : Glottal Sounds **25**
Table I- 11 : Stop/plosive vowels **25**
Table I- 12 : Fricative Vowels **25**
Table I- 13 : Affricate Vowels **25**
Table I- 14 : Nasal Vowels **25**
Table I- 15 : Lateral Vowels **26**
Table I- 16 : Trill Vowels **26**

Table III- 1: Tab some approaches to language teaching/learning **72**

Table IV- 1 : Codes and Questions **100**
Table IV- 2 : Emphatic Sounds in Different Positions **109**
Table IV- 3 ..... **110**

Table V- 1 : Codes and Questions **115**
Table V- 2 : Teachers' Interviews Analytical Result **118**
Table V- 3 : Sub-Themes on Teaching Arabic as a Foreign Language **118**
Table V- 4 : Sub-Themes on Skills of Language Learning **122**

Table VI- 1 : Arabic sounds in different word position **149**
Table VI- 2 : Participants' Pronunciation of [ÿ] ط in Different Positions **151**
Table VI- 3 : Participants' Pronunciation of [À] ع in Different Positions **152**
Table VI- 4 : Participants' Pronunciation of [ð] ح in Different Positions **152**
Table VI- 5 : Participants' Pronunciation of [ë] ظ in Different Positions **153**
Table VI- 6 : Participants' Pronunciation of [q] ق in Different Positions **153**
Table VI- 7 : Participants' Pronunciation of [X] خ in Different Positions **154**
Table VI- 8 : Participants' Pronunciation of[§] ص in Different Positions **155**
Table VI- 9 : Participants' Pronunciation of [h] ه in Different Positions **155**
Table VI- 10 : Participants' Pronunciation of [ê] ض in Different Positions **156**
Table VI- 11 : Sounds as Pronounced by Participants **157**
Table VI- 12 : Participants' Correct and Wrong Pronunciation **157**
Table VI- 13 : Resultsof the native speaker's recordings **161**
Table VI- 14 : Female Native Speaker Recording Analysis **163**
Table VI- 15: Mean Duration of Male and Female native speakers **165**

Table VI- 16 : Duration of [ÿ] ظin Initial, Middle, and Final Positions.....166
Table VI- 17 : Duration of[À] ع in Initial. Middle and Final Position 167
Table VI- 18 : Duration of[ð] حin Initial. Middle and Final Position 167
Table VI- 19 : Duration of [ë] طin Initial. Middle and Final Position 168
Table VI- 20 : Duration of[q] قin Initial. Middle and Final Position.....168
Table VI- 21 : Duration of[X]خin Initial, Middle, and Final Positions 169
Table VI- 22 : Duration of [§]صin Initial, Middle, and Final Positions 169
Table VI- 23 : Duration of [h]هin Initial, Middle, and Final Positions 170
Table VI- 24 : Duration of [ê] ضin Initial, Middle, and Final Positions 171
Table VI- 25 : Comparison of the mean duration between male and female native speaker.....173
Table VI- 26 : Comparison between male native speaker mean duration and male participants' mean duration.....174
Table VI- 27 : Comparison between female native speakers means duration and female participants' mean duration 175
Table VI- 28 : Comparison between male and female participants.....176
Table VI- 29 : Independent Samples Test of the male N/S and Male Participants.....178
Table VI- 30 :Independent Samples Effect Sizes.....179
Table VI- 31 : Group Statistics.....179
Table VI- 32 : Independent Samples Test of the Female N/S and Female Partcipants...179
Table VI- 33 : Independent Samples Effect Sizes.....180
Table VI- 34 : Group Statistics.....180
Table VI- 35 : Independent Samples Test of the Male and Female Participants.....180
Table VI- 36 : Independent Samples Effect Sizes.....181
Table VI- 37 : ANOVA Test 181

LIST OF FIGURES

Figure I- 1 :Arabic consonants 7
Figure I- 2 : Arabic [b] ب 12
Figure I- 5 : Arabic [ê] ض 14
Figure I- 6 : Arabic [O] ث 15
Figure I- 7 : Arabic [ð] ح 17
Figure I- 8 : The Interlanguage Hypothesis 41

Figure II- 1 49
Figure II- 2 : Impact of Soundscape in Sound Perception 51
Figure II- 3 : One time-slice of the TRACE model of spoken word recognition Sound Perception and Cognitive Processes 55
Figure II- 4 : The Relationship Between Language Processing and Cognition 56
Figure II- 5 : Top-Down Processing Vs Bottom-Up Processing 58

Figure III- 1 : Language Teaching/Learning Approach, Method and Technique Foreign Language 74

Figure IV- 1 93
Figure IV- 2 : Spectrogram Using PRAAT 108

Figure V- 1 : 1students' gender 130
Figure V- 2 : participants' Age 130
Figure V- 3 : The participants' origin 131
Figure V- 4 : The participants' living place 131
Figure V- 5 : The participants' settled place 132
Figure V- 6 : The participants' First Language 132
Figure V- 7 : The participants' Diploma 133
Figure V- 8 : The participants' Work Status 133
Figure V- 9 : The participants' Spoken Languages 134
Figure V- 10 : The participants' motivations for learning Arabic 134
Figure V- 11 : The difficulty of understanding Arabic 136
Figure V- 12 : learners' Conception of/ / / ظ, ذ/ ,د/ / 136
Figure V- 13 : learners' perception of /q/,/k/ 137
Figure V- 14 : learners' perception of /q/ 137
Figure V- 15 : learners' perception of / ع/ / /أ/ 138
Figure V- 16 : learners' perception of ع 138
Figure V- 17 : learners' perception of /ض / /, // ط/, // ط/ 139
Figure V- 18 : learners' perception of ض / / 139
Figure V- 19 : The most challenging Arabic sound to pronounce 140
Figure V- 20 : learners' perception of / ص/ 140
Figure V- 21 : learners' perception of / خ/ح/ 141
Figure V- 22 : learners' perception of / // خ 141
Figure V- 23 : learners' perception of / ح /// ه/ // 142
Figure V- 24 : learners' perception of / ح// 142
Figure V- 25 : The students' strategies to overcome speaking difficulties 143

Figure VI- 1 : Duration of /h/ 160
Figure VI- 2 : sound /ţ/ in initial position as pronounced by male NS 162
Figure VI- 3 : sound /ţ/ in middle position as pronounced by male NS 162
Figure VI- 4 : sound /ţ/ in final position as pronounced by male NS 162
Figure VI- 5 : sound /ţ/ in initial position as pronounced by Female NS 163
Figure VI- 6 : sound /ţ/ in Middle position as pronounced by Female NS 164
Figure VI- 7 : sound /ţ/ in final position as pronounced by Female NS 164
Figure VI- 8 : Comparison between male and female native speakers 174
Figure VI- 9 : Comparison of the Mean Duration between Male Native Speaker and Male Participants 175
Figure VI- 10 : Comparison of the Mean Duration between Female Native Speaker and Female Participants 176
Figure VI- 11 : Comparison of the Mean Duration between Male and Female Participants 177

LIST OF ACRONYMS

APA	American Psychological Association
C	Consonant
CA	Classical Arabic
CA	Contrastive Analysis
CAH	Contrastive Analysis Hypothesis
CBI	Content-Based Instruction
CLT	Communicative Language Teaching
CCQ	Comprehension Check Question
CVC	Consonant Vowel Consonant
ECRIF	Encounter, Clarify, Remember, Internalise, fluency
EA	Error Analysis
EFL	English as a Foreign Language
FLAL	Foreign Learners of Arabic Language
FNS	Female Native Speaker
GTM	Grammar Translation Method
IPA	International Phonetic Alphabet
L1	First Language
L2	Target Language
MNS	Male Native Speaker
MSA	Modern Standard Arabic
MT	Mother Tongue
PPU	Presentation, Practice, Use
PDP	Pre, During, Post
RP	Received Pronunciation
SLA	Second Language Acquisition
SVO	Subject, Verb, Object
TAFL	Teaching Arabic as a Foreign Language
TBLT	Task-Based Language Teaching
TL	Target Language
TMUB	Tahri Mohammed University Bechar
V	Vowel

List of English phonemes

International phonetic alphabets

English Consonants and Vowels

/p/: park, sport, stop

/b/: bark, bill, ball

/m/: moon, small, milk

/w/: water, warm, window

/f/: flag, farmer, fear

/v/: vet, civil, valid

/□/: think, thought, though

/ð/: this, weather, there

/t/: ten, tin, task

/d/: daughter, danger, added

/s/: slim, soccer, sea

/z/: zip, zebra, puzzle

/l/: Lemon, light, clock

/r/: Room, carrot, ferry

/j/: Yellow, union, university

/ʃ/: Shark, shopping, fish

/ʒ /: Germ, jump, jog

/tʃ/: Church, French, beach

/dʒ/: Judge, bridge, huge

/k/: King, car, corner

/g/: Garage, goat,

/□/: Morning, shopping, Viking

/h/: Honey, harm, heal

English Vowels

/ɪ/: Hit, built, chip, lit, lift.

/e/: Sell, belt, met, let, bed.

/æ/: Had, cat, fat, mass, hat.

/□/: Jump, bus, Judge, pun, hunt

/ɒ/: Dog, shop, bomb, dot, Wrath.

/ʊ/: Put, bush, pull, shook, bull.

/ə/: Photography, afterwards, doctor.

/iː/ Beat, these, piece, see.

/uː/ moon, two, blue, spoon.

/ɜː/ Nurse, learn, bird, heard.

/ɔː/ Law, all, thought, bought.

/ɑː/ Start, class, far, palm.

List of Modern standard Arabic phonemes

b/	ب	[ba1ad]	بلد	Country
t/	ت	[tx1mi:b]	تلميذ	Pupil
d/	د	[dars]	درس	Lesson
_(/	ط	[_(a:1xb]	طالب	Student
d/	ظ	[dʊhr]	ظهر	Noon
k/	ك	[kataba]	كتب	To write
q/	ق	[qa:1a]	قال	To say
/ /	ا	[1axaba]	أخذ	To take
À/	ع	[tabara]	عبر	To pass
f /	ف	[Pam]	فم	Mouth
P/	ث	[at1ab]	ثعلب	Fox
D/	ذ	[bahaba]	ذهب	To go
/	ض	[_bahr]	ضهر	Back
s/	س	[sa1a1a]	سأل	To ask
§/	ص	[_sadi:q]	صديق	Friend
z/	ز	[zaara]	زار	To pay a visit
S/	ش	[Cams]	شمس	Sun
dZ/	ج	[yama1]	جمل	Camel
X/	خ	[xams]	خمس	Five
Ä/	غ	[9aza:]	غزال	Gazelle
h/	ه	[haba:]	هذا	This
ð/	ح	[Nazi:n]	حزين	Sad
m/	م	[ma_tar]	مطر	Rain
n/	ن	[na:s]	ناس	People
r/	ر	[rabi1]	ربيع	Spring

l/	ل	[1ex1]	ليلة	Night
w/	و	[waqaPa]	وقف	To stand
j /	ي	[jaxt]	يخت	Boat

Arabic Vowels

/a/	-	/rasm /	رسم	Drawing
/u/	-	/dub /	دب	Bear
/i/	-	/sir/	سر	Secret
/a:/	-	/ba:b/	باب	Door
/u:/	-	/tu:t/	توت	Berries
/i:/	-	/hali:b/	حليب	Milk
/aj/	-	/1aj8/	ليث	lion
/aw/	-	/9azaw/	غزو	invasion

GENERAL INTRODUCTION

GENERAL INTRODUCTION

Learning is a journey of change and personal growth. It shapes the individuals' behaviors, skills, attitudes, knowledge, and understanding of the world around them through their experiences and reactions to others. Therefore, learning languages has become an essential skill in an increasingly globalized world in recent years. As individuals connect with different cultures and backgrounds, communicating effectively becomes more vital than ever because speaking multiple languages can unlock a wealth of opportunities both at the personal and professional levels. Recently, learners of various ages, nationalities, and religions have shown an increasing and keen interest in learning Arabic.

Several reasons can explain this interest in learning Arabic, such as cultural interest, economic opportunities, geopolitical awareness, travel and tourism, academic and religious studies, and language diversity. The demand for institutions teaching Arabic to speakers of other languages is continuously increasing. Modern Language Association reported a significant increase in interest in learning Arabic as a foreign language in general and in the United States in particular. From 2002 to 2009, American learner's enrollment in Arabic increased by 196 %, making it the country where foreign language study is the most flourishing. Arabic is the 8th most studied language in America. (ICEF Academy, 2014)

It is undeniable that pronunciation in the field of foreign language teaching and learning is of a significant role for both the teachers and learners. Speech sounds are crucial for learners of foreign languages, and oral communication largely relies on how sounds are produced and perceived. Therefore, the present study is designed to examine the perception and production of pharyngeal and emphatic consonants among non-native speakers of Arabic.

Aims of the Research

The present study seeks to discover how learners of Arabic as a foreign language perceive Arabic sounds and the difficulties they encounter. It is conducted to analyse the learners' pronunciation phonologically to ascertain the mispronounced sounds and set up appropriate teaching methods to correct these errors and, hence, reach an accurate pronunciation.

In other words, the aim of the present study is both theoretical and practical. The theoretical part of the research aims to shed light on the different sounds that seem difficult for speakers of other languages, mainly native speakers of English and French. The objective of

the practical part is to set up an appropriate syllabus that could help them improve their pronunciation.

Hypotheses

Not all Arabic sounds are difficult to learn. However, learners of Arabic as a foreign language face particular challenges. The present study determines the sounds that are most likely difficult to pronounce through the examination of two hypotheses. The first assumes that sounds like غ ض خ ح ق are difficult for non-speakers of Arabic. A description of the sound system of modern standard Arabic MSA and the learners' first language reveals areas of difficulty for Arabic language learners. AFL learners struggle to produce pharyngeal and emphatic sounds, such as [ÿ] ط,[À]ع.[d] ظ. [q].ق[□]خ.[ç]ص.[h]ه. [□] ض and [N] ح since these sounds exist in Arabic and have no equivalent in the learners' first language. Because of phonotactic differences between Arabic as the target language (TL) and French and English, Arabic emphatic and pharyngeal consonants tend to be significantly difficult for speakers of other languages to pronounce. The second hypothesis is that speakers of other languages, especially French and English speakers, face pronunciation difficulties due to interference from their mother tongue.

Research Questions

Conducting this type of research is crucial as it sheds light on the teachers and researchers' awareness of the learners' common beliefs regarding the difficulties they encounter as they learn Arabic as a foreign language. By addressing the phonological challenges perceived by the learners, teachers can better understand these issues and help course designers develop suitable materials that can improve the learners' acquisition of Arabic in general and pronunciation in particular. To this end, the current study attempts to answer four key questions:

1. Which Arabic consonant phonemes and consonant contrasts do non-speakers of Arabic find challenging to produce and perceive?
2. How do AFL learners conceive Arabic sounds, and what phonological difficulties do they exhibit when pronouncing Arabic consonants?
3. How does gender affect the perceptions of Arabic consonant contrasts among AFL learners?
4. What effective methods should teachers of Arabic use to help their foreign learners overcome the obstacles they face?

Research Tools

In this research, three tools have been carefully selected in order to ensure reliable answers. The first is conducting interviews with teachers and experts in the field of teaching Arabic to speakers of other languages. Interviews are critical in this type of research as they provide authentic and relevant insights. Additionally, engaging experienced teachers helped explore their pedagogical strategies and views regarding the challenges their learners frequently encounter. The interviews were face-to-face, recorded with the teachers' written consent, and later transcribed and analysed. This qualitative tool contributed to gathering in-depth perspectives.

The second research tool is a questionnaire administered to learners of Arabic as a foreign language, in several institutions worldwide, including Turkey, Jordan, and Egypt. The questionnaire is a practical tool to gather data from a large sample to provide inclusive overviews of capital importance in determining the intricate sounds they struggle to produce as they speak Arabic. This quantitative method is aimed to collect data concerning the learners' background, motivations, and challenges in learning Arabic as a foreign language. Furthermore, including participants from different countries and backgrounds helped to capture a wide range of perspectives that reflect the difficulties encountered by foreigners learning Arabic as a foreign language.

The third research tool is a quasi-experimental study conducted at Tahri Mohamed University Bechar, where foreign students of English at the Department of Foreign Languages were taught Arabic over a period of more than one year. This experimental study is indispensable in this research to establish causal relationships between research variables. It is conducted first to detect all the sounds that represent difficulty to the participants, and second to confirm the findings using acoustic analysis of the participants' recordings via PRAAT, a phonetic and acoustic analysis software package.

Structure of the Dissertation

The present study consists of six chapters: three theoretical and three practical**.** The first chapter **is** divided into two main parts. The first part revolves around Modern Standard Arabic (MSA), which many foreign students are interested in studying. MSA's phonology, morphology, syntax, and semantics will be discussed in detail. The second part of this chapter is dedicated to Contrastive Analysis (CA) and Error Analysis as significant tools the research should rely on to investigate areas of difficulties while learning Arabic as a foreign language.

CA provides a framework for identifying areas of difficulty that the learners may encounter. CA provides a systematic approach to understanding the errors that learners make and the underlying causes of these errors.

The second chapter discusses the main theories of sound perception and their role in acquiring the spoken form of the target language. It also sheds light on some language acquisition theories related to speech perception.

The third chapter deals with Teaching Arabic as a Foreign Language (TAFL). It aims to address prominent pedagogical approaches in teaching Arabic as a foreign language and investigates the way each approach contributes to developing Arabic language skills and their compatibility with different learners. Additionally, this chapter sheds light on the strategies used in teaching each language skill to clarify how teachers of Arabic can optimise their teaching strategies for a better learning experience among foreign learners.

Chapter four describes the methodology and data collection used in this research. It involves a detailed description of the target population, the tools and instruments used for collecting valid data, obstacles, and limitations. Findings were based on learners of Arabic as a foreign language in different institutions and countries such as Jordan, Turkey, and Egypt, as well as Arabic teachers' cooperation with speakers of other languages from various nationalities and backgrounds.

Chapter five is subdivided into two sections: the analysis of the teachers' interview and the learners' questionnaire. While the first section presents the findings from the NVivo analysis of the teachers' interviews, the second section provides descriptive data on the learners' utterances and involvement through the questionnaire analysis.

Chapter six analyses the data collected from the quasi-experiment conducted at Tahri Mohamed University, Bechar. The results were analysed on two levels: articulatory and acoustic. The latter focused on comparing the length of the target consonants as uttered by the native speaker as a model, as well as the involvement of males and females at the articulatory level by comparing the native speaker's articulation to the participants.

It is worth mentioning that the 6th automatic edition of the American Psychological Association (APA) is used for the reference style. It uses standardized rules and guidelines relevant to in-text citations, citations of references, and reference lists. This dissertation includes five appendices and a reference list.

CHAPTER ONE

Modern Standard Arabic; Contrastive and Error Analysis

CHAPTER ONE: MODERN STANDARD ARABIC CONTRASTIVE AND ERROR ANALYSIS

1.1 Introduction

In the recent past around the world, learning languages has become a crucial skill to acquire in today's world. With the increasing globalization of our society, it is becoming of capital importance to be able to communicate with people from different cultures and backgrounds. Knowing languages can open up a world of professional and personal opportunities, not only for cognitive benefits, but also for understanding social situations, building interpersonal relationships, and taking a further step in one's career and achieving identified academic purposes. English, French, German, Spanish, Japanese, Chinese, and others are worldwide languages that people are interested in learning. Recently, there has been an increasing interest in other languages such as Arabic.

This chapter is divided into two main parts; the first part revolved around modern standard Arabic which many foreign students are interested in studying for several reasons. The phonology, morphology, syntax, and semantics of MSA will be discussed in details. The second part of this chapter is dedicated to contrastive analysis and error analysis as significant and important tools the research should rely onto investigate areas of difficulties while learning Arabic as a foreign language. CA provides a framework for identifying areas of difficulty that the learners may encounter. EA provides a systematic approach to understanding the errors that learners make and the underlying causes of these errors.

1.2 A Brief History of the Arabic Language

Semitic languages are members of the Afro-Asiatic (Hamito-Semitic) phylum of languages. Mustafa Shah defines the term Semitic as a term coined in the late eighteenth century and inspired by the Book of Genesis's account of the physical dispersal of the descendants of Noah together with the tongue they spoke. Semitic uses the term Semitic to refer to the morphological, phonological, and lexical features, which are collectively known aspects of these languages. The historical development of the ***Proto***-Semitic languages has been always a subject of debate. The following diagram explains the different phases of ***Proto***-Semitic languages.

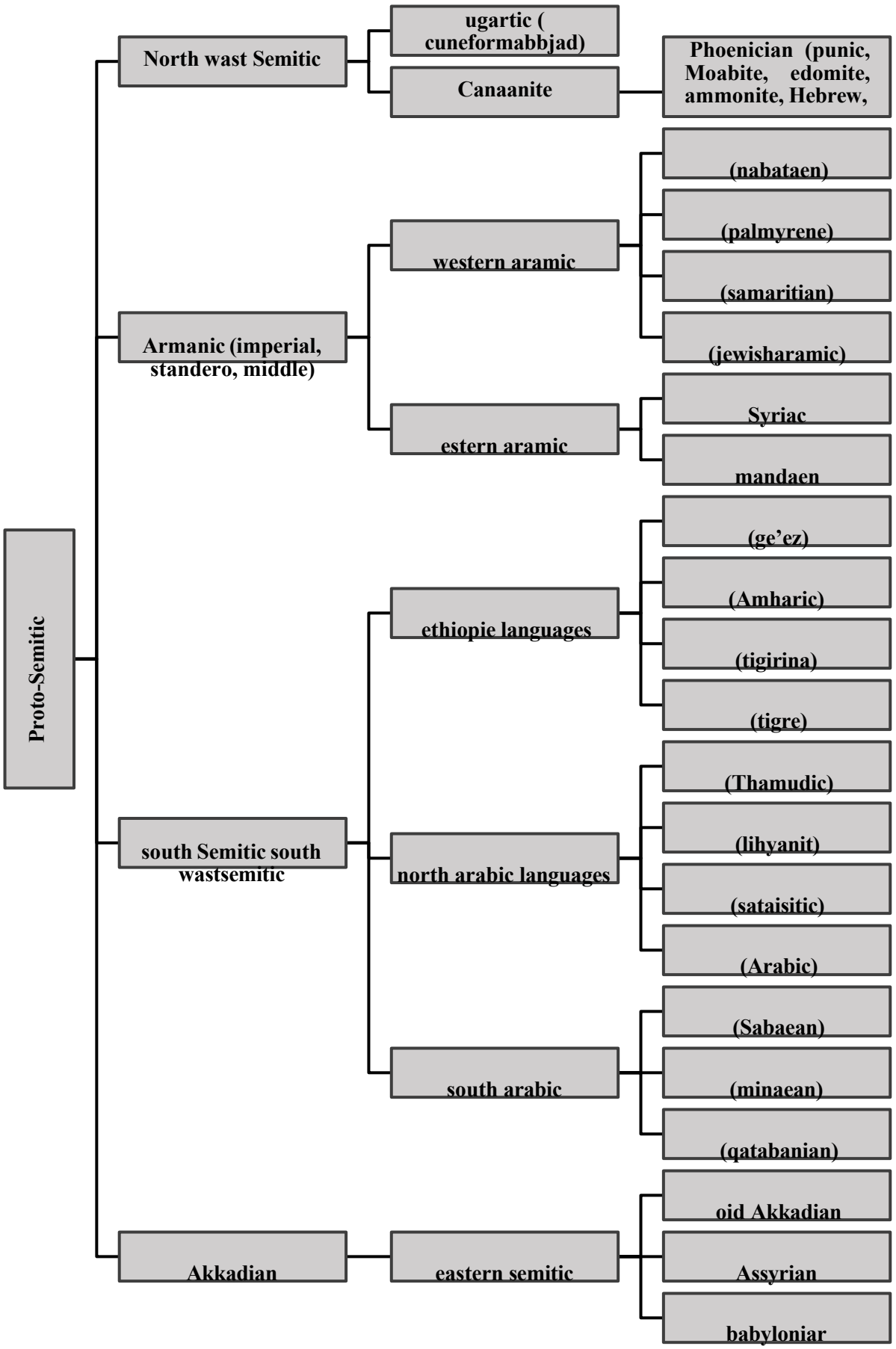


Figure I- 1 : Phases of Pro-Semetic Languages (Shah, 2010)

Arabic has been regarded as a member of Semitic languages which include a number of languages in the Middle East and North Africa. It is originally generated from Afro-Asiatic languages which include Arabic and different languages such as Hebrew, Ethiopian, and others.

Arabic is the sixth most spoken language globally, with approximately 420 million speakers worldwide. It is considered the first and official language in the Arabian Peninsula like Jordan, Lebanon, United Arab Emirates, Bahrain, Oman, Palestine, Iraq, Saudi Arabia, Qatar, and Syria, and in countries in the north of Africa such as Algeria, Tunisia, Morocco, Libya, Egypt, Sudan and Mauritania. Those countries are referred to as the Arab world. It is also one of the sixth official languages of the United Nations.

The first emergence of Arabic as a world language goes back to the seventh century CE. Arabic is the language of the holy Quran, the sacred book of Muslims; it is the religious language of Muslims in many parts of the world and the language used to pray. Muslims believe that Arabic is the language of Heaven. Thus, Arabic has much religious significance. Mustafa Shah states that (Shah, 2010, pp. 3-4) Arabic serves not only as a vital emblem of Arab national identity but also as the esteemed language of the Islamic faith. It holds a sacred position in the religious consciousness of Muslims, as the Quran, the holy book of Islam, was revealed in Arabic. Furthermore, everyday rituals and observances are articulated in this language, further highlighting its significance. A break between old and new Arabic does not punctuate the history of Arabic. Many historians suggest that features of new Arabic are as old as old Arabic.

1.3 Historic al Background

The Arabic language, renowned for its rich linguistic history, has deep roots that extend far back in time. Arabic, belonging to the Semitic language family, shares a linguistic heritage with languages such as Hebrew and Aramaic (Versteegh k. , 2001). Its origins can be traced to the Arabian Peninsula, where it evolved over millennia, gaining complexity and influence.

The earliest form of Arabic, known as Old Arabic or Ancient North Arabian, existed in the Arabian Peninsula around 2000 BCE. This ancient version of the language was primarily oral, with limited written records. It was spoken by various tribes and communities inhabiting the region. Over time, through trade, cultural exchange, and the emergence of the Nabataean civilization, the language underwent significant transformations.

The most significant development in the history of Arabic occurred with the advent of Islam in the 7th century CE. The Quran, the holy book of Islam, was revealed in Arabic, making it the language of divine communication (Hetrzon, 2013). This event played a pivotal role in

unifying the Arabic language and establishing it as a lingua franca among diverse Arabic-speaking communities.

During the Islamic Golden Age (8th to 13th centuries CE), Arabic flourished as a scholarship, science, and culture language. It became the medium for significant advancements in fields such as mathematics, medicine, astronomy, and philosophy. Scholars from different regions of the Islamic world contributed to this intellectual blossoming, further enriching the Arabic language. Notably, many classical texts from ancient Greece, India, and Persia were translated into Arabic during this era, preserving and expanding human knowledge.

In conclusion, the historical background of the Arabic language is a narrative of evolution, transformation, and cultural significance. From its humble beginnings as Old Arabic to its pivotal role in the Islamic world and its contributions to global intellectual endeavours, Arabic has a profound historical legacy. Today, it thrives as a vibrant and diverse language, reflecting its enduring importance in the modern world.

1.2.1 Classical Arabic vs Modern Standard Arabic

Arabic is the Semitic language of Arabs, written from right to left in a cursive script. Modern Standard Arabic (MSA) refers to the written form that is used in the official an (Beghoul, 2007)d academic context in the Arab world; it is common to all literate Arabic speakers in the world. Its ancestor is Classic Arabic (CA) or Qur'anic Arabic which is used in the Quran (the sacred book of Islam) and numerous literary texts of the 7^{th} and 9^{th} centuries.

(Abdullah Hussein Ali Alnosairee1, 2021) suggested that MSA is a variety that has evolved from Classical Arabic and is used throughout the Arab world from the Atlantic Ocean to the Arabian Gulf. Theoretically speaking, there is one version of Modern Standard Arabic used all over the Arab world, but in reality, there are some differences, especially in pronunciation, which is our task.

According to Baghoul (2007), the Gulf countries pronounce the vowels in [aka1a] to eat and [na:ma] to sleep as central vowels even though they are not affected by neighbouring emphatic consonants. However, most of the countries of the Middle East and North Africa pronounce them as front ones except when they are affected by neighbouring emphatic consonants. The study of sounds, their combination, and distribution is called phonology.

1.2.2. A Brief History of the Emergence of the Term Phonology

The term phonology or phoneme was first introduced in May 1873 in France by Defrich Desgenettes in the occasion of the French Linguist Committee. Then it is used by Louis Havet and after that Ferdinand De Saussure (Chaker, 2012)

Chaker states that after its appearance in France, the term phonology continued to spread to the United Kingdom in 1911 by L. Scerba (1880-1944). Daniel Jones used the term phoneme in his lectures in 1917. Chaker added that Edward Sapir 1884-1993 in a published paper first used the term phonology in the United States in 1933. By that time the term phonology spread all over the continent especially when Bloomfield published his book *LANGUAGE* in 1933.

1.4 Arabic Sound System

The soundis divided into consonants and vowels. El Ghamidi and other phoneticians define consonants **الصوامت** as speech sounds that obstruct the flow of air through the vocal tract such as ب ت ج and vowels **الصوائت** as the class of sounds which makes the least obstruction to the flow of air like الفتحة (ElGhamidi, 2015)

1.4.1 Arabic Consonants

Arabic has a rich consonantal system. There are twenty-eight (28) consonants in Arabic. Here the reference is not to the alphabet but rather to the sounds.

1.4.1.1 Arabic Consonants with Examples

N°	Arabic consonant sound		Examples (Arabic)		English
01	/b/	ب	[ba1ad]	بلد	Country
02	/t/	ت	[tx1mi:b]	**تلميذ**	Pupil
03	/d/	د	[dars]	درس	Lesson
04	/(/	ط	[(a:1xb]	طالب	Student
05	/d/	ظ	[duhr]	ظهر	Noon
06	/k/	ك	[kataba]	كتب	To write
07	/q/	ق	[qa:1a]	قال	To say
08	// /	ا	[1axaba]	أخذ	To take
09	/À/	ع	[tabara]	عبر	To pass
10	/f /	ف	[Pam]	فم	Mouth
11	/P/	ث	[at1ab]	ثعلب	Fox
12	/D/	ذ	[bahaba]	ذهب	To go
13	/ /	ض	[bahr]	ضهر	Back
14	/s/	س	[sa1a1a]	سأل	To ask
15	/§/	ص	[sadi:q]	صديق	Friend
16	/z/	ز	[zaara]	زار	To pay a visit
17	/S/	ش	[Cams]	شمس	Sun
18	/dZ/	ج	[yama1]	جمل	Camel
19	/X/	خ	[xams]	خمس	Five
20	/Ä/	غ	[9aza:]	غزال	Gazelle
21	/h/	ه	[haba:]	هذا	This
22	/ð/	ح	[Nazi:n]	حزين	Sad
23	/m/	م	[ma t ar]	مطر	Rain
24	/**n**/	ن	[na:s]	ناس	People
25	/**r**/	ر	[rabi1]	ربيع	Spring

26	**/l/**	ل	[lex1]	ليلة	Night
27	/w/	و	[waqaPa]	وقف	To stand
28	/j /	ي	[jaxt]	يخت	Boat

Table I- 1 **Arabic Consonants**

Below is a brief description of the Arabic consonants according to the place and manner of articulation in addition to the voicing aspect.

[b] ب voiced bilabial stop

The lips are firmly pressed causing the air to be stopped in the oral cavity. It occurs in all positions; initial as in [ba:b] door, mid position as in [rabxNa] to win, final position as in [Næli:b] milk.

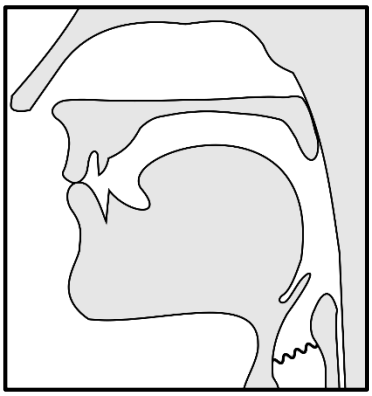


Figure I- 2 : : Arabic [b] ب

[t] ت voiceless non-emphatic denti- alveolar stop

The tip of the tongue comes in firm contact with the part of the gums covering the root of the upper incisors. The vocal cords do not vibrate. It occurs in all positions: initial as in [t amr] dates, mid position as in [kat aba] to write, final as in [zajt] oil. (Zitouni & Bouhania , 2021)

[d]د voiced denti-alveolar stop

The articulation of this sound is the same as that of [t] i.e. the tip of the tongue comes in a firm contact with the part of the gums covering the root of the upper teeth. The vocal cords vibrate.

It occurs in various positions; initial as in [d̲æ□a1a] to enter, mid as in [qad̲ar] destiny, final as in [bard̲] cold.

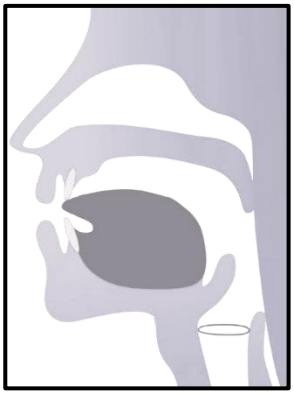


Figure I- 3 : Arabic [d] د

[(]ط voiceless emphatic dental stop

The articulation of this sound is the same as that of [t] and [d] the only difference is that in [(] the back of the tongue is raised towards the soft palate. The vocal cords do not vibrate. It occurs in all positions: initial as in [ÿabi:b] doctor, mid as in [maÿar] rain, and final as in [baÿ] ducks.

[□]ض voiced emphatic dental stop

The tip of the tongue comes in firm contact with the root of the upper teeth, the tongue is grooved, and the back is raised towards the soft palate. The vocal cords vibrate. Most Egyptians and some Maghrebis tend to pronounce [□] as [(]

Al-ani (1984, ~~p:48~~) suggests that the general tendency is to make [b] as [□], and alternative use is allowed in Quran reciting. [□] occurs in all positions: initial as in [ê̲aba:b] fog, mid as in [raê̲e:1] baby, and final as in [1arê̲] earth.

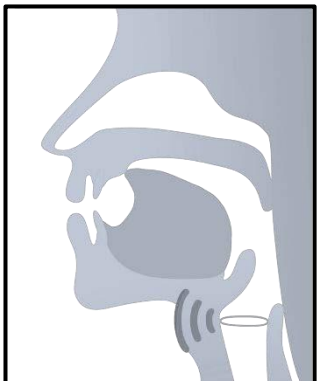


Figure I- 4 : Arabic [ê] ض

[k]ك voiceless velar stop

This sound is usually described as follows; the back of the tongue is firmly pressed against the velum, totally blocking the passage of air. The vocal cords do not vibrate. It occurs in all positions final as in [ka1b] dog, mid as in [1aka1a] to eat, and final as in [samak] fish.

[q] قvoiceless uvular stop

The back of the tongue is pressed against the uvula, causing the air to be blocked; the compressed air is released with an explosion. (Bouhania, 2013) . The vocal cords do not vibrate. It occurs in all positions; initial as in [qara1a] to read, mid as in [raqada] to sleep, and final as in [(a:raq] proper name.

[1] أ glottal stop

The air is completely blocked in the larynx and then released with a little explosion. The voicing feature depends on the quality of the sound following. It occurs in all positions; initial as in [/amara] to order, mid as in [sa/a1a] to ask, and final as in [qa: ri/] reader.

[P] ف voiceless labio-dental fricative

This sound is articulated when the lower lip is raised towards the alveolar ridge, and the is air released with friction. According to Baghoul (2007), this sound has no counterpart in Arabic. It occurs in all positions initial as in [fataNa] to open, mid as in [tuf faNa] apple, and final as in [saqf] ceiling.

[8] ث voiceless interdental fricative

The air forces its passage through the constricted space between the tip of the tongue and the upper incisors causing friction. The vocal cords do not vibrate. Baghoul suggests that [8] is realized as the voiceless dental stop [t] and as some of its variants (2007, p,86). It occurs in all positions; initial as in [Ta1a:8a] three, mid as in [mxT1] similar to, and final as in [mu8a11aT] triangle.

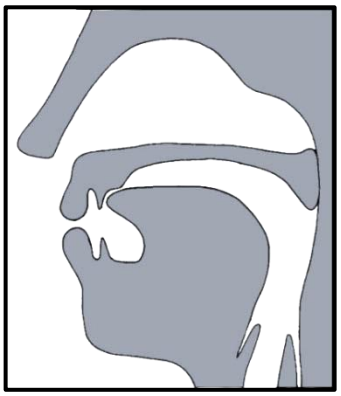


Figure I- 5 : Arabic [t] ث

[b] ذ voiced inter-dental fricative (place?)

It is the counterpart of [8] but it is voiced. It occurs in all positions; initial as in [Da:1xka] that, mid as in [muhaDDab] polite and final as in [1abi:D] delicious.

[d] ظ voiced emphatic interdentally

The back of the tongue is raised towards the velum. The air fills the oral cavity and forces its way through the constricted passage between the tip of the tongue and the upper teeth. The vocal cords vibrate. It occurs in all positions initial as in [ëɒPr] ‘meaning nail, mid as in [naëara] to see, and final as in [NePë] to save.

[s] س voiceless alveolar fricative

When articulating this sound, the front of the tongue comes near the alveolar ridge; the tip of the tongue is behind the upper incisors. The air forces its passage in the constricted space between the tongue and the alveolar ridge causing audible friction. The vocal cords do not vibrate. Modern Arab linguists and phoneticians classify [s,z, C,y] as sibilant sounds. [s] occurs in all positions; initial as in [sah1] easy, mid as in [Næsan] good, and final as in [æs] salad.

[z]ز voiced alveoli arfricative

It is the voiced counterpart of [s], it is also sibilant. The vocal cords vibrate. According to Baghoul [z] is voiced, oral, alveolar, consonantal, non-syllabic, and continuant (2007, p,87). It occurs in all positions; initial as in [za:ra] visited, mid as in [naz1] hotel, and final as in [ramz] symbol.

[ç]ص voiceless emphatic alveolar fricative

Generally, [ç] is produced similarly as [s] but the back of the tongue is raised towards the velum. The vocal cords do not vibrate. It occurs in all positions; initial [§aba:N] morning mid as in [mxçjada] a trap and final as in [raq§] dance (n).

[C] ش voiceless alveo-palatal fricative

This consonant sound is produced by the tip of the end of the blade of the tongue in light contact with the alveolar ridge and the front of the tongue is raised towards the hard palate. The vocal cords do not vibrate. It is a sibilant as [s] and [z], and it occurs in all positions; initial as in [Sams] sun, mid as in [mxS(] hair brush, and final as [mxCmxS] apricot

[y] ج voiced palatal Affricate

When producing this sound, the front of the tongue comes in contact with the middle part of the hard palate and then it is released slowly. The vocal cords vibrate. It is a sibilant sound, too. It occurs in all positions; initials [Za:1] to come, mid as in [PaZ1atan] suddenly, and final as in [muru:Z] fields.

[□] خ voiceless velar fricative

The production of this sound is described as follows; the back of the tongue is raised and retracted towards the uvula. The air is forced through the confined space causing the uvula to vibrate. The vocal cords do not vibrate. It occurs in all positions; initial as in [XæriP] fall, mid as in [jaXt] boat, and final as in [□u:X] peach.

[9] غ voiced velar fricative

It is the voiced counterpart of [□]. It occurs in all positions; initial as in [Äasa1a] to wash, mid as in [raÄi:P] bread and final as in [Pa:rxÄ] empty.

[h]ه glottal fricative

This sound is articulated at the glottis. The air flows with little friction. According to Al-Annani (2008, p.48) the voicing of this sound depends largely on its environment. It occurs in all positions; initial as in [ha:txP] cell-phone, mid as in [nahr] river and final as in [1xtxya:h] direction.

[N]ح voiceless pharyngeal fricative

This sound is released by approximating the dorsum to the wall of the pharynx. The air escapes through the constricted space with audible friction; the vocal cords do not vibrate. This sound occurs in all positions; initial as in [ðæP1a] party, mid as in [bæðr] sea and final as in [ça(ð] surface.

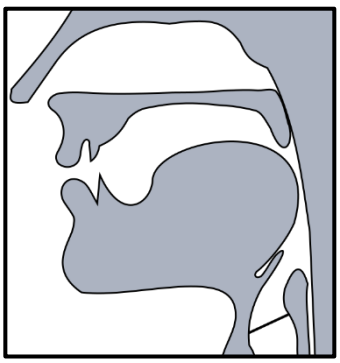


Figure I- 6 : Arabic [□] ح

[m] م voiced bilabial nasal

In the articulation of this sound, the air is completely blocked in the oral cavity. There is no voiceless counterpart to [m]. It occurs in all positions; initial as in [mawza] banana, mid as in [qamar] moon, and final as in [1a1am] flag.

[n] ن voiced dental nasal

In the production of this sound, the blade of the tongue is firmly pressed against the root of the upper teeth and the alveolar ridge. The velum is lowered to allow the air to flow into the nasal cavity. [n] can occur in all positions; initial as in [na:ma] to sleep, medial as in [yanu:b] south, and final as in [mxhan] jobs.

[l] ل non- emphatic lateral

The front of the tongue is firmly pressed against the root of the upper teeth, the air flows on one or both sides of the tongue. [l] can occur in all positions; initial as in [l_æNm] meat, medial as in [Næl q] uvula, and final as in [Cakl] form.

[r] ر alveolar semi-vowel

This sound is made principally with the tip of the tongue held close to the alveolar ridge. The central part of the tongue is lowered with a general contraction of the tongue creating a retroflection. The air flows liberally. The vocal cords do not vibrate. [r] occurs in all positions; initial as in [r_adyu1] man, medial as in [mar_1a] woman, and final as in [tamr] dates.

[j] ي palatal semi vowel

According to Al Annani[j] is articulated by the tongue assuming the position for [i] and moving directly to the position of the following sound. The lips are neutral. This sound occurs in all positions; initial as in [j_ad] hand, medial as in [1aj_j_a:m] days, and final as in [Ca:j_] tea. (2008)

[w] و labio-velar semi-vowel

This sound is initiated as a high-back vowel, the back of the tongue is raised in the direction of the velum but not close enough to make contact. This sound occurs in all positions; initial as in [ward] roses, medial [mawz] bananas, and final as in [Nu1w] sweet.

The following table classifies Arabic consonants according to the place and manner of articulation. The voicing aspect is also included, (+) stands for voiced sounds whereas (-) stands for voiceless ones.

Place of articulation											
Manner Articulat	Bilabial	Labio-Dental	Inter-Dental	Dental	alveolar	Palato-alveolar	palatal	Velar	uvular	pharyngeal	glottal
Stops	b+		t- (- d+ d+					k-	q-		/ -
Fricatives		P-	8- b+ +	s- ç- z+		C+		- 9+		N- 1+	h-
Affricates						y+					
Nasals	m+			n+							
Laterals					1+						
Trill					r+						
Semi-vowels	w+						j+				

Table I- 2 **: Classification of Arabic Consonants**

1.4.1.2 Arabic Vowels

Vowels are sounds produced with no obstruction. However, the description of Arabic vowels is not as easy as other languages such as English and French. (Brinton & Brinton, 2000, p. 37) mentioned that vowels present greater classification challenges than consonants for several reasons. First, they are formed by manipulating the tongue, leading to a vast range of sounds with unclear boundaries. Second, dialects are distinguished by vowel inventories, while consonants are more consistent. Third, vowel transcription varies across systems, complicating comparisons. Additionally, acceptable vowel sounds can be produced without complete articulatory gestures, such as when teeth are clenched. Differentiating vowels involves both

length and quality, making isolation difficult. Lastly, there is often no clear correlation between tongue positions and auditory qualities in vowels, particularly central and back ones.

However, Baghoul in his thesis states that the vowel system is one of the simplest ones compared to many languages such as French or English arguing that Arabic includes six simple vowels and two diphthongs. The simple vowels are divided into three short vowels and three long ones. According to him, in most cases of orthography, only long vowels and consonants appear, while the short vowels are deduced from the grammatical context (p.61). For instance, the word رسم /rasama/ to draw in the past is written without being marked with vowels this word can be /rasama/ he drew, /rasm/ a drawing / rʊsıma / has been drawn.

Arabic vowels are classified using the system of Cardinal Vowels suggested by the British phonetician (Jones, 1967, pp. 32-34) classified the English vowels. Each vowel has several properties that distinguish it from other vowels. These include the shape of the lips (rounded, neutral, or spread); the second property is the position of the tongue, which could be front, middle, or back. Finally, the tongue may be raised, giving different vowel qualities.

Arabic vowels are voiced and produced without obstruction or constriction in the mouth. They are divided into three short vowels and three long ones. According to Ibn Jinni, Arabic has three short vowels called (harakat) and three long vowels called (hurruf elmadd). He says, “al harakat are elements which, if occur between two identical consonants, will prevent them from being doubled. Below is a description of both Arabic short and long vowels.

1.4.1.3 Arabic Short Vowels

[x] high front short

The front of the tongue is raised in the direction of the hard palate, the lips are loosely spread. Arabic vowels never occur in initial position hence, [x] can be medial as [ml̲qaç] scissors and final as in [bx] with.

[a] low front short

The part of the tongue just before the central part is slightly raised towards the hard palate. The lips are neutral. This sound can occur medial as in [kat̲aba] to write, and final as in [1aka1a̲] to eat.

[ʊ] high back short

The back of the tongue is raised towards the soft palate, just above the half-close position. The lips are rounded. [ʊ] can be medial as in [qʊm] stand up imperative and final as in [jaqra1ʊ] he reads.

1.4.1.4 Arabic Long vowels

Long vowels are called sounds of softness. They can be heard with further prolongation in three cases:

1. if they are followed by a glottal stop [1]
2. If they are followed by a geminate, which Arab phoneticians refer to as “harfmoshadad”
3. If they are paused upon for recollection.

Some Arab phoneticians use “ : “ as a sign of prolongation while others prefer to double the vowel. For instance, a word like ‘to say’ can be transcribed as [qa:1a] or [qaa1a]. In this study the sign of prolongation used is “ :”.

Arabic long vowels are:

[i:] high long front

In the production of this sound, the front of the tongue is raised towards the front of the hard palate, just below the close position. The lips are spread. This vowel sound can occur in medial position as in [muni:r] proper name, and final as in [u□ti:] my sister.

[a:]low front long

The tongue lies to the bottom of the oral cavity, just above the open position. The lips are neutral. It occurs medial as in [qa:1a] to say and final as [dana:] to approach.

[u:] high back long

The back of the tongue is raised towards the soft palate just below the soft palate below the close position. The lips are rounded. [u:] occurs medial as in [çu:r] wall and final in [qu:mu:] stand up imperative.

1.3.1.5 Arabic Diphthongs

A diphthong is a combination of single vowels that act like long simple vowels, (Josephine, 2019). There are basically two diphthongs in Arabic [aj] and [aw].

[aj] is started as a front half-close vowel and glide towards a closer vowel. It occurs medial as [1aj8] lion and final as in [quçaj] proper name.

[aw] it started as a front open vowel and glides towards a back close vowel. It occurs medial as in [mawz] bananas and final as in [9azaw] invasion.

1.5 Comparison between English and Arabic Sounds Regarding Place and manner of Articulation

1.5.1 Consonants

There are many differences between English and Arabic consonants regarding their places of articulation. (Alshalan, 2020) states that there are some Arabic consonants that do not exist nor have equivalents in English, such as /ص/, /ط/, /ض/, /ع/, /غ/, /ق/. Second, there are some English consonants that do not exist nor have equivalents in Arabic, such as /p/, /tʃ/, /dʒ/, /ŋ/, and /v/. Despite this difference, English and Arabic share fourteen common consonants. They are /d/, /b/, /t/, /j/, /f/, /z/, /ʃ/, /h/, /l/, /m/, /n/, /w/, and /r / (Alshalan, 2020). Both English and Arabic consonants are classified according to place and manner of articulation. They are briefly presented in the following tables.

1.5.1.1 Place of Articulation

Labial: Labial sounds consist of bilabial, labiovelar and labiodental sounds.

	bilabial	**Labiovelar**	**Labiodental**
English	/b/, /p/, /m/, /w/		/f/, /v/
Arabic	/ب/, /م/, /p/ doesn't exist	/ و / is produced when using the upper and lower lips with the soft palate.	/ف/ /v/ sound

Table I- 3 **: Labial Sounds**

Dental: Dental sounds are articulated with the tip or the blade of the tongue keeps in contact with the upper front teeth.

	Dental	inter-dental
English	/ð/, /θ/	
Arabic	/ت/, /ط/, /ز/, /ص/, /ض/,/س/, /د/	/ظ/, /ذ/, /ث/

Table I- 4 **: Dental Sounds**

According to Alshalan in Arabic, there are basically two different ways to produce dental sounds. The first one is to use the tip of the tongue and put it at the back of the upper teeth without blocking the airflow by pressing hardly on them. The second way is to use the blade of the tongue and makes it articulates with the bottom of the upper teeth. (Alshalan, 2020).

Alveolar: Alveolar sounds are articulated with the tip or blade of the tongue against the alveolar ridge that is located behind the upper teeth.

	Alveolar
English	/d/, /t/, /s/, /z/, /l/, /n/, /r/
Arabic	/ل/, /ن/, /ر/

Table I- 5 **: Alveolar Sounds**

Alveolar sounds, /t/ and /k/, in both English and Arabic, are similar but not identical. The difference is in their place of articulation. The English sound /t/ is an alveolar that becomes aspirated in the initial position of a word. On the other hand**,** /t/ in Arabic is denti-alveolar. Alshalan (Alshalan, 2020, p. 4)quotes that flap /r/ is a popular sound in English. “It is produced like /d/, except the tongue touches or flaps against the alveolar ridge only very briefly” Unlike English, this sound is not common in native Arabic language. Thus, Arab speakers cannot pronounce the flap easily. They might pronounce it as /t/ sound. For example, Seattle has a flap in the middle of the word. Arab speakers stress the written /tt/ and try to pronounce the sound /t/ heavily.

Uvular: They are pronounced by using back of the tongue and uvula. The sounds might be considered as velar, post-velar or uvular pronunciations.

	Uvular
English	Uvular sounds do not occur in English
Arabic	/ق/

Table I- 6 **: Uvular Sound**

Palatal/Palato-Alveolar: Palato-alveolar sounds are articulated with the blade of the tongue behind the alveolar ridge and the body of the tongue rose toward the hard palate.

	palato-alveolar	**Palatal**
English	/ʃ/, /ʒ/, /tʃ/, /dʒ/	/j/
Arabic		/ي/, /ش/, /ج/

Table I- 7 **: Palato-alveolar Sounds**

As for the sound /dʒ/, Arabic does not contain it as consonant. However, /d/ and /ʒ/ are allophones to the Arabic consonant /ج/. They are pronounced separately but never pronounced together as /dʒ/.

Alshalan (Alshalan, 2020, p. 6) suggests that velarised alveolar consonants and velarized denti-alveolar sounds do not exist in English. Velarised alveolar sounds are produced by using the blade of the tongue and the alveolar ridge closely. This Arabic sound is /Ṣ/ as in/Ṣ u: Ṣ/ chicks, /b a Ṣ a r/ sight and /r a q ṣ/ dance.

Velar: Velar sounds are produced when the body of the tongue reaches the velum or soft palate.

	Velar
English	/k/, /g/, /ŋ/
Arabic	/ك/,/ع/,/خ/

Table I- 8 **: Velar Sounds**

Even though, /ŋ/ does not exist as an independent consonant in Arabic, Arab speakers pronounce /ŋ/ only when it occurs before the /k/ sound, such as /d r ɪ ŋ k/ and /θ æ ŋ k/. However, there is struggle in pronouncing /ŋ/ alone in its final position; the “ing” syllable.

Pharyngeal: Pharyngeal sounds are pronounced by using the back of the tongue and pharynx. The Arabic consonantal system is unique because it differs from any other language system. It consists of a sound class that is pronounced in the area between the larynx and the upper pharynx.

	Pharyngeal
English	The sounds do not occur in English
Arabic	/ح/, /ع/

Table I- 9 **: Pharyngeal Sounds**

Glottal: Glottal sounds are pronounced in the opening area between the vocal folds, called glottis.

	Glottal
English	/h/. In English, /h/ never occurs in final positions of words.
Arabic	/ء/, /هـ/. In Arabic, /هـ/ could occur in all three positions; initial, medial and final positions

Table I- 10 **: Glottal Sounds**

1.5.1.2 Manner of Articulation

Alshalan classifies the main differences between Arabic and English vowels in term of manner into:

Stop/plosive: the air stream in the vocal tract is completely stopped at some point

	Stop/plosive
English	/p/, /b/, /t/, /d/, /k/, /g/
Arabic	/ب/, /ت/, /ط/, /د/, /ض/, /ق/, /ك/

Table I- 11 **: Stop/plosive vowels**

Fricative: are produced as a result of incomplete closure at some point in the mouth

	Fricative
English	/f/,/v/,/θ/, /ð/,/s/, /z/, /ʃ/, /ʒ/, /h/.
Arabic	/ف/, /ث/, /ظ/, /ذ/, /س/, /ص/, /ز/,/ش/,/خ/,/غ/,/هـ/, /ء/

Table I- 12 **: Fricative Vowels**

Affricate is a combination of sounds which start with complete closure then it is followed by a slow release of air with friction

	Affricate
English	/tʃ/,/dʒ/
Arabic	/ج/

Table I- 13 **: Affricate Vowels**

Nasal: Nasals have a complete closure of the mouth. The velum is lowered and air stream is allowed to flow out through the nose.

	Nasal
English	/m/, /n/, /ŋ/
Arabic	/م/, /ن/

Table I- 14 **: Nasal Vowels**

Lateral: the air stream is blocked by the tip of the tongue but allowed to escape around the sides of the tongue.

	Lateral
English	/l/
Arabic	/ل/

Table I- 15 **: Lateral Vowels**

Trill: the air stream is blocked by the tip of the tongue but allowed to escape around the sides of the tongue.

	Trill
English	/r/
Arabic	/ر/

Table I- 16 **: Trill Vowels**

1.6 Linguistic Complexity of Arabic

Arabic is a rich linguistic heritage. Learners of Arabic often face challenges when learning it as a foreign language. One of the most common challenges that learners of Arabic as a foreign language face is its script. Arabic is written from right to left, which can be disorienting for people used to left-to-right scripts (Alhwari, 2005) furthermore, Arabic script has a unique cursive form where letters change shape depending on their position within a word. These contextual variations, known as ligatures, can make reading and writing Arabic a formidable task for beginners (Versteegh K. , 2014)

Compared to other languages, Arabic is a highly inflected language, meaning that much of its grammatical information is conveyed through changes in the form of words. The root-and-pattern system is a fundamental feature of Arabic morphology, wherein a three-consonant root generates a variety of words by applying different patterns of vowels and consonants (Heslwood, 2011). Gender and number also are challenging to speakers of other languages mainly speakers of English Al-Jarf stated that Arabic has more complex pronoun forms than English, with distinctions in number and gender for subjects and objects. Arabic has 15 pronouns for "you," while English pronouns mainly differ in third-person singular forms. Additionally, the placement of pronouns in sentences is crucial (p.63) (AL-Jarf, 1994).

These linguistic complexities stem from the Arabic language's script, morphology, and dialectal variations. These challenges are not totally unavoidable. With dedication, effective

teaching methods, and immersive language experiences, learners can be exposed to better learning experiences.

1.7 Phonology of Arabic

Arabic phonology is rooted in a consonantal framework, where consonants shape words and convey meaning (Al-Ani, 1970).This framework includes an inventory of phonemes that exhibit a combination of place and manner of articulation, with a notable emphasis on emphatics and pharyngeal. AL-Ani stated that Arab grammarians first noticed the phenomenon called *emphasis* around the 8th century. When they created the Arabic alphabet, they classified *emphasis* as a consonant rather than a vowel.

These distinctive phonemes differentiate Arabic from other languages and contribute to its characteristic phonological patterns. The phonological system of Arabic is linked to its script, as the script's graphemes reflect the distinctive phonemic distinctions. Consequently, understanding Arabic phonology involves an appreciation of the interplay between its phonemes, script, and morphology (Watson J. C., 2002).

1.8 Arabic Phonemes and Their Variations

A rich consonantal system characterizes modern standard Arabic. It has 28 consonants (Embarki, 2013)Arabic phonology rotates around a consonantal framework, where consonants play an essential role in shaping words and conveying meaning. This foundation is marked by a rich inventory of consonantal phonemes, distinguished by variations in place and manner of articulation. One of the distinctive features is the presence of emphatic and pharyngealised sounds, such as /ʕ/ع and /ħ/ح, which are distinct to Arabic and contribute to its phonological complexity. These phonemes are produced with primary constriction in the posterior region in the vocal tract. (Duneibat, 2022)

Variations within Arabic phonemes are an interesting feature of its phonological system. Arabic phonology includes both voiced and voiceless consonants, which interact in complex ways to produce meaning distinctions, as mentioned in Table 1.1. For instance, the presence or absence of voicing in certain consonants can lead to differences in meaning, as seen in minimal pairs likeزر /zir/ a button and سر /sir/ a secret, where the voicing of the /s/ sound differentiates the words (Al-Ani, 1970). Furthermore, super segmental features play a crucial role in Arabic Phonology. For instance, Arabic features allophonic variations based on phonetic context. Consonants may undergo assimilation, gemination, or lenition, altering their pronunciation based on neighboring sounds or morphemes.

The phonological diversity in Arabic extends beyond Modern Standard Arabic (MSA) to encompass a number of dialects spoken across the Arab world. The Arabic language contains a rich phonological diversity, characterized by a wide range of sounds that distinguish it from other languages. Among these distinctive sounds are the guttural and emphatic consonants.

1.9 Guttural Sounds

According to Moshaqba et al (2022), Gutturals from the Latin for throat. Literally, letters of throat in the early Arabic grammar refers to the sounds produced with a primary constriction in the posterior regions in the vocal taract. These phonemes hold a unique place in Arabic phonology and are crucial to understanding the linguistic and cultural aspects of the Arabic-speaking world.

In order to understand the significance of guttural sounds in Arabic, it is a need to grasp their articulation (Bin-Muqbit, 2006) as cited in Moshaqba et al,2022) argues that:

> "*Guttural sounds are produced with certain vocal tract gestures and movements. Arabic has six guttural consonants; the laryngeal /ا / and ء(with a fully constricted glottis). The pharyngeal/ح/ and /ع(/with retracted tongue root back the anterior wall of the pharynx and epiglottis towords the posterior wall of the pharynx). And as non-primary feature/خ /and/غ(with a retracted tongue dorsum accompanied with a raised and flattened velum in the case of /غ/"* (p.334) (Bin-Muqbit, 2006)

(Owen, 2006) argues that the historical significance of these guttural sounds in Arabic is deep, dating back to the language's origins. Classical Arabic, the language of the Quran and Islamic texts, notably featured these sounds. They have been preserved in Modern Standard Arabic, maintaining a connection to the language's ancient roots.In fact, the guttural sounds in Arabic are often associated with the spirituality of the Quranic recitation, reinforcing their cultural and religious importance in the Arabic-speaking world.

Additionally, the preservation of guttural sounds distinguishes Arabic from other Semitic languages, such as Hebrew and Aramaic, which have largely lost these phonemes over time (Huehnergard, 2019)this historical continuity contributes to the Arabic language's distinct identity and reinforces its cultural heritage.

In a nutshell, the guttural sounds are fundamental aspects of Arabic phonology. These sounds connect Modern Standard Arabic to its ancient roots, hold cultural and religious importance, and influence the pronunciation and prosody of the language. Mastery of these guttural sounds is essential for effective communication.

1.10 Morphology of Arabic

Morphology is the branch of linguistics that studies the structure and formation of words in a language. It focuses on the internal components of words, such as prefixes, suffixes, and root words, and how they combine to create meaningful units. Morphology also examines how these word forms can change to convey different grammatical and semantic information, such as tense, number, gender, and case in various languages.

Phoneticians agree that Arabic is a living language that belongs to the Semitic group of languages. The characteristic feature of Semitic languages is there no concatenative morphology where words are derived from basis of mostly trilateral consonantal roots. (Abuchariah, 2013). Roots of Semitic languages carry the basic conceptual meanings. While varying the vowel ling of the simple root and adding prefixes, suffixes and infixes to generate the different variations in shade of meaning. For instance, from the arabicroot رسمr,s,m drew we can derive the following رسم (noun) a drawing, رسوم(plural) drawings

رسام drawerرسم he drew يرسم he draws.

Patterns of word formation are the basic structures that guide the arrangement of consonants and vowels around the root consonants. These patterns are central to Arabic word morphology, as they determine the grammatical and semantic characteristics of words. For instance, the pattern فعل/faÀala/ to do typically signifies the past tense verb, and applying it to the root a k l generates the word أكل /akala/ he ate.

Recent work has argued that Arabic word formation is based either on a fully vocalized stem or on whole words. For instance, verb formation is based on a vocalic CCvc stem rather than a consonantal root. (Watson J. C., 2021). Watson adds that In the Arabic verb system, changes in meaning alter the valency of the base verb. Increasing valency creates verbs with causative, transitive, conative, intensive, associative, and reciprocal meanings. Decreasing valency results in intransitive, passive, medio-passive, and reflexive actions.

In Arabic, both prefixes and suffixes, play a significant role in word formation. They are added to the root consonants and patterns to derive new words and expand upon the meaning

of existing ones. Affixation in Arabic can indicate various grammatical features, such as tense, aspect, voice, and more. For example, the addition of the prefix تَـ/ta/and the pattern**و ن/una/**to the root k t b creates the word **كتبون**تَـَـَـwhere-تَـ **/ta**/ marks the present tense, and **/una/** indicates the personal pronoun plural you.

1.11 Syntax

Syntax or what is commonly known as النحو in Arabic is the science of classical Arabic which deals with how to identify the grammatical positioning of the three parts of speech, by recognizing the changes that occur at their end. In addition to this it discusses how to connect the parts of speech with one another and make meaningful sentences. (Mullan, 2019).

Furthermore, syntax is a fundamental aspect of language that deals with arranging words and phrases to create well-formed and meaningful sentences. It encompasses the rules that govern the order of words, their relationships, and how they convey information in a given language. Each language has its syntax, reflecting its cultural and structural characteristics. In the case of the Arabic language, its syntax is famous for its complexity and different features.Halim et al state that among the famous linguists in the field of Arabic syntax Khalil (157H), Sibawayah (180H) Ibn Jinni (324 H) and others. This can be evidenced through their writings that discuss the syntax of Arabic language. (2023)

Arabic exhibits a predominantly Verb-Subject-Object V S O word order, which differs from the Subject-Verb-Object S V O structure commonly found in English and French. The verb, as the most important element in Arabic sentences, typically appears at the beginning, followed by the subject and object. This VSO order may differ for emphasis or rhetorical purposes, but it remains the default structure.

In addition to word order, Arabic relies heavily on agreement in its syntax. Agreement is a crucial feature that ensures the compatibility of different sentence components. Nouns, verbs, and adjectives must agree in gender, number, and case. For instance, in the senten لولد النشيط ينهض باكرا." (The active boy gets up early), there is agreement in gender (both nouns are masculine) and number (all components are singular)).

1. 12. Contrastive Analysis

Contrastive linguistics as a sub discipline of linguistics is concerned with comparing and contrasting two or more languages or subsystems of languages in order to determine both similarities and differences between them (Awasthi, 1995).

Accordingly, a linguist may compare and contrast two sound systems or syntactic systems such as Arabic and English to determine the difficulties which language learners may encounter and identify the difficulties which teachers face while teaching the target language. (Fisiak, 1981) divided contrastive studies into two forms; theoretical and applied studies. Theoretical contrastive studies provide a detailed description of the similarities and differences between two languages, and suggest an appropriate model for their comparison and determine the comparable elements of the two languages. Applied contrastive studies provide framework for the comparison of languages based on the results of theoretical contrastive studies. Furthermore contrastive applied studies are concerned with probable areas of difficulty in another language where a category is not presented in the surface structure and interference is likely to occur. (Keshavars, 2003)

Contrastive analysis is a universally used approach in second language acquisition (SLA) that studies the differences and similarities between two languages to predict the difficulties that second language learners may encounter in acquiring the target language. The basic premise of contrastive analysis is that the differences between the learner's first language (L1) and the target language (L2) can play a significant role in facilitating or hindering language learning. Contrastive analysis was initially introduced by Charles Fries in the 1940s and 1950s and has since been used in various studies on SLA. This approach was first met with doubt as it was believed that the influence of the L1 was too complex to be reduced to a set of simple contrastive differences. However, despite these criticisms, contrastive analysis has remained an important area of research in SLA. This theory developed out of behaviorism, a theory in psychology, and a foreign language teaching program. (Nickel, 1971). The publication of Teaching and Learning English as a Foreign Language by Fries (1945) opened a new horizon in the study of SLA. Fries states that ‘the most efficient materials [for foreign language teaching] are based upon a scientific description of the language to be learned, carefully compared with a parallel description of the native language of the learner.’ In 1957, Robert Lado suggested that the differences between two languages could be used to predict areas where difficulties might arise for learners in their acquisition of an L2. In other words, if the L1 and L2 are dissimilar in a particular aspect of language, the learner may have problems. However, if those elements are similar to his native language, it will be simple for him.

The principles of contrastive analysis involve comparing linguistic differences such as grammar, vocabulary, and pronunciation, considering cultural differences, considering the learner's developing language ability (known as the interlanguage hypothesis), analysing errors

made by the learner, and using the findings to inform language teaching and learning. (Lado, 1957, p. 9)

Contrastive analysis assumes that the similarities and differences between the learner's L1 and the target L2 will affect the ease or difficulty of acquiring the L2. For example, if the two languages have similar grammar structures, the learner may have an easier time acquiring the target language. On the other hand, if the two languages have significantly different grammar structures, the learner may encounter difficulties in acquiring the target language.

Language transfer can be either positive or negative. Positive transfer occurs when there are similarities between the learner's first language (L1) and the second language (L2), leading to correct linguistic output. On the other hand, negative transfer happens when there are conflicting similarities between the L1 and L2, resulting in incorrect linguistic output.

The similarities and differences between languages will bring about mother tongue transfer which is mainly manifested in the following two ways in terms of the effect of language transfer; positive transfer i.e. the similarities between the two languages that could promote second language learning. (Kang, 2021).

Positive transfer occurs when the structure of the L1 is equivalent to the structure of the L2, allowing for correct performance by the learner (Dulay, Burt, & Krashen, 1982). Positive transfer is defined as the automatic use of the structure in L2 performance when the structures in both languages are the same, resulting in correct utterances. Powell(1998) as cited in (Solodka, Perea, & Romanchuk, 2019)supports this view, stating that positive transfer or facilitation occurs when a skill from the L1 helps or positively impacts the acquisition of a skill in the L2 due to similarities between the two skills. The comparison between two languages facilitates the learning process and helps teachers choose the most effective teaching materials.

The second type of language transfer is ‘negative transfer also known as interference, results from the differences between the two language systems. Such differences make learning L2 difficult and increase the possibility of committing errors (Al-Sobhi, 2019). For example, an Arabic speaker learning English may have difficulty producing the English ‘’P "correctly because it does not exist in Arabic.

1.12.1 Strengths and Limitations of Contrastive Analysis

One of the strengths of contrastive analysis is that it can provide valuable information about the difficulties that L2 learners may encounter in acquiring the target language. This information can be used to develop more effective language teaching methods and materials.

Additionally, contrastive analysis has been used in a variety of studies, providing a wealth of information about the process of second language acquisition.

However, contrastive analysis also has limitations. One of the main limitations is that the method is based on the assumption that the similarities and differences between the two languages are the only factors affecting the acquisition of the L2. In reality, other factors, such as the learner's motivation, attitude, and prior language experience, also play a significant role in the process of second language acquisition.

Contrastive analysis is a valuable method for studying second language acquisition. It provides valuable insights into the similarities and differences between the learner's L1 and the target L2. It can be used to predict the difficulties that L2 learners may encounter in acquiring the target language. While contrastive analysis has limitations, it continues to be an important tool in second language acquisition research, and its application has evolved over the years to reflect changes in the field. It has been linked to interlanguage theory, error analysis, and transfer. Despite some criticisms, the approach has remained popular and continues to be widely used in the field. The failure to predict errors from examining the linguistic systems of the first and second languages by no means constitutes sufficient grounds for abandoning the contrastive analysis hypothesis altogether. Ellis States that ‘it was not surprising to see contrastive analysis lose ground to error analysis in the 1970s’ (1997). Here, the broadened contrastive analysis is merged with the error analysis.

1.12.2. Contrastive Analysis of English and Arabic

Languages are different from one to another. For instance, Standard Arabic and Standard English are two distinct yet related languages. Although these languages are different from one another at the phonological, morphological, syntactic, semantic, and pragmatic levels, they do share some linguistic traits in general. These areas are closely related to the fields of Contrastive Linguistics, Comparative Linguistics, and Universal Grammar (Momani & Altaheer, 2015)

When it comes to arranging the similarities and differences between English and Arabic, the differences take priority over the similarities. These languages both originated in different parts of the world and, therefore, had few connections with their inception. Despite their differences, there are several similarities between the two languages.

Syntax: One of the most significant similarities between English and Arabic in syntax is the use of conjunctions, In Arabic, students can make correct sentences using (and, but and so) that have the same meaning when they transfer it literally in English. There are three kinds

of connections, namely simple connections, For instance ‘’and‟ /wa/ in Arabic is used to connect both words and clauses. For example: in English: The teacher, students and directors were invited. Arabic: **/ doÀijaalas :tida wţalabawaelmodi :r/.** (Sadiq , Siddig, & Elmahi, 2022) state that the English and Arabic languages share similarities in the use of conditionals. In the Arabic language conditionals are hypothetical and come in either as a main clause or an if- clause. In English conditionals also come in as the main clause but also in as subordinate clause. For instance one can say if I have enough money, I will buy my mother a gift in the mothers’ day. ……. (Sadiq , Siddig, & Elmahi, 2022) state that The English and Arabic languages both use conditionals but differ significantly in structure. In English, conditionals can be real or unreal; real conditionals depend on another action. In Arabic, the real conditional is expressed with /iða/, while the unreal uses /law/. A key difference is that Arabic conditional clauses often follow with a verb in the past tense, which can affect Arabic speakers' learning of English.

Morphology: In terms of morphology, both Arabic and English show some similarities. Both languages have a system of inflectional and derivational morphology, where inflectional prefixes and suffixes change the grammatical function of a word while derivational affixes change the meaning of a word. Moreover, both languages add prefixes and suffixes toroots form words and express grammatical relationships. (Salim, 2013) Summarises the main similarities and differences as follows;

Both Arabic and English use the same morphological process since several nouns and verbs are derivedwith the help of affixes and vowel modifications within the root.In addition, both languages have the same number of word classes. Furthermore,nouns are infected for the categories of number, gender, case, and person; English nouns are inflected for cognitive case whereas, in Arabic, nouns are infected for three cases: nominative, accusative, and genitive. (p, 131)

***Grammar*:** Despite similarities in morphology, phonology, and syntax, numerous key differences between English and Arabic languages speculate their unique histories and cultural influences. The first difference between the two grammar languages is passive voice. While English passive allows the mention or even the highlighting of the agent, the Arabic passive is always agentless (the agent of the action is unknown) (Abbas, 2010)

Another significant difference is in sentence structure, While English typically follows a subject-verb-object (SVO) word order, and Arabic has a more flexible word order and often

places the verb at the beginning of the sentence (SVO, VSO, or OVS). This can result in different emphasis and meaning in the sentence (Holes, 2004, as cited in (Sawaie, 2007) for example; English the boy **eats** the apple

Arabic: أكلالولد التفاحة/akalaalwaladoatofa;hata/ which translates to "Ate the boy the apple.

Phonology: In phonological system the two languages show marked variations. One difference is that Arabic has a larger consonant inventory compared to English. Arabic distinguishes between several consonants that English does not, such as emphatic consonants, pharyngealized consonants, and uvular consonants. For instance, Arabic has a sound similar to the English "h," but pronounced in the throat, called the /ħ/ sound (ح), and a sound similar to the English "t," but pronounced with the tongue pressed against the roof of the mouth, called the / ṭ/sound (ط (Omari, 2016). In contrast, English has only one "h" sound and one "t" sound. Another difference is the way stress is placed on words. English has a stress-timed rhythm, where stressed syllables are pronounced with more emphasis, and unstressed syllables are reduced. Arabic, however, has a syllable-timed rhythm, where each syllable is given equal emphasis, making the rhythm of Arabic speech more even. This means that Arabic words tend to have more pronounced vowel sounds than English words. These differences in phonology demonstrate the distinct characteristics of each language (Al-Batal, 2018)).

To sum up, the contrastive analysis of English and Arabic languages provides invaluable insights into the unique aspects of each language. It helps language learners identify the key differences that may pose a challenge in their learning process. Indeed, a thorough understanding of the similarities and differences between English and Arabic can help learners avoid common errors and improve their language skills in speaking and writing. Teachers consider contrastive analysis a pedagogical imperative in target language and they use it as a functional approach in the language classroom. Therefore, it is crucial for language learners and educators to continue exploring the contrastive analysis of English and Arabic, and to develop effective language learning strategies that take into account the unique features of each language.

1.13 Error Analysis

Contrastive Analysis and Error Analysis have been commonly recognized as branches of Applied Linguistics Science. According to several researchers, the notable theory in the field of learning is behavioristic which claims that the learning was a result of acquiring a set of new

language patterns. Hence, errors are the result of the mother tongue habits in the target language and this was the first building block towards the emergence of new discipline known as error analysis.

1.13.1 Definition of Error Analysis

Error Analysis (EA) is a significant branch of Applied Linguistics that emerged in the 1960s. Challenging the prevailing notions of language learning at the time. Traditionally, the field of contrastive analysis dominated discussions about language acquisition, positing that errors made by learners were primarily the result of interference from their native language However; Error Analysis introduced a more nuanced perspective, suggesting that learner's errors could stem from a variety of factors beyond just their mother tongue.

Corder defined Error Analysis as a systematic procedure employed by both researchers and educators. This process involves collecting samples of learner language, identifying and describing the errors present in these samples, classifying the errors according to () their nature and evaluating their significance. Corder added that EA is an experimental technique for validating the theory of transfer aims at telling us something about the psycholinguistic processes of language learning (1981). This methodical approach allows for a deeper understanding of the complexities involved in language learning and the various types of errors that learners may encounter.

In essence. Error Analysis serves as a valuable tool in the study of second and foreign language acquisition. It focuses on analysing the errors produced by learners, thereby shedding light on the intricacies of language learning (Ellis, Understanding Second Language Acquisition , 1985), Seliker and Gass further elaborated on this concept, defining Error Analysis as the process of determining the incidence, nature, causes, and consequences of unsuccessful language use. This comprehensive analysis helps educators and researchers identify specific challenges learners face and develop more effective teaching strategies. (Gass & Selinker, 2001)

Richards summarized the scope of Error Analysis, stating that it addresses the discrepancies between how language learners communicate and how proficient native speakers use the language. By examining these differences, Error Analysis do not only enhance our understanding of language acquisition but also informs pedagogical practices, ultimately contributing to more effective language instruction. In conclusion, Error Analysis represents a pivotal shift in the study of language learning, emphasizing the importance of understanding and addressing learner errors in a broader context. (Richards J. C., 1971)

1.13.2 The Theoretical Foundation of EA

The study of contrastive linguistics began with the American linguist C. C. Fries in 1945, marking a significant development in the field of language acquisition. Over a decade later, Robert Lado expanded upon Fries's foundational ideas in his influential book, Linguistics Across Cultures (1957). Lado proposed that for students learning a second or foreign language, elements of the target language that resemble their native language would be easier to master, while those that differ would pose greater challenges. This notion underscored the importance of understanding the similarities and differences between a learner's mother tongue and the target language.

Linguists widely recognize contrastive analysis (CA) as a valuable theoretical framework for comparing two languages, particularly in terms of identifying areas of similarity and difference. According to (Al-khresheh, 2013)structures that are similar between the two languages tend to be easier for learners to grasp, whereas differences can lead to various types of errors. The primary aim of CA is to predict potential areas of difficulty by analyzing the distinctions between the grammar of the source language and that of the target language. Nickel (1971) emphasized this contribution to second language pedagogy, stating that practical grammar is essentially the sum of differences between the two linguistic systems.

While many English as Foreign Language (EFL) teachers initially viewed contrastive analysis as a promising tool for predicting learning difficulties, the approach has faced numerous theoretical limitations so the linguists highlighted the emergence of Error Analysis (EA) as a response to these shortcomings. (Vanpattan & Benatti, 2015), they noted that two major approaches to studying learners' errors exist: Contrastive Analysis and Error Analysis. EA arose from the limitations of CA, which dominated discussions of learner language in the 1950s and 1960s.

Unlike CA, which focuses on the differences and similarities between a learner's first language (L1) and the second language (L2), EA aims to describe learners' interlanguage- their unique version of the target language-independently and objectively. It is pointed out that a defining characteristic of EA is its disregard for the mother tongue in comparative analysis. (James, 2013). As a result, research in EA has primarily concentrate on the linguistic aspects of learners' errors. In recent decades, there has been a growing Interest in identifying and analysing the origins of these errors. (Beghri, 2012)noted that such analyses can lead to a better understanding of the types of cohesive errors learners make and the underlying reasons for these

errors. This shift towards a more detailed examination of learner errors highlights the evolving landscape of language acquisition research, emphasizing the need for comprehensive approaches that account for the complexities of learning a new language.

1.13.3 Steps of Error Analysis

Error Analysis (EA) involves a systematic approach to understanding and addressing the errors made by language learners. This process consists of several essential steps: data collection, error description, error explanation, and error evaluation. Initially, data can be gathered through observing learners' free compositions or analysing their responses to specific tasks. Once the data is collected, the next step is to categorize the identified errors, which allows researchers and educators to describe the nature of these mistakes comprehensively. Following this, it is crucial to explain the reasons behind the errors, providing insight into why these mistakes occur in the first place. Finally, the evaluation of errors involves suggesting strategies to help learners overcome their difficulties, thereby facilitating their language acquisition process.

The significance of Error Analysis extends beyond merely identifying mistakes; it plays a vital role in enhancing teaching methods and strategies. By providing valuable data, EA informs the preparation of accurate teaching and learning materials tailored to address specific learner needs. Furthermore, EA offers a unique perspective on speech production and the arrangement of language elements in the brain, contributing to our understanding of cognitive processes involved in language learning.

Historically, the perception of errors has evolved significantly. Prior to the 1960s, behaviourist theories viewed errors as undesirable outcomes of the learning process. However, a more constructive attitude has emerged, recognizing errors as integral to the learning journey. Errors now serve as indicators of learners' progress, revealing areas that require reinforcement and improvement. They provide researchers with critical evidence regarding how language is acquired and allow learners to test their hypotheses about new language concepts. As Corder (1973) aptly noted, "Errors enable the teacher to decide whether he can move on to the next item on the syllabus or whether he must devote more time to the item he has been working on." This perspective underscores the importance of viewing errors not as failures, but as valuable opportunities for growth and understanding within the language learning process.

1.13.4 Objectives of EA

According to Corder, Error Analysis (EA) serves two primary objectives: a theoretical objective and an applied one; The theoretical aspect focuses on understanding the processes involved in foreign language acquisition, shedding light on how learners engage with and internalize a new language. This insight is crucial for researchers and educators alike, as it provides a framework for comprehending the complexities of language learning. On the other hand, the applied objective of EA has significant pedagogical implications. This objective enables foreign language learners to utilize their existing knowledge of their native dialects to enhance their learning efficiency and effectiveness. By analysing errors made by learners, educators can identify the specific challenges and difficulties they face in mastering the target language. Recognizing these difficulties is essential for foreign language and second language (FL/SL) teachers, as it allows them to pinpoint areas of weakness among their students. Consequently, this identification process can lead to a revision of teaching methods, ensuring that instruction is adjusted to address the unique needs of learners (Al-khersheh, 2015). In this way, EA not only contributes to theoretical understanding but also plays a vital role in improving language-teaching practices.

1.14 Classification of Errors

1.14.1 Linguistic-Based Classification

Linguistic-based classification of errors involves categorizing errors based on their grammatical, lexical, phonological, or discourse-based characteristics (Dulay, Burt, & Krashen, 1982). This approach can help teachers gain a better understanding of learners' language proficiency and provide targeted feedback to support their language development. By analysing learners' errors according to their linguistic characteristics, teachers can provide more effective feedback to help learners improve their language skills Ferris 2002 as cited in (Zhu, 2023) This may involve correcting errors, providing explanations, or suggesting alternative forms of expression that better adhere to the rules of the target language. Classifying errors based on a linguistic perspective includes the following categories:

Phonological error*:* errors related to the sound system of a language, such as mispronunciations or substitutions of different sounds.

Morphological errors*:* errors related to the structure of words and sentences, such as incorrect use of prefixes and suffixes or tense markers.

***Syntactic errors**:* errors related to the structure of sentences, such as incorrect function words or incorrect use of word order.

***Semantic errors**:* errors related to the meaning of words or phrases, such as incorrect choice of words or misuse of idioms or expressions.

1.14.2 Process-Based Classification

According to Corder, second-language learners' errors can be classified into four categories based on their underlying causes. This approach is known as the process-based classification of errors. The four categories are:

Omission: When learners leave out a required element in a sentence or utterance, such as a verb or preposition.

Addition: When learners add elements to a sentence or utterance that are not needed or are grammatically incorrect.

Misordering: When learners place elements in a sentence or utterance in the wrong order, such as putting the subject at the end of the sentence.

Substitution: When learners replace a required element with another element that is not appropriate or grammatically incorrect.

This classification system is useful for understanding the underlying causes of errors and designing targeted interventions to address them. For example, if a learner consistently makes substitution errors, a teacher may focus on providing more explicit instruction on the correct use of the target language element.

1.15 Analysis of Errors

The stage of analysing errors in error analysis involves identifying the possible causes of errors made by language learners. As Ellis explains, this stage attempts to explain why learners make the errors they make (1997, p. 68).This involves examining various factors that may contribute to the errors, such as the learner's first language, their level of proficiency in the target language, the context in which the language is being used, and the linguistic complexity of the task.

1.15.1 Description of Learner’s Errors

An error in error analysis is a systematic difference between an observed value and the true value. Errors can be caused by a variety of factors, including measurement errors, human

errors, or the physical environment. Several definitions have been presented by experts in the field: “error is a systematic deviation, when a learner has not learnt something and consistently gets it wrong” Norrish 1987 as cited in (Hayati, 2019)

1.15.2 Interlanguage

The term “interlanguage” was first introduced by Selinker in 1972, based on the previous work of Corder on the nature of language learners’ errors. Interlanguage refers to the type of language produced by second language learners who are in the process of learning a language. While learning a language as L2, the learners construct a system of abstract linguistic rules which underlies comprehension and production of L2. This system of rules is viewed as a mental grammar and is referred to as an interlanguage.

The following diagram is a visual representation of the interlanguage hypothesis. It consists of three concentric circles, each of which represents a different language system. As shown in the diagram, the first circle represents the learner's first language (L1). This system includes the learner's knowledge of their native language, including their grammar, vocabulary, and pronunciation. The second circle represents the target language (TL), which the learner is trying to acquire. This system includes the learner's knowledge of the TL, as well as the rules and patterns they have learned through exposure to the TL. The third circle represents the interlanguage system (IL), which is the learner's developing language system as they try to communicate in the TL. This system includes the learner's attempts to use the TL, as well as the errors and deviations they make as they try to approximate the TL. Corder's theory emphasizes that the learner's interlanguage system is not simply a collection of errors or deviations from the TL, but rather a complex and rule-governed system that reflects the learner's developing understanding of the TL.

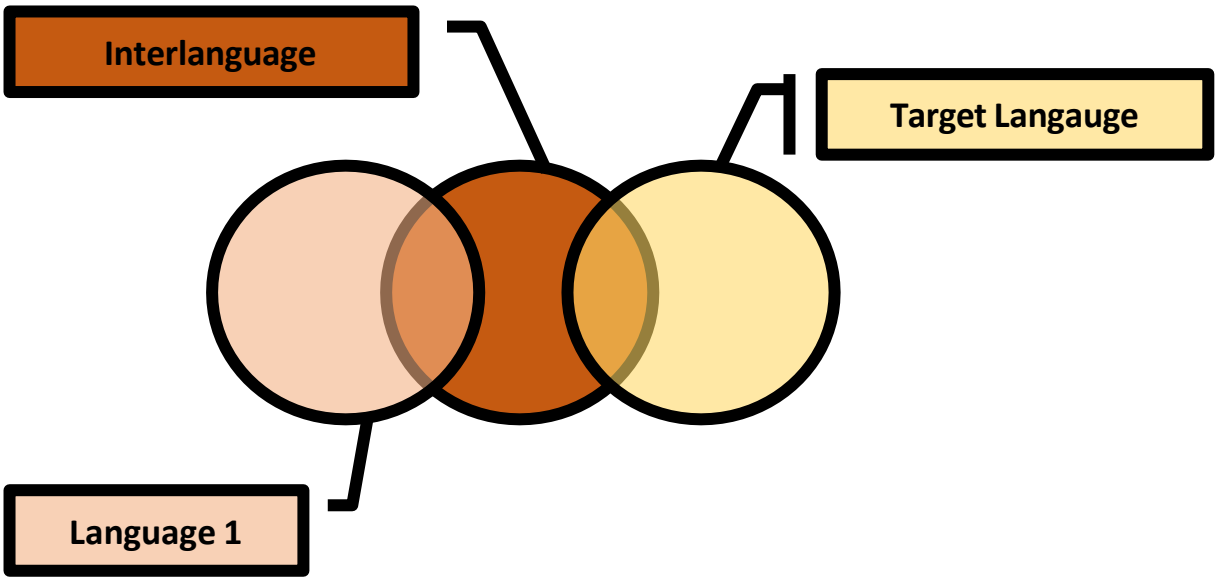


Figure I- 7 : The Interlanguage Hypothesis

1.15.3 Interlingual Errors

Interlingual errors are a common occurrence in second language learning and can result in errors in grammar, syntax, pronunciation, vocabulary.These errors are often caused by the learner's native language interfering with the target language, as learners tend to apply the rules of their native language to the target language. For instance, interlingual errors in the writings occur due to the interference of the mother tongue in terms of sentence structure; word choice, spelling errors, capitalisation, and tenses. (Qacem, 2020)

There are different types of interlingual errors. Grammatical errors, for instance, occur when the learner uses incorrect verb tenses, prepositions, or word order, which may differ between languages. Syntax errors, on the other hand, are related to sentence structure, and learners may struggle with word order, inflection, or agreement. Pronunciation errors may arise when learners cannot articulate sounds that do not exist in their native language. Vocabulary errors can include confusion between similar-sounding words or using a word in the wrong context. Finally, discourse errors can happen when learners use language inappropriately in social situations (Lightbown & Spada, 2013)

Several factors contribute to interlingual errors, including the learner's language background, previous learning experiences, motivation, and cultural background. These factors may affect the learner's ability to acquire the target language, as learners may transfer grammar, syntax, pronunciation, and vocabulary rules from their native language into the target language (Brown D. , 2006)

Interlingual errors may have adverse effects on language learning. They can result in misunderstandings, impede communication, and reduce the learner's confidence. Furthermore, they can affect the accuracy and fluency of the learner's speech, making them appear less proficient in the target language (Lightbown & Spada, 2013)

To address interlingual errors, language teachers must understand the causes and types of these errors. Teachers can use different strategies to mitigate interlingual errors, such as providing input that focuses on the target language rules, giving corrective feedback, and providing opportunities for learners to practice in different contexts.

In conclusion, interlingual errors are common in second language learning and can occur in different areas, including grammar, syntax, pronunciation, vocabulary, and discourse. These errors are often caused by the learner's native language interfering with the target language. Several factors contribute to interlingual errors, including the learner's language background,

previous learning experiences, motivation, and cultural background. Interlingual errors may have adverse effects on language learning, but teachers can use different strategies to mitigate these errors and help learners achieve proficiency in the target language.

1.15.4 Intralingual Errors

Richards (1971) defined intralingual errors as deviations from the norms of a language which are typical of native speakers of that language and which are due to the learner's lack of knowledge of the rules of the language system. He also differentiated between two types of intralingual errors: global errors and local errors. Global errors are errors that affect the overall meaning of a sentence, whilst local errors are errors that affect individual words or structures within a sentence. For example, a global intralingual error in English might be using the word "last weak" instead of "next weak" in the sentence "I will call you last weak." This error changes the meaning of the sentence completely. A local intralingual error might be using the incorrect verb form, such as saying “she have a pet" instead of "she has a pet."

As explained by (Lightbown & Spada, 2013)overgeneralization errors in second language learning occur when learners apply a rule or pattern of the target language to contexts where it is not appropriate. These errors arise when learners create their own "rules" for the language based on their limited experience and knowledge of the language. According to (Ellis, Second Language Acquisition Oxford Introduction to to Langiage Study, 1997)effective language instruction should involve providing learners with plenty of input and opportunities for practice, as well as explicit instruction on the rules and conventions of the target language to help learners avoid overgeneralization errors. Another example of an overgeneralization error is the use of the regular past tense ending "-ed" for irregular verbs. For instance, a learner might say "last Friday, goes to the market “instead of "last Friday I went to the market." This is considered as an overgeneralization error because the irregular verb "go" does not follow the regular past tense rule.

These examples illustrate how overgeneralization errors can occur in different areas of language learning, such as verb tenses, irregular verbs, and articles. It is important for language learners to be aware of these errors and for language teachers to provide feedback and corrective instruction to help learners improve their accuracy.

1.15.5 Incomplete Application of Rules

Incomplete application of rules is a common type of error in language learning (Brown D. , 2006). This error occurs when learners fail to fully develop a certain structure required to

produce acceptable sentences, often because they find that they can achieve communication by using relatively simple rules. To avoid incomplete application of rules, learners must fully develop their understanding of the language's structures and rules (Larsen-Freeman & Cameron, 2008). This requires dedicated practice and attention to detail. Learners must also be willing to challenge themselves and go beyond the simple rules to fully grasp the language's complexities.

To sum up, understanding the concept of incomplete application of rules is crucial in error analysis for language learning. By being aware of the potential pitfalls and taking steps to avoid making these errors, learners can improve their communication skills and achieve greater success in language learning.

1.16 Conclusion

This chapter has been divided into two main parts; the first part revolved around modern standard Arabic which many foreign students are interested in studying for several reasons. The phonology, morphology, syntax, and semantics of MSA have been discussed in detail. The second part of this chapter is dedicated to contrastive analysis and error analysis as significant and important tools the research should rely onto investigate areas of difficulties while learning Arabic as a foreign language. CA provides a framework for identifying areas of difficulty that the learners may encounter. EA provides a systematic approach to understanding the errors that learners make and the underlying causes of these errors.

CHAPTER TWO

SOUND PERCEPTION AND LANGUAGE ACQUISITION

CHAPTER TWO : SOUND PERCEPTION AND LANGUAGE ACQUISITION

2.1. Introduction

Sound perception plays a crucial role in the acquisition of language. They are closely related to each other. This chapter discusses the main theories of sound perception and its role in acquiring the spoken form of the target language. It also sheds light on some theories of language acquisition that go hand in hand with speech perception.

2.2 What is a sound?

Human language has two forms, the spoken and the written form. Those two forms are different in their realization and manifestation. Written form manifests the form of letters known as the alphabet. Each language has a given number of alphabet letters for instance English has 26 letters Arabic has 28 Chinese has 2633 letters. The spoken form manifests information of sounds that constitute basically a physical spatiotemporal phenomenon worth studying on its own.

A good understanding of the study of sound implies by necessity understanding of the nature of the sound, and how it is appropriately approached following the scientist's objectives and interests. For instance, the sound of a physicist is not viewed the same as of a linguist.

To begin, it is important to realize both realities of the sound, the *physical* and the *psychological* ones. The physical reality of the sound refers to it as a completely *physically perceptible phenomenon*, the sound being a change in the *pressure of molecules of air* in *different media* for which *physical objects are responsible*. The psychological reality of the sound refers to it as a *mental percept* formed basically through a *mental reconstruction process*.

According to Nouioua, a sound is referred to as a noise that has a particular formant such as duration amplitude and frequency. (Nouioua, 2015)

2.3 Phonetics Versus Phonology

Language is a complex human communication system that enables the expression of thoughts, ideas, and emotions. At the core of linguistics are two crucial branches: phonetics and phonology, that deal with the study of speech sounds. While both fields are interconnected and closely related, they are two terms with two different meanings.

On one hand, phonetics is a linguistic subfield that focuses on the study of speech sounds and their production, transmission, and perception. It is essential to understand the physical properties of speech and how they are used in different languages. According to Crystal "Phonetics is concerned with the physical properties of speech sounds and the processes of their physiological production, auditory reception, and perception" (2008, p. 363). Phonetics studies the articulatory aspects of speech production, the acoustic properties of speech sounds, and the auditory processes involved in perceiving the sounds (Ladefoged & Johnson, 2014). By analysing the movements of the articulatory organs, such as the tongue, lips, and vocal cords, phoneticians investigate the precise production mechanisms behind different speech sounds.

Phonetics' acoustic measurements deal with the physical properties of speech sounds and their transmission via the air or other mediums. They involve the analysis of sound waves, spectrograms, and other acoustic measurements to describe and differentiate speech sounds. Spectrograms, for example, provide visual representations of the frequency, intensity, and duration of speech sounds, allowing researchers to identify distinctive features and patterns. By studying the acoustic properties of speech sounds, phoneticians can compare and contrast different languages and identify universal principles of speech production.

Phonetics is divided into two main branches: articulatory phonetics and acoustic phonetics. Articulatory phonetics focuses on the mechanisms behind speech sound production, emphasising the movements of the vocal organs. Researchers in this field explore the role of articulators, including the lips, tongue, teeth, palate, and vocal cords, in shaping the various speech sounds of a language (Ladefoged, 2014). By employing advanced technologies such as X-ray imaging and electromagnetic articulography, articulatory phonetics uncovers the specific configurations and gestures involved in producing different phonetic units. This branch helps to comprehend how distinct languages use their unique articulatory features to generate a wide range of sounds. Acoustic phonetics, in contrast, focuses on the physical properties of speech sounds as they travel through the air and are perceived by the human auditory system. It utilizes tools like spectrograms and waveforms to analyse the frequency, intensity, and duration of speech sounds (Johnson, 2012). The study of acoustic phonetics helps to distinguish speech sounds and influences the listeners' perception of distinct phonemes. This branch is also concerned in practical applications such as speech recognition technology and forensic linguistics, where the analysis of acoustic properties aids in voice identification and speaker profiling. Other phoneticians state that phonetics has three branches: articulatory phonetics, acoustics phonetics, and auditory phonetics. This latter deals with the long journey of sounds,

known as perception from the outer to the middle to the inner ear, then from the auditive nerve to the auditory cortex and language-specific cerebral areas. This pathway within the human ear is dominated by medical and neurocognitive studies. (Nouioua, 2015)

According to some linguists phonology, on the other hand, is concerned with the abstract, mental representations of speech sounds within a particular language (Daniel, 2011)..Daniel states that "Phonology is the mental representation of the sound system in a speaker's mind, which includes the abstract, underlying forms of words and the rules that govern their pronunciation." In other words, phonology is the scientific study of the psychological reality of the sound. It investigates the systematic organization of sounds and their role in constructing meaning in a given linguistic community. Phonologists examine phonemes, which are the different units of sound that differentiate meaning in a language. Phonology focuses on the patterns and rules governing the distribution of phonemes in different positions within words, phrases, and sentences. These rules, known as phonological processes, account for various sound changes, assimilations, and reductions that occur during speech production.

Phonetics and phonology are intimately connected, as the physical properties of speech sounds studied in phonetics serve as the input data for phonological analysis. Phonological processes are based on the distinctive features identified through phonetic investigations. However, it is essential to recognize that they address various speech features. While phonetics focuses on sounds' concrete production and physical properties, phonology deals with abstract sound patterns and their role in shaping linguistic systems. In other words, phonetics helps to identify and describe the actual sounds produced, while phonology aims to understand how these sounds function in the language's structure.

2.4 Sound perception

Sound perception is essential for language acquisition; there is a close relationship between sound perception and productive skills. Efficient auditory functions are necessary for learning a spoken language, and the ability to perceive speech sounds is the foundation for spoken language development.

2.4.1 Definition

Sound perception, from a linguistic perspective, refers to how humans interpret and process the auditory signals they receive as speech. Linguists study the ways in which our brains process different speech sounds, known as phonemes organized into meaningful units like words, phrases and utterances. This involves analysing how we distinguish between similar

sounds how to categorize them and how perception of sounds can vary across languages and dialects (Nouioua, 2015).

A good understanding of sound perception implies by necessity a good understanding of the auditory system. the following diagram explains the main components of the auditory system

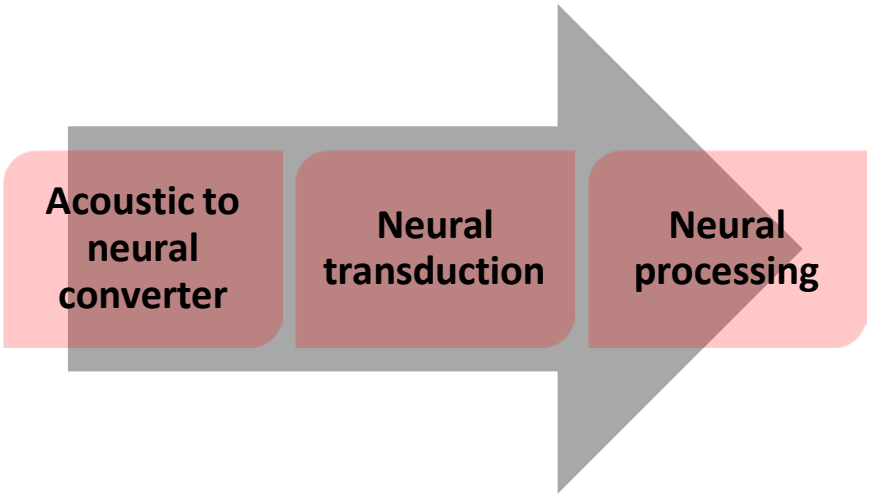


Figure II- 1 : Sound Perception

2.5 Theories of Speech Perception

2.5.1 Theories of Auditory Perception

Sound perception is a fundamental part of how humans experience the outside world and communicate with each other. Over time, researchers have developed different theories to explain how human minds process sound. These theories attempt to decipher the complexities of auditory cognition and have significant implications for language and linguistics.

2.5.1.1 The Ecological theory of auditory perception

The ecological theory of auditory perception, proposed by James J. Gibson in the mid-20th century, presents a comprehensive framework that explains how humans perceive and process auditory information in their natural environments (Gibson, The Senses Considred as Percetual System, 1966). This theory departs from traditional approaches to perception, emphasizing that perception is not just a mental process but an inseparable interaction between an organism and its environment. According to Gibson, auditory perception is deeply rooted in the relationship between an individual and the surrounding soundscape, which plays a crucial role in understanding the auditory world.

2.5.1.2 Auditory affordances

Auditory affordances in the ecological theory are the potential actions or behaviors that sounds in the environment suggest to individuals. Auditory affordances have specialized in detecting, identifying, and localizing important environmental events (Nielbo, 2014). Basically, sounds offer opportunities for action that facilitate the individual's interaction with their surroundings. For example, the sound of a knocking door may afford the action of opening it, while the sound of footsteps behind a person may afford the action of turning around to see who is approaching. Affordances are context-dependent and progress based on an individual's goals, intentions, and experiences.

The auditory system has yieled to be highly attuned to these affordances, allowing humans to perceive and respond to sounds in the environment in a manner that ensures survival and well-being. These auditory affordances are not limited to immediate actions but extend to the understanding of the environment as a whole. They guide human perception of auditory events and objects, leading to the organization and categorization of sounds, which further aids in navigation and adaptation (Roddy, 2018)

2.5.1.3 Soundscape: The dynamic auditory environment

The term “soundscape” was first introduced by Southworth in 1969 (Grinfeder, Lorenzi, Haupert, & Sueur, 2022). A soundscape refers to the quality and type of sounds and their arrangements in space and time; it is a spatiotemporal phenomenon (Southworth, 1969). The following diagram explains the relation between sound source and soundscape. It comprises a complex array of sounds, including natural sounds like birdsong, wind, and water flowing, and human-generated sounds such as traffic, voices, and music.

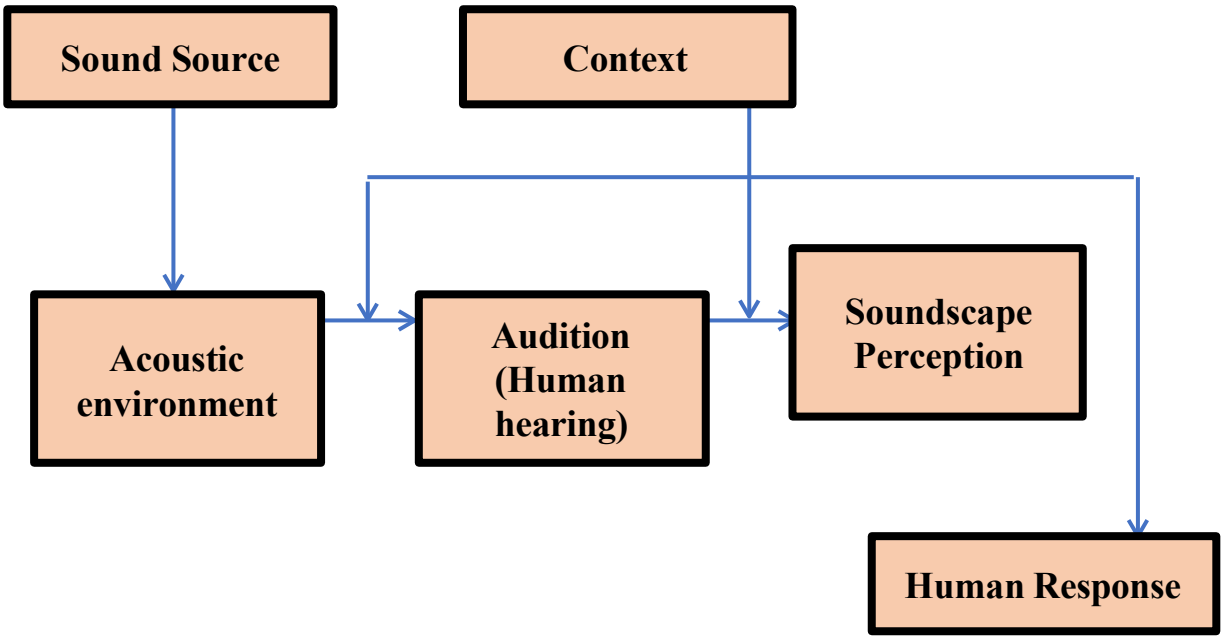


Figure II- 2 : Impact of Soundscape in Sound Perception

The soundscape is a dynamic and ever-changing landscape that influences the individuals' auditory perception. It is an interdisciplinary field that encompasses the study of the several elements of the sound, including natural sounds, human-made sounds, and their interactions, which collectively shape the sonic environment.

As shown in the diagram, soundscape plays a crucial role in perception, as it provides the necessary environmental information and form auditory experiences, which allows for more effective interactions with the environmemt.

According to (kong & Han, 2024) a notable soundscape researcher, soundscape analysis requires examining the composition, qualities, and meanings of sounds within an environment. These demands consider the sources of sounds, their temporal and spatial distribution, and their overall impact on the listener's experience. Soundscape studies focus on individual sound sources and consider how these sounds gather and interact to create a coherent auditory landscape. The perception and evaluation of soundscapes can differ significantly depending on cultural, social, and personal factors (Brown, Dubois, & Gjestland, 2015)

Soundscape research has recently become essential due to recognising sound environments' profound influence on human well-being and quality of life (Oldoni, et al., 2015). For instance, urban areas with high noise levels can lead to stress, sleep disturbances, and reduced cognitive performance). On the other hand, natural soundscapes have positively affected mental health, relaxation, and restoration (Annerstedt et al., 2013).

Researchers employ various methods to study soundscapes in dynamic auditory to understand better the complexity of soundscapes in environments, including soundscape mapping, acoustic measurements, and psychoacoustic evaluations (Hong & Jeon , 2015). Moreover, advanced technologies, such as sound level meters, spatial audio recording techniques, and participatory approaches involving local communities, have been utilised to understand the complexity of soundscapes better (Brown, Dubois, & Gjestland, 2015).

Understanding the nature of soundscapes in dynamic auditory environments is crucial for urban planners, architects, soundscape designers, and policymakers. By identifying the most salient and significant sounds and considering the preferences of the individuals within a specific context, it becomes possible to design more pleasant and sustainable acoustic environments that positively contribute to people's overall well-being and enhance the overall quality of life (Aleta, Kang, & Axelsson, 2016).

2.5.1.4 Informational invariants

In the ecological auditory theory, informational invariants refer to the fundamental patterns and structures that persist across different ecological systems, regardless of their specific details or environmental conditions. The concept of informational invariants was introduced by physicist and philosopher Robert Rosen, who applied principles from theoretical biology to ecology (Rozen, 1991). According to Rosen's approach, informational invariants represent the solid and firm features of ecological systems that still constant even as individual components or variables change. These invariants are not dependant on specific numerical values but are based on the relationships and limitations that exist within the ecological network. By identifying these patterns, ecologists can uncover the organizational principles of complex ecosystems, which can be challenging to discern solely through observational data

Incorporating the concept of informational invariants helps to understand complex ecosystems and how these systems might contribute to perturbations or environmental changes. This theoretical framework has the potential to unite various ecological disciplines and bridge the gap between empirical observations and theoretical modelling, ultimately contributing to a more comprehensive and integrated understanding of the natural world (Rozen, 1991, p. 56).

2.6. Other Theories of Speech Perception

2.6.1 The Motor Theory

Auditory perception is a cognitive skill that allows individuals to recognise and understand sounds in their surroundings. Researchers have investigated several theoretical models to explain how the brain processes auditory information. One significant theory is the Motor Theory of oral perception, which Liberman and Mattingly initially introduced in 1985. (Holt & Lotto, 2008). This theory predicates that the human capacity to understand speech and other auditory stimuli is elaborately connected to the motor process of producing these sounds; the brain activates the motor regions responsible for generating these sounds, simulating the corresponding articulatory movements. (Liberman & Mattingly, 1985). The central claim of the motor theory is that speech is a unique code whose elements are not the correlative phonemes but articulatory gestures.

The motor theory emphasises the critical link between auditory and motor systems for effective speech perception. Neurophysiological support for this theory proved that both observing and imagining speech gestures can stimulate the same motor areas involved in the actual speech production. This mapping from motor to auditory process is believed to ease the individuals' ability to recognise speech in noisy environments. (Pulvermuller & Fadiga, 2010). Additionally, the motor theory extends beyond speech perception, encompassing other sides of auditory perception. Patel and other linguists suggested that the motor activation occurs when perceiving non-speech sounds. This finding indicates that the motor system plays a crucial role in the ability to recognise and interpret a variety of auditory stimuli (Miller , Schalk, Hermes, Ojemann, & Rao, 2016). Consequently, the motor theory highlights a dynamic interaction between the auditory and motor systems in the human brain, where the motor system significantly influences the auditory perception.

2.6.2 The TRACE Model

The trace model resembled COHOROT in many important respects. One primary theoretical framework in speech perception is the TRACE model. This theory was proposed by James McClelland and Jeffrey Elman in 1986. It offers a comprehensive account of how humans process and comprehend spoken language. The model is based on connectionist architecture, which emphasizes the interaction between different levels of linguistic representation in a parallel and distributed manner (Mc Clelland & Elman, 1984). The TRACE model postulates that speech perception involves multiple interconnected processing units that

simultaneously activate and compete to identify phonetic, lexical, and semantic information from the acoustic input. The model's name, TRACE, stands for "Trace of the Residue Activation and Competitive Excitation," illustrating its fundamental principles.

2.6.3 Interactive Activation Model[1]

The interactive activation model, proposed by James McClelland and Jeffrey Elman as a part of the TRACE Model in 1982, is an outstanding theoretical framework that particularly emphasises speech perception and word recognition among humans. At the core of the interactive activation model lies the concept of interactive activation and competition, reflecting human auditory perception's parallel and distributed nature. The model comprisess of three levels of linguistic representation: phonetic, lexical, and semantic (McClelland & Elman, 1986). When a listener is subjected to speech input, the acoustic information activates multiple phonetic representations, referred to as "traces," at the phonetic level. These activated traces then propagate their activation to the lexical level, where they activate corresponding lexical units representing words in the mental lexicon. Furthermore, the lexical units interact with their associated semantic representations, which represent the meanings of the words (McClelland & Elman, 1986).

The principle of the interactive activation Model lies in the excitatory and inhibitory connections among the processing units at different linguistic.Excitatory connections facilitate the spread of activation, allowing information from one level to influence and activate representations in other levels. For instance, activation from the phonetic level spreads to the lexical and semantic levels, enabling the recognition of spoken words and their meanings Conversely, inhibitory connections create competition among the processing units, ensuring that the most strongly activated representations dominate and form the basis for auditory perception and word recognition. This dynamic interaction of excitatory and inhibitory processes captures the complexity and efficiency of human speech perception, where multiple linguistic levels are processed simultaneously, contributing to a holistic understanding of the perceived speech input.

The Interactive Activation Model in the TRACE framework has received substantial empirical support from studies on speech perception and word recognition (Mc Clelland & Elman , 2005). Neurophysiological evidence, such as findings from functional magnetic

[1] Cohorot was the first version of interactive actions. It was consisted of a number of a number of processing elements with a number of interconnections. There were 3 essential types of nodes; distinctive characteristics node, phoneme node and code node. (Mc Clelland & Elman, 1984)

resonance imaging (fMRI) and electro- encephalography (EEG) studies, has corroborated the model's principles by showing simultaneous activations in multiple linguistic levels during speech processing

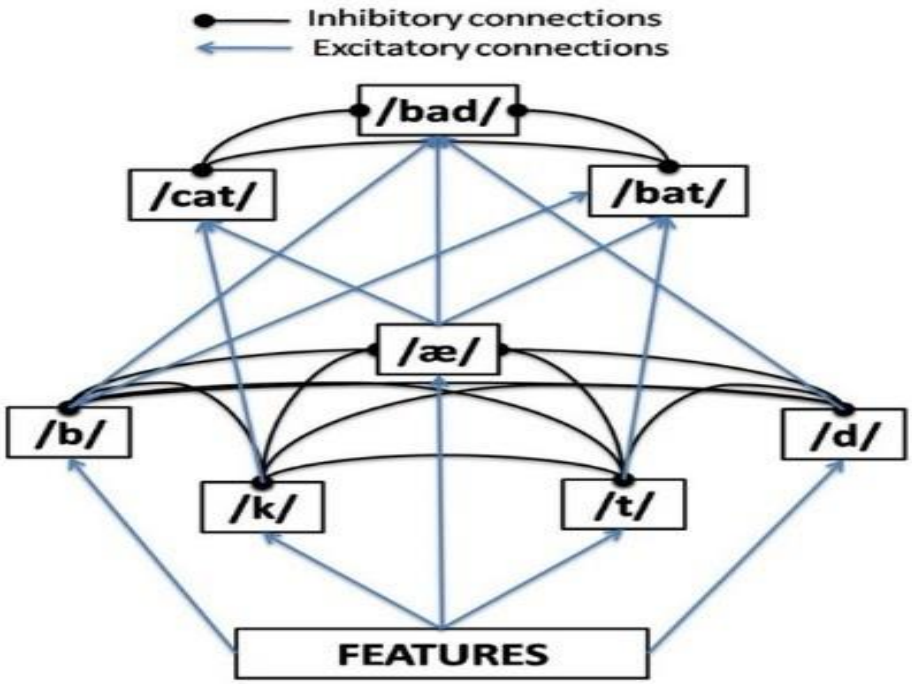


Figure II- 3 : One time-slice of the TRACE model of spoken word recognition Sound Perception and Cognitive Processes (Honnagan, Magnuson, & Graniger, 2013)

The relationship between sound perception and cognitive processes also extends to the role of attention in auditory processing. Selective attention plays an important role in perceiving sounds by permitting individuals to emphasise the relevant auditory stimuli while filtering out irrelevant background noise (Shinn-Cunningham, 2008). Neuroscientific studies have shown that the auditory cortex exhibits enhanced responses to attended sounds compared to unattended sounds. Furthermore, according to Shinn-Cunningham, the attentional control mechanisms are involved in directing cognitive resources to auditory tasks, leading to improved sound perception and speech recognition in complex listening environments (2008). This intricate interplay between attention and sound perception demonstrates the importance of cognitive processes in shaping auditory experiences and facilitating effective communication.

Several cognitive processes are involved in sound perception, making it a complex phenomenon. For example, auditory attention is a critical cognitive process that enables individuals to focus on specific sounds while filtering out irrelevant background noises. Studies have shown that selective attention is essential for speech perception, as listeners must prioritise specific acoustic cues to comprehend spoken words accurately (Rimmele, Zion-Golumbic,

Schoroger, & Poeppel, 2014). Moreover, memory processes contribute significantly to sound perception. Working memory, in particular, plays a significant role in temporarily holding and manipulating auditory information during speech comprehension. Moreover, long-term memory LTM aids in recognising familiar sounds and comprehending language by integrating incoming auditory information with stored linguistic knowledge (Morton & Johnson, 1991).[2]

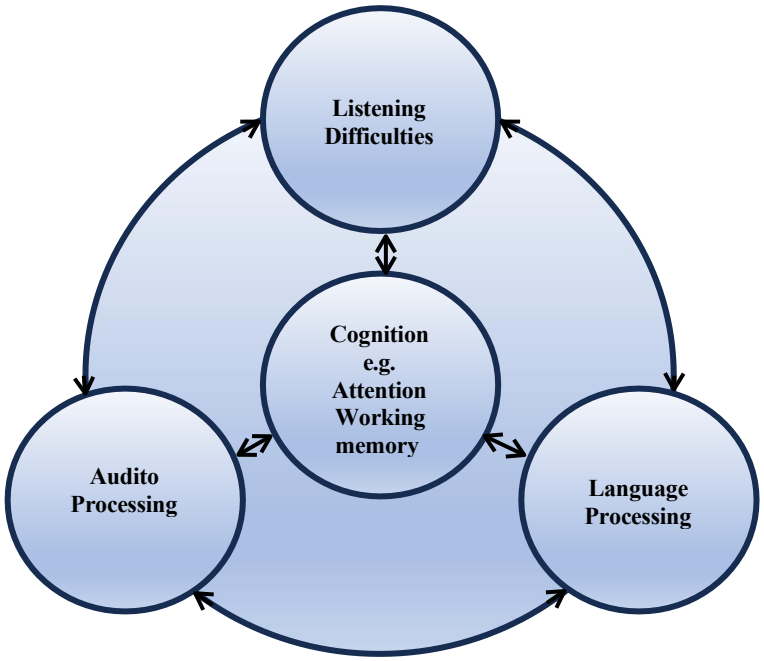


Figure II- 4 : The Relationship Between Language Processing and Cognition

The diagram visually represents the relationship between cognition, auditory processing, and language processing in the context of listening difficulties. As shown in the diagram, there is a clear connection between cognitive abilities and the way individuals perceive sounds, which eventually affects language processing and leads to difficulties in listening.

The relationship between sound perception and cognitive processes extends to higher-level cognitive functions, such as language processing and executive functions. Language processing relies on sound perception to decode speech sounds and extract meaning from spoken words. Neuroimaging studies have revealed that the superior temporal gyrus, a brain region involved in sound perception, is also crucial for language comprehension (Hickok, the Cortical Organisation of Speech Processing ; Feedback Control and Predictive Coding the Context of a Dual-Stream Model , 2013). Additionally, executive functions, such as working memory, attentional control, and cognitive flexibility, support sound perception by facilitating

[2] Attention is a set of processes that modulate what information gets represented in the brain. These processes act similarly across auditory and other sensory modalities **Source spécifiée non valide.**

the allocation of cognitive resources to auditory tasks and aiding in the integration of auditory information with other sensory inputs. all in all., sound perception and cognitive processes work hand in hand to enable individuals to make sense of the auditory world and interact effectively with their environment.

2.6.4 Top-Down and Bottom-Up Processing

Language processing is a complex cognitive task that involves different mechanisms to decode and comprehend spoken and written information. Two fundamental cognitive processing strategies, known as top-down and bottom-up processing, play important roles in language understanding These mechanism make easy the integration of linguistic cues and contextual information to derive meaning from words, sentences, and discourse. (Main, 2023)

Bottom-up processing, also referred to as data-driven processing, is an information-based approach that starts with the analysis of individual sensory inputs. In language, it involves the analysis of raw auditory or visual stimuli, such as speech sounds or written letters, which are then sequentially combined into larger units like phonemes, words, and utterances. (Yusof, 2020). For example, when reading a sentence, bottom-up processing begins by recognizing individual letters and gradually assembling them into words and sentences. This process relies heavily on perceptual and sensory input, allowing the brain to extract information from the input stream.

According to Yusof, top-down processing, or conceptually driven processing, involves higher-level cognitive factors such as knowledge, context, and expectations of language understanding. Individuals draw on their prior knowledge and linguistic experience when engaging in top-down processing to predict upcoming words or phrases. Contextual information, such as the overall theme of a conversation or the topic of a written passage, guides the interpretation of ambiguous words or phrases. For instance, while listening to a spoken sentence, top-down processing may involve using semantic knowledge to infer the intended meaning of a homonym or resolving temporary ambiguities based on the context.

This integration of both processing strategies allows for efficient language comprehension by leveraging sensory input and cognitive knowledge. In real-world language situations, the brain rapidly combines these strategies to produce a coherent and meaningful interpretation of the linguistic input.

The interchange between top-down and bottom-up processing has implications for various language-related activities, such as reading comprehension, speech perception, and

language learning. Skilled readers, for example, utilise both processes when encountering unfamiliar words or complex sentences. They can use their vocabulary and contextual knowledge (top-down) to predict the meaning of new words while relying on letter recognition and phonemic analysis (bottom-up) to confirm their predictions. In language learning, top-down strategies, such as using prior language knowledge, can aid learners in deciphering the meaning of new words or phrases encountered in context (Hassel & Schroeder, 2020)

Briefly, top-down and bottom-up processing are crucial mechanisms that work in conjunction with each other to facilitate language understanding. While bottom-up processing starts with sensory inputs and assembles them into linguistic units, top-down processing draws on prior knowledge and contextual information to shape the interpretation of language (Field, 1999). The seamless integration of these strategies allows individuals to comprehend spoken and written language in various real-world situations, making language processing a remarkable feat of human cognition.

The following diagram explains the main differences between the Top-Down and Bottom-Up Processing

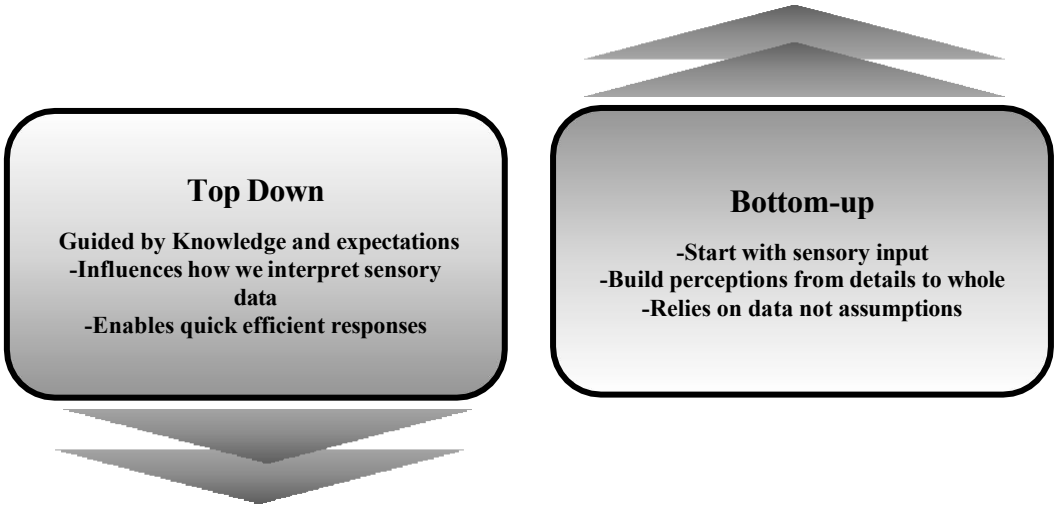


Figure II- 5 : Top-Down Processing Vs Bottom-Up Processing

2.7 Individual Differences in Sound Perception

Sound perception in language is necessary for individuals to interpret and understand spoken language. However, thoigh the universal nature of sound as an auditory stimulus, this ability is not uniform across all individuals, as various factors can contribute to individual differences in how individuals perceive and process sounds. These differences can arise from

age-related changes in the auditory system, variations in language experience, cognitive abilities, and sensory processing[3].

2.7.1 Cognitive Factors in Sound Perception

When learners are exposed to a new language, they should face the complications of new phonetic and phonological systems. To achieve accurate pronunciation and comprehension of this language, learners must decipher these complex phonetic and phonological systems. Nevertheless, the process of learning a new language is affected by numerous cognitive factors, such as memory, attention, executive functions, and perceptual learning. These factors highly impact how learners perceive and process the sounds of the target language.

Working memory is a central cognitive function. It is crucial for perceiving sounds among language learners. Working memory enables learners to temporarily hold and manipulate phonetic information as they process speech sounds and decode linguistic input (Creery, Spratford, Kirby , & Brenan, 2017)Learners with strong working memory capacities may exhibit better performance in discerning and categorising speech sounds, as they can efficiently retain and analyse phonetic features in real time. On the contrary, learners with limited working memory may have trouble in distinguishing phonetic contrasts, affecting their ability to accurately perceive and reproduce the sounds of the new language.

According to (Creery, Spratford, Kirby , & Brenan) one other factor that contributes to sound perception is attention. The ability to focus attention on specific acoustic cues is critical for distinguishing between speech sounds and extracting meaningful linguistic information. Learners with enhanced attentional control can selectively attend to relevant phonetic cues, facilitating the process of mapping new sounds to their corresponding phonological representations. On the other hand, learners with attentional difficulties may struggle to filter out irrelevant noise and distractions, leading to perceptual challenges and difficulties in speech sound identification.

In conclusion, moving attention is vital when learners encounter different dialects or accents within the same language. Shifting attention allows learners to adapt their perception to variations in pronunciation, enabling them to comprehend speech sounds accurately, even when confronted with diverse linguistic patterns (Mishra et al., 2013). For instance, when travelling to different regions where the language is spoken, learners with well-developed shifting

[3] The term sensory processing refers to the way the brain uses sensory information during everyday life situations. It is developed by Jean Ayres in 1960's-1970's

attention can alter their perceptual strategies to hold the local accent and dialect, facilitating effective communication.

Mishra et al. explained that executive functions, encompassing cognitive processes such as inhibition, cognitive flexibility, and planning, also highly contribute to sound perception. These higher-order cognitive functions enable learners to adjust their perceptual strategies, adapt to linguistic contexts, and switch between phonetic categories as needed (2013). Learners with executive solid functions may exhibit greater flexibility in sound perception, allowing them to understand the complexities of diverse linguistic systems quickly. In contrast, learners with weaker executive functions may struggle to adapt their perceptual strategies, leading to perceptual biases and challenges in accurately discriminating between phonetic contrasts. For instance, when learning a new language with complex phonological distinctions, such as the numerous consonant sounds in languages like Arabic or Hindi, learners must use executive functions to plan and execute the precise articulatory movements required for accurate pronunciation. Executive functions help learners inhibit the phonetic patterns of their native language and adopt the phonetic features specific to the new language. Cognitive flexibility enables them to switch between articulatory configurations, adjusting their tongue and lip positions to produce unfamiliar speech sounds.

Sounds perception among language learners is also affected by perceptual learning, a cognitive process that involves improving perceptual skills through practice and exposure. As learners engage with the new language and receive consistent input, their perceptual systems undergo plasticity, refining their ability to distinguish and recognise phonetic distinctions (Archila-Suerte, Bunta, & Hernandez, 2014). For instance, in English, "save" and "safe" are minimal pairs, differing only in the initial consonant sounds /v/ and /f/. The words may initially sound similar or almost identical for language learners unfamiliar with these phonetic distinctions. However, with repeated exposure to the minimal pairs and focused practice, learners' perceptual systems undergo flexibility and start to perceive the differences between the /f/ and /v/ sounds. Perceptual learning enables learners to gradually internalise the sounds of the target language, eventually leading to improved speech perception and production. The extent of perceptual learning differs across individuals, with learners who actively engage with the language and receive extensive exposure likely to demonstrate more substantial improvements in sound perception.

Sound perception among language learners is crucially influenced by cognitive factors such as working memory, attention, executive functions, and perceptual learning. These

cognitive processes play critical roles in how learners perceive and process the sounds of the target language, shaping their ability to achieve fluency and comprehension.

2.7.2 The Significance of Age in Sound Perception

Age plays a significant role in sound perception during language learning and in developing phonological skills among learners. When learners face new language systems, their age influences their ability to perceive and distinguish speech sounds.

One important aspect of age in sound perception is the notion of a critical period for language learning. Research suggests that there may be a biologically determined window during childhood when language learning is most optimal and effortless.Young language learners demonstrate remarkable sensitivity to phonetic contrasts and are adept at acquiring the sound distinctions present in their native language. For instance, young children exposed to multiple languages can effortlessly acquire the phonetic features specific to each language due to their heightened neural plasticity during the critical period. (Ryczkowska, 2023)

According to Ryczkowska, as learners' age, the plasticity of the auditory system gradually diminishes, leading to challenges in perceiving and differentiating unfamiliar speech sounds (p, 141). Adolescents and adults may experience incredible difficulty acquiring sounds that do not exist in their native language as their neural circuits become less resistant to change. This phenomenon highlights the importance of early exposure to new linguistic sounds to optimise phonological development during the critical period.

Moreover, age-related changes in sensory processing mechanisms can also impact sound perception in language learning. As individuals age, there may be a decline in hearing acuity and auditory processing speed, leading to reduced sensitivity to subtle phonetic distinctions (Kim & Oh, 2013). Older language learners may encounter challenges in discriminating speech sounds, especially in noisy environments, which can hinder their ability to perceive and produce sounds in the target language accurately.

However, while age-related changes present particular challenges, older language learners possess cognitive advantages that may offset some of these difficulties. For instance, adult learners typically have well-developed executive functions, which enable them to employ effective strategies in sound discrimination tasks. Their cognitive flexibility allows them to adapt perceptual strategies to accommodate new phonological patterns.

In summary, age crucially influences sound perception in language learning and phonology. The critical period for language learning during childhood presents an optimal time

for effortlessly acquiring phonetic distinctions. At the same time, age-related changes in sensory processing may lead to challenges in perceiving unfamiliar sounds in later years. Nonetheless, adult learners can leverage their cognitive advantages to compensate for some of these difficulties.

2.7.3 Cultural and Individual Variations

The ecological theory of auditory perception states that sound perception is not simply determined by the acoustic properties of the environment but also influenced by cultural and individual factors. Developed by James J. Gibson in the mid-20th century, this theory emphasizes the interplay between an individual's perceptual system and the rich information present in the surrounding auditory environment (Gibson, The Senses Considred as Percetual System, 1966)

Cultural factors are crucial in shaping auditory perception by influencing what individuals attend to and how they interpret sounds. Different cultures may classify specific acoustic indications based on their relevance to their lifestyle and activities. Several studies showed that individuals from rural communities in Japan displayed heightened sensitivity to natural sounds, such as birdsong and flowing water, as these sounds were integral to their daily lives and cultural practices. (Liu, Rigoulot, & Pell, 2015)

Additionally, the soundscape of urban environments can considerably differ between cultures, leading to numerous perceptual adaptations. It is demonstrated that individuals from East Asian cultures exhibited higher tolerance for urban noise due to their experiences with crowded and bustling cityscapes. In contrast, individuals from Western cultures, with quieter urban soundscapes, displayed increased sensitivity to noise disturbances. (Yong & Kang, 2005)

Individual differences influence auditory perception within a cultural context. Age, hearing ability, and past experiences contribute to disimilarities in how individuals perceive and interpret sounds. Aging people, for example, may experience reduced high-frequency hearing sensitivity (Brotto, et al., 2023). affecting their ability to perceive subtle acoustic cues present in the environment. Moreover, the sounds that evoke emotional responses may vary based on personal experiences, leading to distinct interpretations of auditory stimuli (Brotto, et al., 2023)Additionally, individuals with musical training demonstrate enhanced auditory perception due to their extensive exposure to complex sound patterns. This heightened perceptual sensitivity enables musicians to differentiate between subtle acoustic nuances, facilitating their

musical expertise. Conversely, those without musical training may exhibit different perceptual priorities in the auditory environment.

Cultural and individual factors interact dynamically, creating a complex tapestry of auditory perception. Culture shapes individuals' preferences for certain sounds, while individual experiences within that culture further refine their auditory perceptual skills. Individuals who migrated to a new cultural environment displayed shifts in their auditory preferences and sensitivities, reflecting an assimilation of cultural and individual influences.

According to the ecological theory, perception is not a static process but an ongoing interaction between the perceiver and the environment. Thus, cultural and individual variations are integral to this dynamic relationship, leading to distinct auditory experiences and preferences across different populations. The ecological theory of auditory perception highlights the interplay between cultural and individual factors in shaping how individuals perceive and interpret sounds. Cultural variations influence what sounds are salient, while individual experiences refine auditory sensitivities within that cultural context. (Gibson, 2015)

2.8 Cultural Influences on Sound Perception

Culture is a system of shared beliefs, values, norms, behaviours, and symbols transmitted across generations within a specific group or society. It encompasses various aspects of human life, including language, traditions, customs, art, music, religion, and social practices. Culture plays a crucial role in shaping individuals' perceptions, attitudes, and behaviors, as it allows humans to organize social interactions and guide decision-making processes (Matsumoto & Juang, 2016). Moreover, culture serves as a mechanism for social cohesion and identity formation, fostering a sense of belonging and commonality among its members. As a dynamic and evolving entity, culture is continuously influenced by historical, environmental, and sociopolitical factors, making it a key determinant of human diversity and societal dynamics.

Pisoni and Levi state that how individuals perceive and categorize speech sounds in their native language is sensitive to many factors. From an early age, cultural norms, social interactions, and linguistic practices guide perceptual systems (2007). Cultural experiences are in the intricate neural networks responsible for sound perception, resulting in distinct perceptual patterns among linguistic communities. Thus, culture is a dynamic force that shapes the perceptual lens through which individuals interpret and interact with the acoustic world.

2.8.1 The Role of Culture in Shaping Perceptual Systems

Cultural influences on perceptual systems extend beyond individual languages and encompass cross-cultural variations in the perception of speech sounds and phonemes. Phonemes, the minor sound units in a language that carry distinct meanings, are often perceived and produced differently across linguistic communities (Best, 1995). For instance, speakers of some American English varieties pronounce the English phoneme /r/ as a retroflex sound but as a tap or flap sound by speakers from India. These cross-cultural variations reflect the influence of cultural norms and speech communities on phonological categorisation. Such variations in speech sounds are deeply rooted in cultural heritage, shaping how individuals perceive and produce sounds based on their linguistic environment.

Culture influences the perceptual systems of language learners. Creating unique perceptual patterns that differ among linguistic communities. This evident in tonal languages [4]where there is a greater sensitivity to pitch differences as well as in the variations of speech sounds and phonemes across cultures.

2.8.2 Cultural Variation in Speech Sounds and Phonemes

Cultural variations refer to the diverse and distinctive ways cultural groups or societies express, interpret, and enact their beliefs, values, norms, and behaviours (Matsumoto & Juang, 2016) These variations manifest in various aspects of human life, including language, communication styles, social interactions, customs, rituals, and traditions. Cultural variations are deeply rooted in each cultural group's historical, geographic, and socio-political contexts, shaping their unique identities and influencing how individuals perceive and interact with the world. These variations are dynamic and subject to change, reflecting the continuous interplay between cultural heritage and external influences.

Cultural differences might include phonological rules and patterns unique to specific linguistic communities. These phonological rules dictate how speech sounds interact and change in different linguistic contexts, resulting in distinct pronunciation patterns. For instance, the process of assimilation, where a speech sound changes to become more similar to a neighbouring sound, may vary across languages. In some languages, assimilation may lead to sound changes based on the position of neighbouring sounds, resulting in complex and

[4] Tonal languages are languages in which the meaning of a word can change based on the pitch or tone used when pronouncing it. In these languages, different tones can indicate different meanings for the same phonetic sequence.

language-specific phonological patterns. Moreover, the phenomenon of tonal languages, where the pitch of a sound influences its meaning, adds another layer of cultural variation to phonological systems. Tonal languages, such as Mandarin Chinese or Thai, rely on pitch variations to differentiate word meanings, which indicates how cultural influences intertwine with phonological development.

Cultural variation in speech sounds and phonemes is clear evidence of the boundless diversity of languages worldwide. Culture leaves an indelible mark on the phonological systems that define each linguistic community, from unique phonetic distinctions to varying phonological categorizations and complex pronunciation patterns.

2.9 Sound Perception and Language Production

Sound perception and language production are fundamental constituents of the language processing system. These two elements work together to exchange ideas and thoughts through speech. Sound perception is the gateway to language, allowing individuals to detect and analyse the speech sounds that constitute spoken language. Sound perception begins with the auditory system, where the outer ear captures sound waves and transforms them into neural signals processed in the brain (Hickok & Poeppel, 2007). These neural representations of speech sounds lay the groundwork for language production, as they form the auditory templates that guide individuals in producing the appropriate speech sounds when they engage in language output.

In his book Speech Motor Control and Stuttering, Levelt states that the dynamic relationship between sound perception and language production is more conspicuous in the role of phonological representations. Phonological representations, mental representations of speech sounds, and their combination and distribution in language bridge the gap between sound perception and language production (Levelt, 1991). Individuals focus on language production and rely on these phonological representations to access the appropriate speech sounds for producing spoken language. Contrarily, when perceiving speech, these phonological representations serve as templates for interpreting and classifying the speech sounds heard in the acoustic signal. This relationship between sound perception and language production highlights the intertwined nature of these cognitive processes, emphasizing the importance of phonological representations in effective communication.

2.10 Spoken Language Acquisition

According to Chomsky Language acquisition refers to the process through which individuals can understand and use language (Chomsky, 1965). language acquisition is an innate capacity that humans possess, allowing them to acquire and internalise the complex systems of linguistic knowledge. It is a fundamental aspect of human development, shaping communication, cognitive abilities, and social interactions (Skinner, 1957 as cited in (Palmer, 2008). This natural process occurs naturally in childhood, starting from infancy. Children are exposed to linguistic input from their environment and, through observation, imitation, and cognitive processes, continuously acquire the ability to comprehend and produce language (Piaget, 1952, pp. 26-27).

According to Skinner, language acquisition theories provide different perspectives on acquiring language. Behaviourist theories, such as Skinner's operant conditioning theory, emphasise the role of environmental stimuli and reinforcement in shaping language development (1957). In contrast, Chomsky's nativist theory argues that language acquisition is driven by an inborn language acquisition device that enables children to acquire language based on universal grammar principles (Chomsky, 1965). Other theories, like social-interactionist theories, focus on the influence of social interactions, cognitive processes, and cultural factors in language acquisition (Vygotsky, 1997, p. 35)

There are two primary components of language acquisition: receptive language skills and expressive language skills. Receptive language involves understanding spoken or written language, while expressive language involves producing meaningful and grammatically correct utterances (Wallace, 2023). Language acquisition encompasses various linguistic aspects, including phonetics and phonology, the sounds of language, morphology, word structure and formation, syntax, sentence structure and grammar, semantics, the meaning of words and sentences, and pragmatics, the social and cultural use of language.

2.11 Pronunciation Challenges for Foreign Language Learners

The acquisition of pronunciation in a second language is often met with challenges that arise from the sound systems between the learner's native language and the target language (Abdelgane & Idris, 2020). Phonological differences, such as different speech sounds, intonation patterns, and word and sentence stress, can be challenging for learners to produce intelligible speech. For instance, English learners from a language that lacks certain English consonants, such as the /p/ sound in'' public speaking'' may struggle to articulate these

unfamiliar speech sounds, resulting in mispronunciations or substitutions with sounds from their native language such as /b/ and pronounce is as'' public sbeaking''. Additionally, the rhythmic patterns and stress placement in the target language may differ from those in the learners' native language, leading to challenges in achieving natural-sounding speech rhythm. These phonological disparities exemplify the complex nature of acquiring pronunciation and the need for learners to adapt their phonological systems to match the target language.

Psycholinguistic factors also play a crucial role in pronunciation for second language learners. The critical period hypothesis posits an optimal age range during which language acquisition is most efficient (Andrew, 2014). For instance, an adult learner may exhibit a persistent accent, particularly regarding certain vowel sounds and consonant clusters. Beyond this critical period, learners may encounter increased difficulty in acquiring native-like pronunciation as the adaptability that underlies phonological development decreases with age. As a result, adult learners may exhibit persistent accents or deviations in pronunciation, even with dedicated language learning. However, it is important to note that while achieving native-like pronunciation may be challenging for adult learners, effective communication and intelligibility remain attainable goals.

Pronunciation challenges in second language learners are stemmed from phonological, psycholinguistic, and cultural factors. The diverse phonological systems of learners' native languages, the impact of age on pronunciation acquisition, and the influence of sociolinguistic norms all contribute to the complexities of mastering pronunciation in a new language.

2.12 Strategies for Improving Pronunciation

Pronunciation is essential to second language acquisition, as it directly influences effective communication and language proficiency. For foreign language learners, achieving accurate pronunciation can be challenging due to the influence of their native language phonological systems. Several strategies may be used to improve pronunciation proficiency, namely phonological awareness, modelling and mimicking, peer feedback, and self-monitoring.

Phonological awareness is the ability to recognize the individual phonemes in a language. Phonological awareness training is essential in improving pronunciation for second language learners (Munro & Derwing, 2011, p. 480). Educators can implement activities such as minimal pair exercises, where learners distinguish between similar sounds that differ by only one phoneme (e.g., "fat" vs. "vat"), to develop learners' sensitivity to subtle phonetic

distinctions.. Moreover, phonetic training and repetition exercises allow learners to practice and internalize the correct pronunciation of challenging sounds.

Exposure to authentic language input is vital for developing accurate pronunciation. Learners benefit significantly from listening to and mimicking native speakers who model correct pronunciation. Teachers can employ audio materials, authentic conversations, and recordings of native speakers to expose learners to natural speech patterns and intonation. Learners can then imitate these models, focusing on replicating the nuances of pronunciation. By actively engaging in mimicry, learners refine their articulatory skills and gain confidence in producing speech sounds authentically.

In conclusion, pronunciation is vital in language as it directly affects effective communication. Precise and accurate pronunciation ensures that others, fostering meaningful interactions, understand one's message. Proper pronunciation enhances listening skills, enabling learners to comprehend native speakers more easily. However, mastering pronunciation can be challenging for second language learners as many languages have distinct sounds and phonetic variations that may not exist in a learner's native tongue. Despite these challenges, exposure to native speakers and using various language resources can help learners gradually improve their pronunciation skills.

2.13 Conclusion

This chapter shed light on the different theories in sound perception..the complex relationship between sound perception and language acquisition has been carefully. it investigated how individuals perceive and process sounds from childhood to adulthood. Highlighting the close link between the perceptual development and language learning.. By understanding how these processes interact, we can shed light on fundamental questions in linguistics, and cognitive science may enhance individuals' abilities to acquire foreign languages.

CHAPTER THREE

Teaching Arabic As a Foreign Language
TAFL

CHAPTER THREE: TEACHING ARABIC AS A FOREIGN LANGUAGE TAFL

3.1 Introduction

The art of teaching a foreign language can be a complex process that requires a careful balance of linguistic expertise, cultural sensitivity, and innovative teaching strategies. The effective teaching of Arabic as a foreign language necessitates carefully selecting pedagogical approaches, which serve as the core of the teaching process. These approaches are influenced by various factors, including the learners' proficiency levels, motivation, and learning. Furthermore, they are shaped by contemporary educational theories that advocate for learner and communicative language teaching approaches. To that end, this chapter aims to address prominent pedagogical approaches in teaching Arabic as a foreign language and investigate how each approach contributes to the development of Arabic language skills and their compatibility with different learners. Moreover, this chapter will shed light on the strategies used in teaching each language skill to clarify how teachers of Arabic can optimize their teaching strategies for a better learning experience among foreigners.

3.2 The Importance of Learning a Foreign Language

In today's world, the concept of a foreign language has evolved to become an integral component of cultural and educational discourse. A foreign language is typically defined as a language spoken in a region or by a community different from one's own native language (Murphy , et al., 2020).This definition encompasses languages such as French, English, Arabic, and countless others, which may be considered foreign to individuals whose primary language is different**.**

The significance of acquiring a foreign language is immense. Especially in today’s world, which is marked by global connectivity and globalisation. Mastering a foreign language provides a wide range of cognitive, academic, and practical advantages. Krashen argues that acquiring a foreign language enhances cognitive development by promoting critical thinking skills, problem-solving abilities, and broader cultural awareness (1982-2003, p. 122). Additionally, the academic advantages of foreign language acquisition are well documented. Learning a foreign language has been shown to improve overall academic performance and enhance the capacity of multilingual individuals (Stewart, 2005).

the ability to communicate in a foreign language can significantly enhance one's career prospects, as it opens doors to international job opportunities and fosters cross-cultural competence. In addition, foreign language skills can be invaluable in diplomacy, where effective communication with representatives from diverse linguistic backgrounds is essential for successful negotiations (Aljarelah, 2024).

Besides cognitive, academic, and practical benefits, learning a foreign language is fundamental for fostering cultural understanding and citizenship. foreign language education promotes intercultural competence by enabling individuals to engage with people from different backgrounds, ultimately fostering tolerance and respect for diverse perspectives. This cultural awareness is indispensable in an era marked by multiculturalism and international interactions. (Johnson & Hall, 2002),

3.3 Learning Arabic as a Foreign Language

Arabic has become one of the world's most widely spoken languages. With its rich linguistic heritage, diverse dialects, and widespread use across the Middle East and North Africa, Arabic presents an intriguing challenge for language learners (Hakem, 2022). for many foreign learners, Arabic represents a linguistic endeavour, a cultural and historical exploration. Arabic is written from right to left, uses a script with different manuscript, and brags a vocabulary that derives from classical Arabic literature, the Quran, and contemporary dialects. These complexities may have made Arabic an attractive choice for foreign language learning.

According to Busaidim studying Arabic as a foreign language has its challenges. The Arabic script, for example, requires learners to become familiar with a new writing system, which can be tricky (2015, p. 703). Additionally, Arabic dialects vary significantly across regions, challenging learners to communicate effectively in diverse Arabic-speaking communities (Alnosairee & Sartini, 2021)..Despite these obstacles and difficulties, the benefits of personally and professionally investing in Arabic language education make it worthwhile as the world becomes increasingly interconnected.

3.4. Approach, Method, and Technique

Foreign language teaching/learning has always been a history of controversies, debates, and research (Brown H. D., 2007). It is quite common for teachers and researchers to talk randomly about approaches, techniques, and methods without any marked difference between these three terms. In fact, it is of capital importance to set a precise and concise definition for these notions.

3.4.1 Approach

Meliani states that an approach according to Anthony, is the sum of course designers' assumptions about language and language learning. (2007, p. 20). These assumptions cannot be questioned. Additionnaly,an approach is a set of principles, beliefs, or ideas about the nature of learning. It embodies the theoretical principles governing language learning and language teaching.

Meliani classifies some approaches to language teaching/learning as follows

Cognitive learning	→	Burner& Miller
Cognitive-code Learning	→	Chomsky
Behaviourist/Associative Theory	→	Pavlov& Skinner
Expectancy Theory	→	Tolman
Law of Effect	→	Thorndike
Gestalt Theory	→	Ehrenfels, Wertheimer, Kofk &Kohler
Habit Formation	→	Skinner
Verbal Learning	→	Miller, Galanter & Pribham
Train and Error Learning	→	Thorondik
Systematic Drive	→	Hull
Revised Two Factor Theory	→	Mower
Mediation	→	Osgood
Law of Prebnanz	→	Gestal Psychology
Monitor Model	→	Krashen
Natural Order Hypothesis	→	Krashen
Deductive Reasoning	→	Howard
Inductive Learning	→	Howard
Field independence	→	Wilkins

Table III- 1: Tab some approaches to language teaching/learning

According to Melliani in modern language teaching/learning, the numerous approaches existing in the market of pedagogy can be defined and classified under three main headings: the structural approach, the transformational-generative approach and the functional communicative approach.

3.4.2 Method

A method is referred to as the systematic way of doing things. It requires a logical arrangement of steps. It is more procedural. According to Anthony, a method is an overall plan of organizing language material. It is based upon a selected approach. (Richards & Rodgers , Approaches and Methods in Language Teaching, 1986, p. 151).The term method describes the way of presenting language material to students. It deals with the practical side of foreign language teaching. Mackey F.W finds it challenging to define the term Method appropriately. Douglas stated that about 40 years ago Edward Anthony provided a definition that has remarkably endured over time. His idea of a method was the second of three hierarchical components; approach, and technique (Brown H. D., 2007, p. 14)

3.4.3 Technique

A technique in general is a well-defined procedure used to accomplish a particular activity or task. According to Miliani, a technique is the smallest component in conceptual hierarchy. In his book approach, Method and Technique Edward Anthony stated that a technique refers to the actual implementation that occurs in a classroom; it s a specific strategy. Techniques should align with a method and consequently, be in harmony with an approach.

In a summary, one can say that an approach is the first criterion upon which methods are defined, from these latter derive the technique to be used as explained in the following diagram.

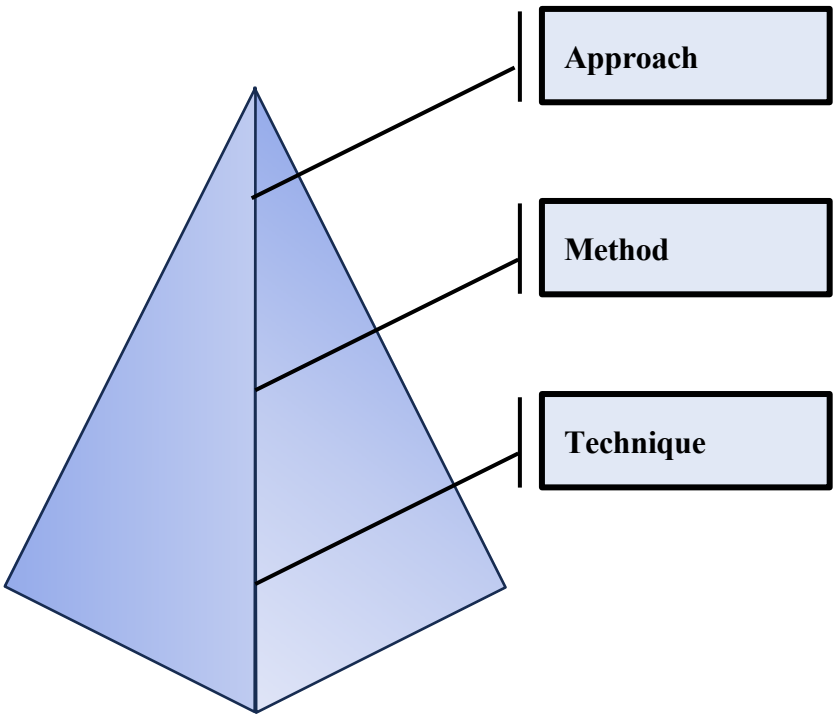


Figure III- 1 : Language Teaching/Learning Approach, Method and Technique Foreign Language

3.5 Current Communicative Approaches to Teaching Arabic as a Foreign Language

Teaching Arabic as a foreign language presents significant challenges. Learners struggle with memorising new sounds and new graphemes, which are essential for pronouncing and recalling the extensive vocabulary. Teaching approaches are different tools teachers use to help students learn effectively and overcome such difficulties. These approaches are methods and strategies that educators use to make learning effective and engaging. (Widdowson, 1990)

There are three main teaching approaches for Arabic: Communicative Language Teaching (CLT), Task-Based Language Teaching (TBLT), and Content-Based Instruction (CBI). These approaches have evolved to teach Arabic while effectively developing critical skills beyond language proficiency.

3.5.1 Communicative Language Teaching

In the communicative language teaching approach, a foreign language is considered a tool of conversation and communication rather than a set of strict grammatical rules (Rabiah, 2012). Interactions among students characterize this approach with language outside the classroom setting. According to Almelhes, the CLT approach differs significantly from traditional language teaching approaches, which aim to conceptualize sentence structure's

grammatical and lexical shape (Almelhes & Alsaiari, 2024). Many researchers stated that the essential precept of the CLT approach is to use natural language in real situations. This develops the ability of the learners to interact more effectively and fluently without hesitation. Under the framework of the CLT approach, grammar must be studied in context to improve understanding (Hedge, 2000). Thamarana (2015)added that CLT has a distinctive range of teaching methods, like engaging cognitive materials, group work, video games, and many other learning strategies.

CLT encourages incorporating cultural elements into language instruction, allowing students to learn about Arabic-speaking communities' customs, traditions, and social norms. This cultural context enhances language comprehension and cultural sensitivity.

While CLT offers numerous benefits in TAFL, it also presents some challenges. One challenge is the need for proficient Arabic teachers who are well-versed in CLT methods (Richards & Rodgers, 2001). Moreover, assessing communicative skills can be more complex than traditional language testing methods, requiring innovative approaches to evaluate students' language abilities. However, despite these challenges, the benefits of CLT in TAFL are significant. It promotes learner motivation, fosters communicative competence, and equips students with valuable language skills for real-life complexities. Furthermore, CLT enhances the cultural aspect of the Arabic language and its cultural context.

3.5.2 Content-Based Instruction (CBI)

Content-based instruction (CBI) is an innovative and practical approach to teaching foreign languages. It emphasizes the integration of language acquisition with subject matter content. According to Leaver & Stryker, the content-based instructional approach achieves language proficiency by shifting the focus of the course from learning the language to learning the subject matter (Leaver & Stryker, 1989, p. 270). In other words, content-based approach refers to the use of the subject matter for foreign language teaching purposes.

Content-based instruction is founded on several fundamental principles that emphasise the integration of language and content instruction, viewing language as a tool for learning rather than an isolated subject. Language is understood in the context of meaningful content, which fosters the development of both linguistic and cognitive skills. Content-based instruction integrates language instruction with subject matter content, enabling learners to explore academic topics while simultaneously developing their skills, with the content serving as a vehicle for language teaching and learning (Villalobos, 2014, p. 77). Additionally, CBI relies on authentic materials such as textbooks, articles and videos relevant to the content area,

exposing learners to real-world language use and disciplinary discourse. This comprehensive approach enhances language proficiency and enriches the learning experience by connecting language learning to practical and engaging content. (British Council, 2021).

Bouhania states that CBI is influenced by the competency based approach which is a teaching method that prepares the learners to better understand the other, also it enhances the teaching input and output (Bouhania, 2019)

Content-based instructions CBI frequently incorporates task-based learning, where learners interact directly with the subject matter.

3.5.3 Task-Based Teaching (TBT)

According to (Richars & Rodgers, 2001, p. 223) task-based language teaching refers to an approach based on the use of tasks as the core unit of instruction in language teaching.

Supporters of task-based teaching argue that the most effective way to teach a language is to engage learners in real language use in the classroom. (Willis & Willis , 2007, p. 1). Task-based teaching[5] is an instructional approach focuses on the use of meaningful tasks as the central component of the teaching/learning process in TBT, learners participate in activities that require them to use the target language to accomplish specific goals or tasks, such as disccussions, problems, games and so on. This approach emphasises real-world communication and practical usage of language, encouraging learners to develop their language skills via interaction and collaboration rather than through traditional learning.

Task-based language teaching (TBLT) has garnered crucial attention since the early 1980s due to its significant influence on the development of the communicative approach. A key reason for this interest is TBLT's emphasis on meaning over form, which is closely associated with authenticity (Yildiz, 2020).

For many reasons, CBI and TBT are particularly relevant in teaching Arabic as a foreign language. Learners of Arabic often encounter difficulties in achieving communicative proficiency. Both approaches facilitate the integration of cultural components into the instructional content, enhancing learners' cultural awareness and contextual comprehension. Both CBI and TBT prove their practical pedagogical approach in TAFL (Halbach, 2002).

[5] Bygate defines a task as an activity which requires learners to use language with more focus on meaning to attain an objective.**Source spécifiée non valide.**

3.6 Teaching Methods

3.6.1 Grammar Translation Method

The grammar translation method (GTM) has long been a prominent approach in teaching Arabic as a foreign language. This method emphasizes learning grammar rules and translation skills as the primary means of language acquisition (Larsen-Freeman, 2000).

GTM gained prominence in the 19th century and was widely adopted in Arabic language classrooms due to its alignment with the scholarly tradition of Arabic grammar. At the heart of this method lies the explicit teaching of grammar rules and vocabulary, focusing on the analysis and translation of texts from Arabic to the native language of learners (Mohn Sham Kamis, et al., 2019)

Despite its historical significance and some clear benefits, GTM has several limitations in teaching Arabic as a foreign language. First, it places minimal emphasis on speaking and listening skills, vital for practical communication (Eisa, 2020)Second, the method's heavy reliance on translation can lead to over-reliance on the native language, hindering the development of fluency in Arabic Furthermore, some learners may find GTM's focus on rote memorization and drills uninspiring (Brown, 2003).

In summary, the grammar-translation method has played a crucial role in teaching Arabic as a foreign language, especially in preserving the language's literary and cultural heritage. However, its limitations in developing oral proficiency and communicative competence cannot be overlooked. Teachers should carefully consider whether GTM aligns with their pedagogical goals and the needs of their students, often opting for a more balanced approach that integrates other contemporary language teaching methods (Richards, 2001).

3.6.2 The Audio-Lingual Method

The Audio-Lingual Method has been a significant approach in teaching languages for many years. It emphasises audio-based drills and pattern repetition to foster language learning (Larsen-Freeman, 2000, p. 35) The audio-lingual method is deeply rooted in behaviourist psychology. It draws on the belief that language learning occurs through habit formation, emphasising stimulus-response conditioning Skinner 1957 as cited in (Larsen-Freeman, 2000) In the context of teaching Arabic as a foreign language, this translates into repetitive drills, where learners of Arabic respond to audio prompts or models, gradually internalising correct language patterns.

The audio-lingual model typically uses intensive listening exercises. Learners are exposed to Arabic language models, often recorded by native speakers, and are expected to mimic the pronunciation and intonation (Lado, 1961). Pieces of training are crucial, where learners repeat sentences or phrases, focusing on correct pronunciation and grammatical structures. The method aims to develop automaticity in language use through extensive practice (Richards & Rodgers , 1986)

One of the advantages of the audio-lingual model in teaching Arabic as a foreign language is its emphasis on accurate pronunciation and intonation. Learners often develop a firm clasp of Arabic's sound system and rhythm. Additionally, the method's structure can provide a sense of security to learners, offering clear, step-by-step progression. The audio-lingual method is particularly effective for teaching language patterns and common expressions.

Despite its effectiveness as a teaching method, the audiolingual method has several limitations. First, it often neglects meaningful communication, focusing primarily on isolated language patterns. Learners may need help to apply what they have learned in real-life situations. Second, the repetitive method may become monotonous and uninspiring for some learners due to its repetitive nature. Furthermore, the process does not encourage creative language use or cultural understanding. (Jenner, 2024)

The audio-lingual method may be an important approach for teaching Arabic as a foreign language, as it is known for its emphasis on accurate pronunciation and structured practice. However, its limitations in promoting meaningful communication and cultural awareness should be considered.

3.7 Other Methods in Teaching Arabic as a Foreign Language ECRIF, PPU, PDP

3.7.1 ECRIF; Encounter, clarify, remember, Internalize. Fluency

They are the five steps that learners of foreign languages go through as they learn new languages. According to AlSaleem, ECRIF is a framework for understanding, learning and looking at how individuals learn instead of describing what teachers should or shouldn’t do. The ECRIF framework focuses on the educational process that students go through while working on the targeted skill or knowledge, rather than concentrating on what the teacher does during the lesson (AlSaleem, 2020, p. 19)

ECRIF is considered as modern theoretical framework that explains the process of understanding language learning and systematically planning language lessons. It aims to evaluate the learners’ relationship with the language and provide appropriate and timely

feedback to ensure the learners' effective use of the target language, this can be achieved through specific and practical teaching framework such as the PPU framework.

ECRIF first emerged in the United States of America,developed by Josh korzweil and Mari Scholl in SIT in 2004-2005. In their book entitled *Understanding Teaching Through Learning* (Proucet, n.d.)This framework has been used in a variety of workshops provided by both governmental and non-governmental organizations. Despite being originally developed for English language teachers, it has also been used with content teachers who teach other subjects such as history and mathematics in addition to vocational education like using computer programs and operating construction equipment.

AlSaleem suggests that teachers can use ECRIF for the following reasons

- Lessom planning and adapting prescribed textbook materials = thinking for action
- Assessing students' level in their educational process during the lesson= thinking in action
- Reflecting on students' learning after the lesson concludes= thinking in action
- Identifying the type of corrective feedback that would benefit the learner (AlSaleem, 2020, p. 35)

The Stages of the ECRIF Framework

3.7.1.1.1 Encounter

The encounter stage in learning is considered the first time the learner encounters consistent or new information. Often, prior preparation occurs through activating the learner's background knowledge or recognizing what they have already known. It occurs when the teacher presents a deductive or inductive presentation, narrating stories with or without clarification, role-playing, images, recordings, etc…

Categorization, enjoyment, and prediction.

3.7.1.1.2 Clarify

It occurs when learners can detect a meaning or pronounce a given word appropriately or when the learner succeeds in producing a well-structured sentence in a given situation. Of course, teachers can help clarify and explain or evaluate their learners' understanding of the subject matter. One way to test students' understanding is comprehension; check questions CCQ.

There are four questions to check the understanding

- the non-verbal confirmation, such as pointing at the supermarket.
- negative and positive, such as Is that the supermarket? Can I buy bread?
- differentiating if I want to buy bread, should I go to the pharmacy or the supermarket
- short answers: what is the name of the local supermarket?

3.7.1.1.3 Remember

It is considered as the first step in introducing new materials to memory. It usually involves repetition, practice and referring back to the supporting material using models and requests. Some typical activities for reinforcement include exercises that rely on repetition and memorization, filling in the blanks, information gaps, research, guessing games and reading texts and dialogues.

3.7.1.1.4 Internalize

When the learners comprehend the material, it is transferred to long-term memory LTM. After grasping the content or information, learners will not need to refer to the supplementary material for recall because they can rely on the information stored in their memory. the type of exercise here differs from the recall stage, as they will be more open and less controlled. At this stage, learners will have more choices in using the information and rely less on external support. Guessing games, information gaps, telling stories, role play, and short answers are typical internalising steps.

F3.7.1.1.5 Fluency

In this stage of learning, learners use new materials and information fluently according to their current understanding and internal assimilation of the content. It is the stage where they freely absorb information and creatively employ the target language in every life situation. some typically fluency-building activities include,

- Guessing games activities that involve guessing or predicting outcomes.
- Tongue twisters pronunciation exercises
- Debates engaging in structured debates on various topics
- Role-playing acting out scenarios or role-playing situations.
- Discussions: participating in discussions and group conversations.

3.7.2 Presentation Practice Use PPU

The PPU framework is considered an applied framework for the theoretical one, ECRIF. It helps in designing speaking, writing, and grammar lessons effectively to create organized and

cohesive lessons that lead to clear and easy achievement of lesson objectives. The letters in this framework represent the three stages that a language lesson goes through for productive skills: presentation, Practice, and use.

In the presentation phase, the teacher plays a significant role, while the student's role is minor. That is, the teacher guides this stage. The teacher takes advantage of the learners' maximum attention span, which extends 10 to 15 minutes. The teacher begins by preparing for the lessons and presenting the lesson's scientific content related to the objectives. Then, the teacher asks a question to ensure understanding of what is known as a comprehension check question CCQ before moving on to the second stage of the lesson, which is the application or practice of the scientific material introduced in the presentation. This is done through various practical activities using the format of individual and pair questions, concluding with exercises within groups in an active atmosphere where the role of the teacher and the student is equal, similar to the TS encoding; this stage also extends for about 10 to 15 minutes. During this time, the student is allowed to apply what they have learned somewhat restrictedly. Afterward, the stage of greater freedom starts, using language through realistic exercises related to the student's life. In these exercises, the student plays a major role, and the role of the teacher diminishes, focusing on management and supervision without interfering with the learner's responses. These roles represent the encoding.

3.7.3 Pre-During –Post-PDP

The PDP pre-during-post framework helps teachers plan and deliver lessons on listening, reading, and viewing. The abbreviation PDP stands for the stages of lesson delivery: before, during, and after the lesson, representing the first letters of ‘’pre’’, ‘’during.’’, and ‘’post‘’. This framework is research-based and ensures that it assists students in being motivated and engaged before, during, and after the lesson.

3.7.3.1 The stages of the PDP framework

The stages of the PDP framework include;

3.7.3.1.1 Pre

This stage aims to prepare students for listening or reading and typically lasts between 7 to 10 minutes. It is essential to start with an engaging introduction to the lesson's topic;

- Discuss their knowledge or experiences related to the listening or reading topic
- Understanding the meaning of keywords in the text

- Comprehend what will be listened to or read in the text before they begin working on it.
- Predict the topic of the text.

3.7.5.1.2 During

The goal is for students to focus their attention on listening or reading the text and completing exercises that gradually enhance and deepen their understanding of the text. The duration here ranges from 25 to 30 minutes, during which the lesson passes through three main phases;

- Adjustment: This phase aims to familiarize the students with the text in general, preparing them for what's to come.
- General information; in this phase, students answer questions related to the text's general information, whether it is heard or read
- Specific information here: Students answer questions requiring detailed knowledge, progressing from more straightforward and general to more complex and specific ones. They may also engage in exercises to improve specific listening and reading skills.

3.7.3.1.3 Post

In this stage, students expand and integrate their understanding and knowledge gained from working on listening or reading texts into other productive skills, such as speaking and writing. The duration here ranges from 7 to 10 minutes.

ECRIF describes the learning process and what students experience as they learn foreign languages. It can be used during lesson planning, provides a basis for assessing learning during a lesson, and can guide and focus reflection on individual student learning. PDP helps teachers plan and deliver effective listening and reading lessons. PPU helps in designing speaking and writing lessons.

3.8 How to Teach the Arabic Language Four Skills

3.8.1 Teaching Listening

Listening in language teaching is crucial for effective communication and language acquisition. It encompasses the capacity to understand spoken language, making it a pivotal component of the four core language skills—listening, speaking, reading, and writing (Hedge, 2000, p. 190) As defined within the language pedagogy context, listening extends beyond mere hearing; it involves active and purposeful engagement with auditory input. Learners must not

only perceive phonetic sounds but also interpret spoken words, phrases, and longer discourse, extracting meaning, context, and subtle nuances from oral communication. This skill is pivotal for language learners as it bridges the gap between passive exposure to a language and active, meaningful engagement in conversational, academic, or professional settings.

In the context of the Arabic language, learners of Arabic must go beyond just recognition of phonetic sounds; they are tasked with interpreting spoken words, phrases, and extended discourse in a language renowned for its regional variations. Successful listening in Arabic involves the extraction of meaning, context, and nuanced cultural implications from oral communication, underscoring its important role in fostering proficiency in both Modern Standard Arabic (MSA) and its various dialects.

3.8.1.1 Authentic Listening Materials

In teaching Arabic as a foreign language, authentic listening materials refer to unmodified, genuine audio or video recordings of native Arabic speakers engaged in real communicative situations. These materials offer learners opportunities to engage with real-world Arabic language usage, enabling them to develop linguistic competence and cultural awareness. (Karma & Muqattash, 2010)

Authentic materials present learners with direct challenges of spoken Arabic. This helps to bridge the gap between classroom instruction and authentic language use. The connection to real-life language is essential for developing listening skills that are not only linguistically accurate but also culturally and contextually appropriate.

Authentic listening materials offer several advantages in teaching Arabic to speakers of other languages. Firstly, these materials expose learners to diverse Arabic accents, dialects, and registers, which prepares them for the linguistic diversity they may encounter in the Arab world. Secondly, authentic materials provide rich cultural elements as they often incorporate cultural references, idiomatic expressions, and non-verbal cues, which eventually contribute to the learners' cultural competency.. Thirdly, they enhance listening comprehension by requiring learners to engage with natural conversation flow and speech rate, and intonation, facilitating the development of genuine listening skills (Ur, 2007, p. 43). However, integrating authentic listening materials into teaching Arabic to foreigners requires careful planning. Teachers must select materials that align with learners' proficiency levels and gradually increase the complexity as learners progress. Providing pre-listening activities to activate learners' prior knowledge and set context is also beneficial, ensuring they are prepared for the listening task.

Additionally, post-listening activities, such as comprehension questions and discussion prompts, help learners reflect on and reinforce their understanding of the content (Richards & Rodgers, 2001).

To sum up, integrating authentic listening materials in teaching Arabic as a foreign language can effectively improve the learners' listening skills as they provide them with real-world language use. Effective use of authentic materials requires considering learners' levels and supporting them with well-structured activities. Authentic materials empower learners to connect with Arabic language and culture meaningfully, bridging the gap between the classroom and the diverse contexts of the Arab-speaking world.

3.8.1.2 Audio Resources and Technology

Audio resources and technology have ushered in a new era of dynamic and interactive listening for teaching Arabic as a foreign language. Technology facilitates repeated exposure and practice, essential to developing listening proficiency.Online platforms offer access to many Arabic audio materials, enabling learners to engage with native speakers, various dialects, and real-world conversations. These materials foster linguistic competence by exposing learners to authentic pronunciation, intonation, and idioms. (Mad Ali & Rizqia, 2024)

Audio technology gives both teachers and learners access to learning and teaching preferences and allows for an individualised learning experience. Learners can select materials that match their proficiency levels and interests, which promotes their motivation and engagement (Richards & Rodgers, 2001). Furthermore, technology enables teachers to track learners' progress, identify areas of difficulty, and provide targeted feedback. This creates a personalised and data-driven approach to teaching listening skills to foreign learners.

Learners may encounter technical difficulties or distractions during online lessons, affecting the learning experience. To mitigate these challenges, teachers should ensure reliable access to technology and provide clear guidelines for online listening tasks. In order to maximize the effectiveness of audio resources and technology, teachers should also employ a pedagogically sound approach (Thrnbury, 1988)This includes integrating pre-listening activities to activate learners' prior knowledge and set context, followed by guided listening tasks and post-listening activities to reinforce comprehension and encourage reflection

3.8.2 Teaching Speaking

Speaking is a fundamental component that signifies the ability to convey thoughts, ideas, and emotions verbally in any language. It involves the production of coherent and

intelligible speech, encompassing pronunciation, fluency, vocabulary usage, and grammatical accuracy. Thornbury states that speaking is so much a part of daily life that we take it for granted (p. 1). Speaking skill is a vital facet of language acquisition as it facilitates communication, and enables learners to engage in conversations and express themselves effectively in diverse conditions.

When it comes to Arabic as a foreign language, teaching speaking must address linguistic proficiency and cultural competency simultaneously. Teachers of Arabic often prioritize Modern Standard Arabic (MSA) alongside colloquial dialects. While MSA serves as the formal, standard, written and media language, learners also require proficiency in a specific dialect, depending on their intended communication context. The pedagogical approach must strike a balance between these two variants, ensuring that learners can communicate effectively in formal and informal settings. A good example of this is the Chinese students who are learning Arabic in Cairo.

Effective teaching of speaking entails cultivating speaking confidence, as learners may initially be hesitant to engage in oral communication due to the perceived complexity of Arabic pronunciation and grammar. Creating a supportive and encouraging classroom environment, incorporating role-play activities, and providing opportunities for authentic conversational practice can foster learners' self-assurance and fluency (Richards & Rodgers, 2001).

3.8.2.1 Conversation and Dialogue Practice

Conversations and dialogues significantly enhance oral proficiency in Arabic, providing learners with practical opportunities to engage in communicative situations. Many Arabic learners usually struggle with pronunciation and listening comprehension due to the language's distinct phonetics and regional variations. Conversational competence enables them to interact fluently and confidently with native speakers and other learners. (Ekawati, Hidayat, & Rosayada, 2024) In the context of Arabic, a language known for its rich vocabulary and complex grammar, conversation and dialogue practice is particularly crucial. It allows learners to apply their knowledge of Arabic vocabulary and grammar rules in authentic, contextualised situations.

Furthermore, conversations and dialogues help learners develop essential language skills, such as listening comprehension and pronunciation. By engaging in meaningful dialogues, learners can improve their ability to understand spoken Arabic and enhance their

speaking fluency. This is crucial, as many Arabic learners often struggle with pronunciation and listening comprehension nuances due to the language's distinct phonetics. (Harmer, 1998, p. 88)

To design effective conversation and dialogue practice activities, drawing on established language acquisition theories and pedagogical frameworks is essential. One such framework is Communicative Language Teaching (CLT), which emphasizes the importance of communication in language learning (Richards & Rodgers, 2001).. In the teaching Arabic as a foreign language, this can be achieved through conversation and dialogue practice, where learners engage in realistic communication scenarios.

conversation and dialogue practice can be achieved by encouraging pair and group conversations to simulate real-life interactions and incorporating role-playing exercises where students take on different personas and engage in dialogues. These activities help learners practice the language in context, build their confidence in using the language, and foster their collaborative learning.

3.8.2.2 Oral Presentation Strategies

Speaking skills are of immense importance in language education. It involves being equipped with various skills. Effective oral communication enables learners to engage in real-life situations and build meaningful connections with other speakers. However, oral presentation skills go beyond just uttering words; they require correct pronunciation, intonation, and the ability to express thoughts coherently (Girard, Pinar, & Trapp, 2011). Thus, effective teaching strategies for speaking Arabic are essential for producing confident and competent language users.

According to (Gurbuz & Cabaroglu, 2021) Designing effective oral presentations involves several key considerations. Firstly, it is important to select topics that resonate with learners and align with their interests and needs to ensure engagement and meaningful language use. Clear guidelines and templates for structuring presentations, including introductions, main points, and conclusions, help learners organise their thoughts and communicate coherently.

Visual aids, such as PowerPoint slides or videos, can improve presentations by supporting content delivery and engaging the audience. Encouraging peer feedback as part of the presentation promotes a collaborative learning environment, allowing learners to receive diverse perspectives and improve their speaking skills. Moreover, creating opportunities for audience interaction, such as question-and-answer sessions or discussions following the presentation, enhances active listening and responsive communication.

Oral presentations represent a strong strategy for teaching speaking skills in Arabic as a foreign language as teachers incorporate clear guidelines, relevant topics, visual aids, peer feedback, and audience engagement opportunities to create a dynamic learning environment that fosters active language use and builds learners' confidence.

3.9 Teaching Reading

Reading is a fundamental skill in language acquisition. It involves decoding written text to derive meaning and comprehension. In language teaching, teachers emphasise the capacity to understand the overall message, infer meanings, and critically analyse the text. Practical reading skills are crucial for language learners as they enable them to access information, expand their vocabulary, and enhance their overall language proficiency. Reading texts provide opportunities for to study language; vocabulary, grammar, punctuation and the way sentences are constructed. (Harmer, 1998, p. 68)

Teaching reading skills typically involves activities that aim to develop learners' reading fluency, comprehension, and critical thinking skills. Additionally, selecting appropriate reading materials, including texts that align with learners' interests and proficiency levels, is essential to engage and motivate students in the reading process

In teaching Arabic as a foreign language, selecting culturally relevant reading materials that expose learners to the diversity of Arabic-speaking societies and their linguistic variations is essential to promote cultural competence, contextual understanding, and language proficiency. Teaching reading to foreigners requires a tailored approach that addresses the Arabic language's unique linguistic and cultural aspects while improving reading proficiency and comprehension skills.

3.9.1 Incorporating Literature in Teaching Reading

Arabic literature offers a significant value of literary works that can engage and captivate language learners. Including Arabic literature in the reading curriculum exposes students to authentic texts and immerses them in the cultural and historical context of the Arabic-speaking world. Literary texts provide learners with a deep understanding of the language, idiomatic expressions, and figurative language, often overlooked in traditional reading materials. Teaching reading using literary materials significantly affects the learners’ linguistic and extra-linguistic competencies. (Haile, Hailu, & Fikadu, 2018).

One of the primary advantages of incorporating Arabic literature is its ability to motivate and engage learners. Whether classical or contemporary, literary works offer compelling

narratives, themes, and characters that pique students' interest and encourage them to read more extensively. By involving themselves in these texts, learners improve their reading skills and gain insights into Arabic-speaking societies' social and cultural aspects.

In summary, Arabic literature can be a powerful tool for teaching reading to foreigners. It enriches language learning by providing authentic, culturally relevant, and engaging reading materials. By integrating literary works into the teaching process, teachers can cultivate language proficiency, cultural awareness, and critical thinking skills in their students.

3.10 Teaching Writing

Writing is an essential skill in language learning and teaching. It is a form of communication that enables learners to articulate their thoughts, ideas, and experiences in written form. Teaching writing involves guiding students through several stages, starting by grasping the structure of texts and progressing to more advanced skills such as coherence and cohesion. Writing in a foreign language is crucial.

Learners may face challenges when teaching writing in Arabic as a foreign language due to the complexity of the Arabic script and the rich cultural context associated with the language. The Arabic script is a cursive script written from right to left, which can be daunting for learners accustomed to left-to-right scripts. Teaching writing requires a focus on the script's form and calligraphic aspects, which include the correct formation of Arabic letters and the varying shapes they take depending on their position in a word. Moreover, teaching writing in Arabic also involves introducing learners to the cultural and social dimensions of Arabic writing, such as using formal and informal registers

3.10.1 Proofreading and Editing Strategies

Effective communication in any language requires proficiency in writing, which also applies to teaching Arabic as a foreign language. Teaching learners how to write, proofread, and edit their written work effectively is imperative to ensure they can express themselves accurately and coherently. (Brown H. D., 2007, p. 394)

Proofreading and editing are integral components of the writing process in any language. For foreign learners of Arabic, these skills are crucial as they help ensure clarity, correctness, and fluency in their written communication. Inaccuracies, grammatical errors, and poor organisation can hinder effective communication, which makes it essential for teachers to emphasise proofreading and editing as part of their teaching process.

Proofreading and editing are vital writing skills. By emphasising these skills and integrating them into teaching through grammar and error analysis, teachers can help learners become writers that are more proficient. This, in turn, will contribute to their overall language proficiency and ability to communicate effectively in Arabic, both in academic and real-world settings.

3.11 Conclusion

In teaching and learning foreign languages, it is essential to acknowledge practical teaching approaches and techniques. The approaches discussed in this chapter demonstrate the importance of a balanced and communicative approach that encourages active engagement with the language. Teaching Arabic as a foreign language may be a challenge for many teachers. The insights provided in this chapter can help Arabic teachers adapt to an effective teaching process.

CHAPTER FOUR

Methodology

CHAPTER FOUR: METHODOLOGY

4.1 Introduction

Research philosophy in an academic work provides a perspective through which it is possible to understand reality. It influences the understanding of the questions, the choice of the appropriate methods, and the interpretation of the findings. Therefore, critical realism as a research philosophy in this study is found fit to unravel the intricacies of Arabic learning for foreigners to apply the principles of both positivism and interpretivism. Positivism enables the researcher to develop knowledge based on the quantitative scientific method to collect data through a questionnaire. The latter helps in building statistical and numerical evidence to understand how foreigners operate in learning Arabic. On the other hand, interpretivism allows the researcher to analyse and interpret qualitative data related to human actions and behaviours subject to the beliefs, norms, and values of the culture of the interviewees.

The purpose of the current study is to investigate the difficulties encountered by speakers of other languages as they learn Arabic as a foreign language mainly the sounds and combination of sounds that represent a difficulty for learners. For that account, this chapter will emphasize describing the methodology and data collection used in this research. It will involve a detailed description of the target population, the tools and instruments used for collecting valid data, obstacles, and limitations. Findings were based on learners of Arabic as a foreign language in different institutions and in different countries such as Jordan, Turkey, and Egypt, and with the cooperation of teachers of Arabic to speakers of other languages from different nationalities and different backgrounds.

4.2 Data Collection Procedure

In order to answer the specified research questions, test the hypothesis, and assess the results, data collection is the act of acquiring and measuring information on variables of interest in a systematic and defined manner (Kabir, 2016). As it ensures that data is gathered consistently and objectively, this method is essential for producing accurate dependable findings. Researchers can lessen the possibility of error and improve the reliability and data generality of their findings by collecting data in a systematic and defined manner. As a result, the collection is essential to the research process since it provides the knowledge needed to respond to the questions and ultimately progress understanding.

4.3 Research Design: Tools and Instruments

The research design process is a systematic and structured approach to conducting research. The process is essential to ensure that the study is valid, reliable, and produces meaningful results. The process of research design is a critical step to ensure that the study is well-planned, ethical, and rigorous. In addition, the research design in academic work is the framework of the methods and techniques chosen by a researcher to conduct a study. In this study, the research topic (foreigners learning Arabic language) explains the researcher's choice to construct a research design based on survey combined with semi-experimental and quantitative research for data collection, measurement, and data analysis.

The complete process of being ready to gather data referred to as instrumentation, commonly known as research tools or instruments. It involves more than just selecting or producing the proper instruments such as surveys and questionnaires for data collection, because it also covers the methods and conditions used to provide these tools to the participants or sources. The researchers must confirm the reliability and credibility of the study sample population (WallenN, 2019, pp. 110-111). In this research, three tools have been carefully selected in order to ensure reliable answers. The first is an interview with teachers and experts in the field of teaching Arabic to speakers of other languages. While the second is, a questionnaire for learners of Arabic as a foreign language in Turkey, Jordan, and Egypt. The third tool is an experiment

The aforementioned three tools help the researcher to accomplish the final goal since they are used as a triangulation approach analysis. According to Noble and-Heale, triangulation is a method used to increase the credibility and validity of the findings in terms of validity and credibility. '*Credibility refers to trustworthiness and how believable a study is, validity is concerned with the extent to which a study accurately reflects or evaluates the concepts or ideas being investigated*' (Heale, June2019). Furthermore, triangulation can enrich the study as it offers a variety of database to explain differing aspects of a phenomenon of interest (Heale, June2019).

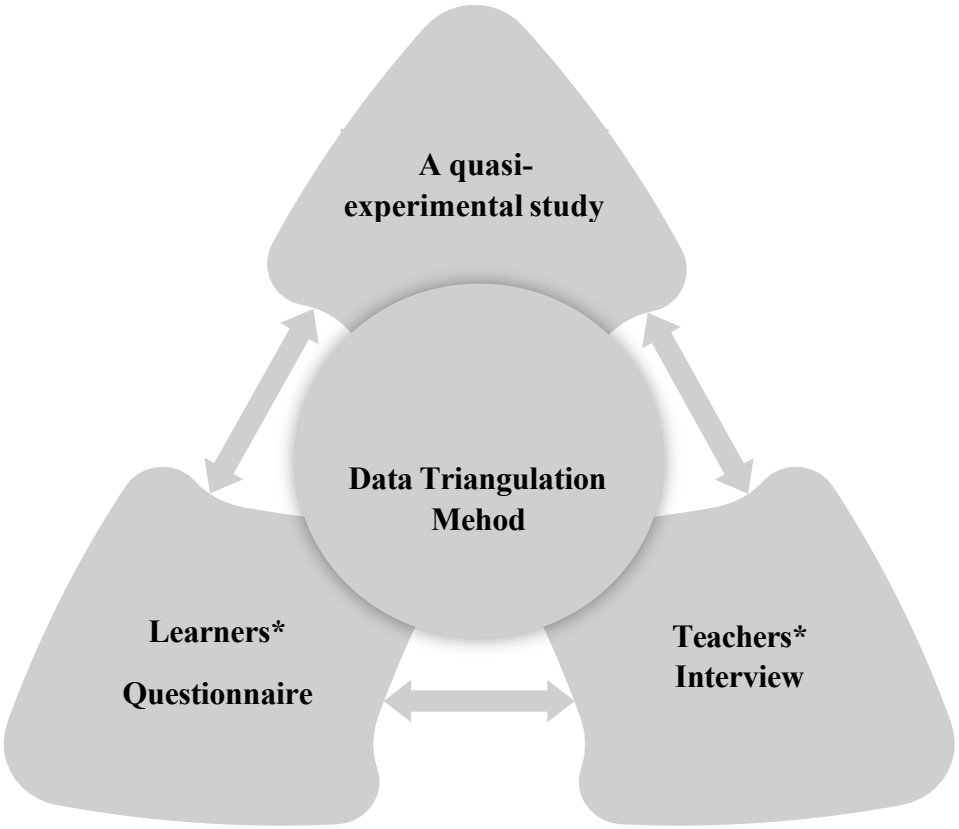


Figure IV- 1 : Methodological Triangulation used in the Research Study

4.4 Target Population

Population is defined as a set or a group of all the units on which the findings of the research are to be applied (Shukla, 2020). Thus, the participants should be attentively selected to determine the interviewees based on the experience, taking into account reaching out to professional experts and individuals with first-hand knowledge. In the present study, the target population is both teachers of Arabic to foreign speakers and learners of Arabic as a foreign language in University of Istanbul, Istanbul Academy, and Marmara University. For the questionnaire the target population is students of Arabic language at the faculty of Arabic at May 29th University in Istanbul. The experiment on the target population is conducted on foreign students at the department of English at Tahri Mohamed University, Bechar.

4.5 Sampling Methods

Since researchers neither have the time nor the resources to analyse the entire population they apply sampling techniques to reduce the number of cases. By definition, sampling is the process of choosing a few people from a larger group of the population to become the basis for estimating the prevalence of information. (Yin, 2002). To answer the research questions in this

study, there is a need to select a sample for study that should stand as a model for generalization. The entire set of cases from which the researcher's sample is drawn is the target population.

4.5.1 Sample selection

Choosing s sample for qualitative research should go under three main stages.

Stage 1: Clearly Define Target Population

The first stage in the sampling process is to clearly define the target population. The population is commonly related to the number of people living in a particular country.

Stage 2: Select Sampling Frame

A sampling frame is a list of the actual cases from which the sample will be drawn. The sampling frame must be representative of the population.

Stage 3: Choose Sampling Technique

Prior to examining the various types of sampling method, it is worth noting what it means, along with reasons why researchers are likely to select a sample. Taking a subset from chosen sampling frame or entire population is called sampling. The latter can be used to make inference about a population or to make generalization in relation to existing theory. In essence, this depends on choice of appropriate techniques. In general, those techniques can be divided into two types:

- Probability or random sampling
- Non- probability or non- random sampling

4.5.2 Stratified random sampling

Stratified sampling is where the population is divided into strata (or subgroups) and a random sample is taken from each subgroup. A subgroup is a natural set of items. Subgroups might be based on company size, gender or occupation (to name but a few). Stratified sampling is often used where there is a great deal of variation within a population. Its purpose is to ensure that every stratum is adequately represented

4.5.2.1 Cluster Sampling

Cluster sampling is where the whole population is divided into clusters or groups. Subsequently, a random sample is taken from these clusters, all of which are used in the final sample. Cluster sampling is advantageous for those researchers whose subjects are fragmented

over large geographical areas as it saves time and money. The stages to cluster sampling can be summarized as follows:

1. Choose cluster grouping for sampling frame, such as type of company or geographical region.
2. Number each of the clusters
3. Select sample using random sampling

Once target population, sampling frame, sampling technique and sample size have been established, the next step is to collect data.

4.5.2.2 Assess Response Rate

Response rate is the number of cases agreeing to take part in the study. These cases are taken from original sample. In reality, most researchers never achieve a 100 percent response rate. Reasons for this might include refusal to respond, ineligibility to respond, inability to respond, or the respondent has been located but researchers are unable to make contact. In sum, response rate is important because each non response is liable to bias the final sample. Clearly defining sample, employing the right sampling technique and generating a large sample, in some respects can help to reduce the likelihood of sample bias.

4.6 The Questionnaire

In his book *Fundamental of Research Methodology and Statistics*, Singh states that a questionnaire is a form which is prepared and distributed for the sake of securing responses (Singh, 2006). The questionnaire is widely used and is a useful instrument for collecting survey data, providing structured, often numerical data, being able to be administered without the presence of the researcher, and often being comparatively straight forward to analyse. (Louis Cohen, 2005)

It is stated that there are many advantages to the practitioner-researcher in administering questionnaires to a class or a group. In the first place, there is an enormous saving in time and possibly also in cost. Secondly, the response rate is almost certainly going to be much higher and the information obtained will be much more representative of the population and is, therefore, likely to be more reliable. Thirdly, if you administer questionnaires (Unknowon, 2005, p. 156). Many researchers consider the questionnaire to be the most flexible of research tools and possess a unique advantage over others in collecting both qualitative and quantitative information.

In the present study, the questionnaire has been designed via Google Docs, a website to create online forms and surveys with multiple question types to analyse results in real-time and from any device. Therefore, an online questionnaire was used. Then, it is posted on the university website so that the target population can access it, even those who are interested in the topic can participate and answer the questions. Thus, it was directed to learners of Arabic as a foreign language at May 29th University in Istanbul, Turkey. Also, students of Arabic language at *ILAHYET* Faculty at Marmara University answered it. It was challenging to motivate them to answer the questionnaire, which was meant to find out:

1. The Arabic sounds represent difficulty to speakers of other languages, that is why the researcher tried to send it to different institutions where learners from different nationalities and different backgrounds are learning Arabic.
2. The position of these sounds in the word i.e. initial, middle, or final.
3. The different combinations of sounds that seem to be challenging for non-speakers of Arabic.

4.6.1 Samples

The samples involved in this study are learners of Arabic as a foreign language. The questionnaire is addressed to learners of Arabic as a foreign language at the faculty of Arabic language at 29th May University in Istanbul. Among 200 students of Arabic, only 50 students accepted to answer it, although it has been sent to them 4 months before.

4.6.2 Description of the Questions

The questionnaire consists of three sections. Section one is designed to collect data about the participants' background including gender, age, nationality, and others. The second section is devoted to investigating the difficulties that learners encounter in terms of sounds syllable words and utterances. The third one is designed to provide solutions and strategies to overcome such difficulties.

In section two, the first question aims at knowing the learners' motives to learn Arabic. In questions two and three, the participants should mention when they started learning Arabic and they also should explain the approach they are using to learn it. Questions four and five are devoted to knowing the rate of learning Arabic weekly and time devoted to the speaking skill.

In question seven, the participants should mention the difficulties faced to understand spoken Arabic; and then some examples of Arabic sounds are mentioned, in question eight, where the participants have to pick the most difficult ones to pronounce in questions eight, nine,

ten, eleven, twelve, thirteen, and fourteen. Whereas in question fifteen, the participants have to state the other particular Arabic speech sounds or phonological features they find hard to differentiate in conversations**.**

Question sixteen aims at knowing the different aspects of Arabic grammar the participants struggle with while speaking. In the following question, they should explain how they feel about using Arabic gender and number agreement in speech. In questions eighteen and nineteen, the participants should mention the obstacles and challenges they face while forming complex sentences

Section Three is devoted to some solutions. In questions twenty and twenty-one, the participants state the strategies and the best techniques that may help them overcome the difficulties they are facing while producing the Arabic language**.**

In question twenty-two, the participants express their opinions concerning the relationship between Arabic pronunciation and language proficiency. In question twenty-three, they also have to share their experiences.

4.7 The Interviews

Interviews are fundamental components of qualitative research. In the field of social sciences, they are significant methodological tools for data collection and analysis, as they make it possible for researchers to gather in-depth information and explore complex phenomena by collecting data about the perspectives of the participants. Their exploration in research is essential for understanding their utility and relevance in both exploratory and explanatory research studies (Sutton & Austin , 2015).

Interviews can be categorized into numerous l types based on their structure, purpose, and method of administration such as structured, semi-structured, and unstructured interviews. The structured ones follow a predetermined set of questions, with limited flexibility for deviation, and are often used for quantitative research. (Nebbou, 2022). According to Nebbou the semi-structured ones, on the other hand, offer a balance between predetermined questions and the freedom to explore emergent themes, making them well-suited for qualitative research The unstructured ones are characterized by open-ended questions and a more conversational approach, enabling participants to express their thoughts more freely (Rubin & Rubin, 2019). The choice of interview type depends on the research objectives and the level of flexibility required in data collection.

Rubin state that in qualitative research, interviews play an important role in exploring complex social phenomena and uncovering the subjective experiences of participants. They allow researchers to probe deeply into individuals' thoughts, emotions, and experiences, which provides rich data They are particularly valuable for generating in-depth insights, developing theories, and exploring issues where limited prior knowledge exists. Researchers can use open-ended questions to elicit detailed narratives, personal stories, and perspectives, which contribute to a holistic understanding of the research topic.

The analysis of interview data is a critical phase in qualitative research. Researchers employ various techniques, such as thematic analysis, content analysis, or grounded theory, to identify patterns, themes, and categories within the data. Coding and constant comparison are common strategies for making sense of the collected information and ensuring rigor in data analysis Researchers must maintain a reflexive approach, acknowledging their own biases and preconceptions during the analysis process (Nebbou, 2022)

4.7.1 Face-to-face Interviews

Face-to-face interviews are the most frequently used technique. They enable attention to be paid to non-verbal behaviour and establish a rapport over an extended period since the researcher and respondents meet together. Face-to-face or personal interviews are very labour intensive, but can be the best way to collect high-quality data. They are preferable when the subject matter is compassionate, if the questions are very complex or if the interview is likely lengthy. Interviewing skills are dealt with in more detail later in this chapter.

Compared to other methods of data collection, face-to-face interviewing offers a greater degree of flexibility. A skilled interviewer can explain the purpose of the interview and encourage potential respondents to co-operate; they can also clarify questions, correct misunderstandings, offer prompts, probe responses and follow up on new ideas in a way that is just not possible with other methods.

4.7.2 Analysis of Interview Data

Although there are various methods for analysing qualitative data, the approach adopted for this study was thematic analysis which is one of the most used data analysis techniques in recent research. According to Braun and Clarke (2006), thematic analysis is a method used to identify, analyze, and report patterns within data. This approach was chosen because it complemented the research questions by carefully investigating the interviews' records. It is

important to mention that the process followed in this research is the processes outlined by Thomas's (2003) five-step procedures

Phase 1: Forming the raw data files

Phase 2: Close reading to the data

Phase 3: Creating codes and categories

Phase 4: Overlapping the created coding

Phase 5: Revision of categories

Phase one and two helped in getting familiar with the data. These two phases began from the time the data collection stage started till the transcription of the collected documents. They were initialised with transcribing the teachers' recording interviews. The researchers listened to the recording of the three respondents many times for full transcription. The teachers' spoken English was transcribed accurately. Accordingly, the researcher has read all the transcripts at different times to be familiar with the data thoroughly and have some initial notes on the teachers' comments. Microsoft Word Office was used for interview transcripts.

NVivo software was used for interview analysis to manage the data more efficiently. NVivo, as a computer-assisted qualitative data analysis programme was used to support a smooth analysis of the recorded data (Peters & Wester, 2007). Furthermore, the programme gives the researcher extra time. It is pertinent to note that each question was clustered together based on their similar meaning in order to expedite the coding process. Each produced code is displayed with the gathered questions beneath.

Codes	Questions
Teaching experience	1-What degree do you hold? 2-How old are you? 3-How many years have you been teaching Arabic as a foreign language? 4-Why did you choose teaching Arabic as a foreign language? 5-What are the levels of language proficiency that you teach at university?
Teaching international students	1- What nationalities do your students have? 2- What is the ages range of the students that you teach? 3- How many hours per week do the foreign students study Arabic? 4- Why do foreign students tend to choose learning Arabic? 5- How motivated are the foreign learners to learn Arabic?
Speaking teaching practices	1-How many hours are assigned for the speaking skill?
Speaking/ pronunciations errors	1- What are the common errors that are noticed among your students in speaking? 2- What do you think are the causes behind these errors? 3- How do you often work on overcoming these errors?
Evaluation of students' language proficiency	1- How do you assess the proficiency level of your students in Arabic before starting their classes? 2- How do you evaluate the progress of your students' language proficiency?

Table IV- 1 : Codes and Questions

Phase three and four helped in understanding the transcribed data, all the three teachers' transcripts were uploaded to the NVivo software for initial coding in an NVivo file named "Teachers' Interviews". NVivo was timesaving and helped in organising the data for an easy analysis. Documents were organised based on the teacher' number, starting from one to three. The coding process was guided by the interview schedule questions. Having a fixed coding system was not easy, the researcher kept moving back and forth, reading the NVivo sheet and changing or re-coding again and again. Codes were ordered into a hierarchical structure. Codes that have common idea were kept in groups to make the process of searching for themes easier.

Phase five helped in reviewing the codes. The researcher worked on relating themes to the same network. Therefore, all the codes were clustered under three top-level themes within five sub-themes. Therefore, when naming the themes, it was essential to look at the critical elements in each of the five sub-themes. Thus, the two top-level themes were named: teaching Arabic as a foreign language and skills of language learning.

4.7.3 Teachers' Interviews

Face-to-face interview used in this study was conducted with three expert teachers of Arabic. The participants were asked a series of questions regarding their valuable experience in the field of teaching Arabic to speakers of other languages. It was very important for the 4researcher to include teachers of Arabic in this investigation because they are considered an essential element in the process of teaching and learning Arabic.

The three selected teachers for the interview showed valuable skills and experience since they taught different students from different nationalities and backgrounds. Therefore, the aim behind referring to the teachers is to have an overall view on the teaching process and to collect more data on the pedagogical decisions and considerations made by teachers in adapting their instruction to meet the diverse needs of their learners.

The interview questions were originally designed by the researcher to elicit detailed information about the participants' perspectives on teaching Arabic to foreign learners. The questions aimed to investigate all the details, challenges, strategies, and effective methods and techniques related to teaching Arabic to foreigners.

The first interview was with Mr. Wael Shawki Abdel Magid Hussein who is a lecturer at Marmara University in Istanbul, Turkey. He previously taught at Al-Azhar University, and Zayed Centre for Teaching Arabic to Non-Native Speakers. Mr. Wael has conducted numerous training courses for Arabic teachers for non-native speakers, totalling over twenty courses. He

has also participated in developing Arabic language curriculum for Marmara University. The interview was held at Marmara University's Faculty of Theology, Arabic Department, on March 15th at 2 PM. Mr. Wael provided the researcher with helpful data regarding his 27-year experience teaching Arabic, as well as the common difficulties faced by foreigners when learning Arabic as a foreign language.

The second interview with Mr. Ahmed Rohbane was conducted at Istanbul Academy's Arabic Department on March 18th at 1 PM. Mr. Rohbane is a lecturer at Ibn Khaldun University, he has pursued advanced degrees in Arabic language education, including a Ph.D. in teaching Arabic to non-native speakers. He also has a strong academic background with distinctions in their master's degree and has experience in foreign language instruction. Mr. Rohbane shared his experience of teaching Arabic to students with diverse linguistic backgrounds and the difficulties they often face as foreign learners of the Arabic language.

The third interview with Mr. Bilal Dabecha took place at May 29th Istanbul University on March 19th at 9 AM. Mr. Dabecha has a great experience in teaching Arabic, initially in Egyptian schools and later specializing in teaching Arabic to non-native speakers. He has developed educational games, conducted teacher qualification courses, and taught in various countries, catering to diverse nationalities. Mr. Dabecha shared his experiences of teaching Arabic to a wide range of students, which was crucial in gathering the data for this study.

4.7.3.1 Teachers' Interview Description

The interview was delivered as a list of questions asked face-to-face to the participants. The interview is divided into three sections. The first section is composed of four questions related to the teachers' general information such as their degree and years of experience as teachers. The second section contains seven questions that focus on the background of the foreign learners, the university's teaching system, and assessment methods, with a specific emphasis on phonological aspects. Finally, the third section consists of five questions regarding the students' motivation towards learning Arabic, the common phonological errors they encounter and the causes behind them, and the strategies employed by the teachers to address and overcome these errors.

4.7.1.3.1 First Section of Questions:

- The first question in the first section is **“What degree do you hold?”**
- This question aims to gather information about the academic qualifications of the interviewed teachers, their educational backgrounds, and their expertise in the field of teaching.
- The second question is **“How old are you?”**
- This question aims to collect information to understand how their age might relate to their teaching methods, experience, and perspectives on teaching Arabic to foreigners.
- The third question is **“How long have you been teaching Arabic as a foreign language?”**

This question intends to know the extent of the interviewed teachers' experience in teaching in Arabic as a foreign language. By knowing their years of teaching experience, this question aimed to provide context for assessing their proficiency in addressing the difficulties that foreign learners often face.

- The fourth question is “**Why did you choose to teach Arabic as a foreign language?”**

This question seeks to explore the motivations and reasons that led the interviewed teachers to choose a career in teaching Arabic as a foreign language. This inquiry tends to uncover the personal and professional factors that have shaped their commitment to teaching Arabic to non-native speakers, shedding light on their dedication and passion for this field of education.

4.7.1.3.2 Second Section of Questions

- The first question of the second section is **“What nationalities do your students have?”**

This question investigates the diversity of nationalities among the students taught by the teachers. This information helps to know the range of linguistic backgrounds and potential challenges faced by students and to further investigate phonological difficulties experienced by students from different linguistic backgrounds.

- The second question is **“What is the age range of the students that you teach?”**

This question intends to consider the age-related factors that may influence phonological challenges among foreign learners.

- The third question is **“What are the levels of language proficiency that you teach at university?”**

The aim of this question is to find out what different levels of Arabic language skills the teachers teach at the university. This helps to understand how advanced or beginner the students are and how their phonology difficulties might differ based on their skill level.

- The fourth question is **“How do you assess the proficiency level of your students before starting their classes?”**

This inquiry seeks to discover the strategies used in testing the learners' language abilities.

- The fifth question is **“How do you evaluate the progress of your students' language proficiency?”**

This question seeks to discover the methods and criteria used by the teachers to assess and measure the progress of their students' language proficiency. Understanding how progress is assessed might help to understand how phonological challenges may be addressed as students advance in their learning process.

- The sixth question is **“How many hours per week do the foreign students study Arabic?”**

This question aims to understand the intensity of language and the potential impact on the learners' ability to grasp linguistic aspects effectively within their learning schedules.

- The seventh question is **“How many hours are allocated for the speaking skill?”**

The aim of this question is to find out how much time is set for students to practice speaking and improve their Arabic pronunciation. This helps to understand how much importance is given to the speaking skill in their classes.

4.7.1.3.3 Third Section of the Questions

- The first question of the third section is **“Why do foreign learners tend to choose to learn Arabic?”**

This question sought to investigate the reasons foreign learners learn Arabic, which might help to relate the extent of their commitment to the phonological challenges that they face.

- The second question is **“How motivated are the foreign learners to learn Arabic?”**

This question focuses on the level of motivation among foreign learners who are learning Arabic. This question seeks to assess the students' enthusiasm and commitment to learning Arabic and the direct relationship with the difficulties that they often face.

- The third question is **“What are the common errors that are noticed among your students in speaking?”**

This question aims to investigate the common phonological difficulties that foreign learners usually face when speaking Arabic.

- The fourth question is **“What do you think are the causes behind these errors?”**

This question intends to discover the factors that teachers believe contribute to their students' phonological errors. By investigating the perceived causes behind these errors, this question seeks to uncover the underlying reasons, which could be linguistic, cultural, or pedagogical.

- The fifth question is **“How do you often work on overcoming these errors?”**

This question seeks to gather information about the teachers' methods, strategies, and techniques to help students overcome their common phonological errors. This question seeks to know the most effective interventions that can address these phonological difficulties effectively.

4.8 The Experiment

According to Singh, the experiment method is the most useful and sophisticated way of research particularly in sciences. In this way, the researcher can study variables by controlling the ones that affect them. When certain variables can be controlled or manipulated directly in a research problem by the investigator, the research procedure is often described as an experiment. Thus, in an experiment, we observe and measure the effect of treatment given to few variables by controlling the other that affect our observations. The term “treatment” refers to a particular experimental condition. The material to which the treatment is applied and on which the variable under study is measured is known as an experimental unit. Since not all variables can be controlled, it may cause the error in our observations labeled the experimental error. The whole experiment is conducted according to some plan, which is called the design of the experiment or experimental design (Singh, 2006).

4.8.1 Description of the Experiment

The researcher took part in a two-month course called "The Preparation Course for Teachers of the Arabic Language to Speakers of Other Languages" under the direction of a TAFL (Teaching of Arabic as a Foreign Language) professor with 20 years of expertise in the field of teaching Arabic to speakers of other languages to obtain specific and trustworthy results. The program was entirely practical and covered the fundamentals of lesson preparation for beginners, intermediates, and advanced students. The researcher created more than 20 lessons for various levels to be covered in this course. The course supervisor assessed and revised these lessons. In addition, the researcher taught numerous international students from Pakistan, France, and other countries online. The researcher gained new abilities, strategies, and approaches for methodical and well-organized Arabic instruction to non-native speakers through this hands-on training.

Following two months of intense training, the researcher created her course. The researcher took the initiative to teach Arabic to foreign students at Tahri Mohamed University Bechar after finding it extremely difficult to locate institutions and organizations in Algeria that teach the language to speakers of other languages. Ten students of English language from Mali took part in the experiment.

The four-month experiment began on September 1, 2023, and ended on December 31. For four months, Arabic sessions were held twice a week for Malian students. By analyzing the student's performance throughout the learning process, the researcher identified every Arabic sound that poses a challenge for international learners to pronounce. Additionally, the researcher employed these sounds in initial, middle, and final position in selected words.

In the second section of the experiment, the researcher compiled all the sounds that would be challenging for foreign students to pronounce, employed them in words, and created a lengthy conversation between various characters using those sounds. The researcher planned for sounds to be used repeatedly in various positions.

4.8.2 The Experiment Procedure

The main aim of the study is to investigate the difficult sounds and combination of sounds that represent difficulty in pronunciation for learners of Arabic as a foreign language, thus the most effective and appropriate method in this study is acoustic recordings. Held with an equipped material magneto phone, an audio tape recorder also known as a tape deck, tape

player, or tape machine, or simply a tape recorder, is a sound recording and reproduction device that records and plays back sounds usually using magnetic tape for storage.

The purpose of the recordings is to capture the best possible signal. Much of the success of a speech recording depends on the recording environment and microphone placement. Ideally, speech recordings should take place in soundproof studios or labs. If those are not available, one should try to find a relatively quiet room with as little low-frequency noise as possible (Plicha, 2002). Acoustic recordings are a useful and non-intrusive method for learning about a variety of speech-related topics.

4.8.2.1 PRAAT Software Method

PRAAT is a software package for phonetic and acoustic analysis toolkit written and maintained by Paul Boersma and David Weenink of the University of Amsterdam. Available for free, with open-source code, there is simply no better package for linguists to use in analyzing speech (Styler, 2023). It is a very flexible tool to do speech analysis. In his article PRAAT Manual, Styler explains the different steps of using the PRAAT for phonetic studies stating that to use app0ropriately PRAAT software one should:

1. Attach the headset's microphone to the computer's back using the pink socket.
2. Click the symbol to open PRAAT
3. Click on New in the PRAAT objects box and select "Record mono Sound" or "Record stereo Sound."

The spectrogram will be displayed at the bottom and the voice waveform at the top. The vertical axis of the speech waveform indicates the loudness and the horizontal axis of the recording's duration, respectively. The energy at each frequency (**vertical axis**) and time (**horizontal axis**) is represented by a grey or black shade in the spectrogram. You can also select to see the utterance's pitch curve (blue line) when you click on the "Pitch" button in the window's top bar. The precise pitch height (in hertz) can be viewed on the right by clicking on any area of the blue line (Gut, january2008). as shown in the diagram below.

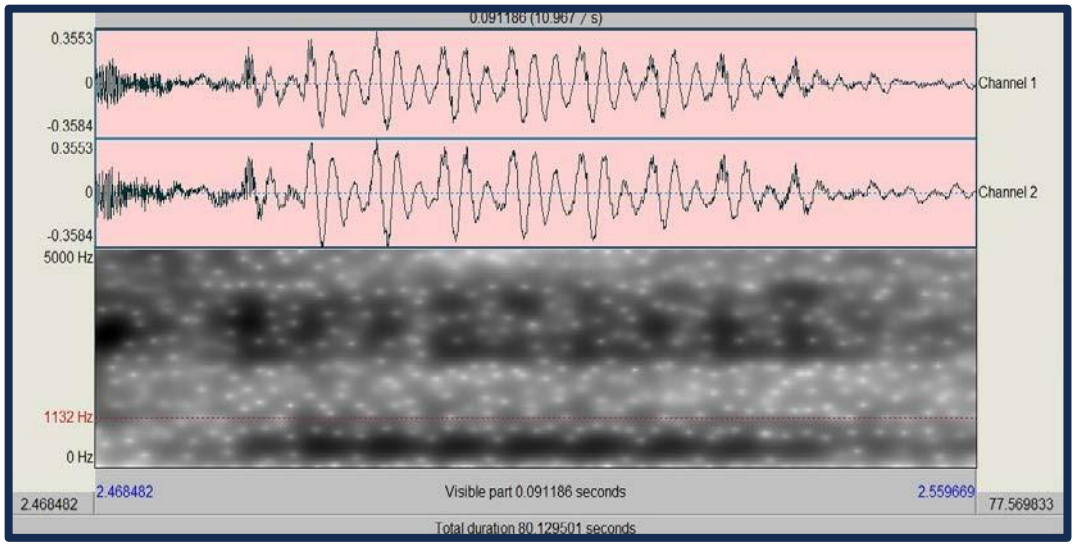


Figure IV- 2 : Spectrogram Using PRAAT

4.9 Description of the Recordings

Foreign students are asked to join the researcher at the head of the English department office to be recorded for the sake of silence. Thus, each participant was asked to sit in front of the researcher and read the already-printed conversation. Along with all these six participants a native speaker, an expert teacher of Arabic from the department of Arabic, was also chosen to take part in the experiment to be used as a typical reference when comparing foreign language performance to modern standard Arabic.

Students are asked to read the following conversation. Words in this conversation are carefully selected as explained above.

	عادل: السلام عليكم. عدت من العمل مع عمتي عبلة علي: و عليكم السلام علمت ذلك عندما عايدتها.
ح	حسام. كانت رحلة مفرحة الى البحر البارحة. حبيب. حضر كل المحامين و المحاسبين.
ظ	ظافر. ظهر ظبي عند الظهيرة. مظهر. منظر ظريف
ق	قمر التقيت قريبتي قرب محطة القطار عقيلة. كانت قريبة من القصر
خ	خالد. اخذت الخوذة و بعض الخوخ خولة. لا تخف. خالك خليل سيرافقك.
ص	صابرين. اصبر. الصيد يتطلب صبرا صابر. صدقتي. اريد مصاصة
ه	هدي هذا شهر الهدايا ها رون. نعم اشتريت منبها اهديه ل مهند
ط	طارق. متى تحط الطائرة مصطفئ. لا ادري انا في محطة القطار
ض	ضرار. ضاع رضيع من امه البارحة. ضرغام. كنت هناك اطارد ضفدعا اخضر

Table IV- 2 : Emphatic Sounds in Different Positions

The same procedure was carried out with the native speaker.

4.9.1 Analysis of the Recordings

The process of analysis is done at two levels

Articulatory: The researcher will transcribe phonetically the whole dialogue as it is said by the native speaker as a standard reference, and by each of the participants with mentioning all the mispronounced sounds, as shown in the table below.

Sound	Initial	Middle	Final
ط	طارق	محطة	تحط
ع	عادل	معمل العمل	مع رجع
ح	حبيب	بحر	مفرح
ظ	ظافر	منظر	لاحظ
ق	قمر	عقيلة بقرة	سباق
خ	خالد	تخف	خوخ
ص	صابر	مصاصة	قصص
ه	هارون	شهر	منبه
ض	ضرار	رضيع	ارض

Table IV- 3 : arabic sounds in different positions in the words

Acoustically: the researcher will attentively select words that contain the difficult sounds in different positions initial, middle and final, and will make another recording of participant

Using the PRAAT software we can measure the acoustic properties of the sound such as frequency, pitch, length and other formants the spectrogram below shows the different properties of the sound. The same procedure was taken out with the native speaker. Then the researcher compares the pitch of the sounds in different positions with the pitch of the native speaker. The numbers in red in the spectrogram below show the pitch in the initial, middle, and final positions.

4.10 Conclusion

This chapter provided an overview of the research tools and methods used in collecting data. It gives an account of the teachers' interview and the learners' questionnaire to get a sense of what they, both, think about the challenging sounds that speakers of other languages find challenging when learning Arabic as a foreign language. The researcher used an experiment as a third tool to check the teachers' interviews and the learners' questionnaire findings and to give more credibility to the study. The use of different tools and materials has been very rewarding to the study.

CHAPTER FIVE

DATA ANALYSIS

CHAPTER FIVE : DATA ANALYSIS

5.1 Introduction

This chapter is divided into two sections: the analysis of the teachers' interviews and the learners' questionnaire. The first section presents the findings from the NVivo analysis of the teachers' interviews. The second section provides descriptive data on the learners' utterances and involvement through the analysis of the questionnaire.

5.2 Teachers' Interview Analysis

This section addresses the result of structured face-to-face interviews with international teachers who teach Arabic as a foreign language at different universities in Turkey. The sample is composed of three face-to-face interviews in total. Each teacher had an interview at the time and place they chose. This report addresses teachers by their actual names (Mr. Wael Shawki, Mr. Ahmed Rohbane, and Mr. Bilal Dabecha).

The interview schedule was designed to explore the following theoretical constructs:

-Is understanding the sounds that represent a difficulty for learners of Arabic as a foreign language difficult?

These theoretical constructs will help in answering the following research questions:

- Which effective methods should teachers of Arabic to speakers of other languages to overcome the difficulties that their learners face?

As described in Chapter Four, the interview schedule is divided into three sections. The first part primarily addressed teachers' personal information (age, degree, and teaching experience). The second section's questions were more thorough, focusing on how teachers evaluate their students' Arabic levels and language proficiency. The final section focused on the students' errors and the teachers' assessment strategies. The data analysis will be presented in sectional format. The first section's questions will be examined individually. However, the remaining sections were analysed using a thematic analysis of the collected data following a coding system. The purpose of applying this form of analysis is based on clustering the data into themes and patterns, which assists in organising the data.

It is important to define the terms Nvivo, code, and coding in this section. Based on the literature, NVivo is a software programme designed for qualitative and mixed-method research. It is specifically used to analyse unstructured text, audio, video, and picture data, such as

interviews, focus groups, surveys, social media posts, and journal articles. According to Allsop, D. B., Chelladurai, J. M., Kimball, E. R., Marks, L. D., & Hendricks, J. J (2022, p. 2), the term code is "A meaningful word or phrase which represents and conveys the messages and meanings of participant words". However, word coding is a methodical technique of searching through data to locate and assign codes to participants' words. Based on these definitions, this study will conduct a theme analysis using the NVivo software and a systematic coding procedure.

5.3 Analysis of Interview Data

Although there are various methods for analysing qualitative data, the approach adopted for this study was thematic analysis, one of the most used data analysis techniques in recent research. According to Braun and Clarke, thematic analysis is a method used to identify, analyse, and report patterns (themes) within data (2006). This approach was chosen because it complemented the research questions by carefully investigating the interviews' records. It is essential to mention that the process followed in this research is the processes outlined by Thomas's (2003) five-step procedures.

Phase 1: Forming the raw data files

Phase 2: Close reading of the data

Phase 3: Creating codes and categories

Phase 4: Overlapping the created coding

Phase 5: Revision of categories

Phases one and two helped in getting familiar with the data. These two phases began from the time the data collection stage started till the transcription of the collected documents. They were initialised with transcribing the teachers' recording interviews. The researcher listened to the recording of the three respondents many times for full transcription. The teachers' spoken English was transcribed accurately. Accordingly, the researcher has read all the transcripts at different times to be familiar with the data thoroughly and have some initial notes on the teachers' comments. Microsoft Word Office was used for interview transcripts. NVivo software was used for interview analysis to manage the data more efficiently. NVivo, as a computer-assisted qualitative data analysis programme was used to support a smooth analysis of the recorded data (Peters & Wester, 2007)This program gave the researcher extra time in managing, organizing, and structuring the data. It is pertinent to note that each question was

clustered together based on their similar meaning in order to expedite the coding process. Each produced code is displayed with the gathered questions beneath.

Codes	Questions
Teaching experience	1-What degree do you hold? 2-How old are you? 3-How many years have you been teaching Arabic as a foreign language? 4-Why did you choose the field of teaching Arabic as a foreign language? 5-What are the levels of language proficiency that you teach at university?
Teaching international students	1- What nationalities do your students have? 2- What is the age range of the students that you teach? 3- How many hours per week do the foreign students study Arabic? 4- Why do foreign students tend to choose learning Arabic? 5- How motivated are the foreign learners to learn Arabic?
Speaking teaching practices	1-How many hours are assigned for the speaking skill?
Speaking/ pronunciations errors	1- What are the common errors that are noticed among your students in speaking? 2- What do you think are the causes behind these errors? 3- How do you often work on overcoming these errors?
Evaluation of students' language proficiency	1- How do you assess the proficiency level of your students in Arabic before starting their classes? 2- How do you evaluate the progress of your students' language proficiency?

Table V- 1 : Codes and Questions

Table I- 21 : 1Codes and Questions

Phase three and four helped in understanding the transcribed data, all the three teachers' transcripts were uploaded to the NVivo software for initial coding in an NVivo file named "Teachers' Interviews". NVivo was time-saving and helped in organising the data for an easy analysis. The documents were organised based on the teacher' number, starting from one to three. The coding process was guided by the interview schedule questions. Having a fixed coding system was not easy, the researcher kept moving back and forth, reading the NVivo sheet and changing or re-coding again and again. Codes were ordered into a hierarchical structure. Codes that have common idea were kept in groups to make the process of searching for themes easier.

Phase five helped in reviewing the codes. The researcher worked on relating themes to the same network. Therefore, all the codes were clustered under three top-level themes within five sub-themes. Therefore, when naming the themes, it was essential to look at the critical elements in each of the five sub-themes. Thus, the two top-level themes were named: teaching Arabic as a foreign language and skills of language learning.

5.4 Teachers' Profile

This section addresses each of the three teachers as an individual case. The questions in the first section of the interview schedule assisted in developing a brief profile of each of the participating teachers. As a result, the data from the initial section is displayed under the term "Teachers' Profile". It is critical to note that the teachers appear to not respond to all of the questions. This section will inform the answer to the following questions from the interview schedule:

1. What degree do you hold?
2. How old are you?
3. How many years have you been teaching Arabic as a foreign language?
4. Why did you choose teaching Arabic as a foreign language?

5.4.1 Mr. Wael Shawki

The first interviewee was Mr. Wael Shawki from Egypt. At the time of the interview, the teacher was 47 years old. He was interviewed from 2 pm to 5 pm at his office at Marmara University, Faculty of Theology, Istanbul in Turkey. Following a series of inquiries, the professional teacher shared useful insights from his long expertise. He stated that he had a magister's degree and has been teaching Arabic to international students for more than 27 years.

5.4.2 Mr. Ahmed Rohbane

Mr. Ahmed Rohbane from Syria was the second person interviewed. Mr. **Ahmed Rohbane** is 42 years old. The teacher interviewed in his office. The interview lasted 90 minutes. He earned a magister degree and has spent the last 14 years teaching Arabic to international students. This displays the teacher's deep dedication to the subject and desire to inspire international students. Furthermore, Mr. Ahmed Rohbane opted to teach Arabic as a foreign language due to the demand for the language. He claimed that there is a significant lack of opportunities and resources for international learners to study Arabic. This observation highlights the need for Arabic language training, emphasising the depth of the profession of teaching Arabic to foreigners.

5.4.4 Mr. Bilal Dabecha

The third interviewee in this research was Mr. Bilal Dabecha. Mr. Bilal is 49 years old and comes from Egypt. He has taught Arabic as a foreign language for 18 years since 2005. The teacher's extensive professional expertise suggests that he has worked with a broad spectrum of students with different approaches to learning, motivations, and difficulties, including the phonological element.

5.5 The Outcome of the Coding

The coding of the teachers' interviews followed an inductive open coding process, followed by axial coding. The top-level themes, main themes, and sub-themes were developed by repeatedly studying the interviews' transcripts using NVivo software. The first coding was an open coding of the three teachers' interviews in which 10 codes and five sub-codes were created. Following this, the codes were checked for clarity to cluster into themes. Lastly, two other top-level themes were created under which all the emerged sub-themes were clustered. The final review of the coding is presented in this table.

General themes	Definitions	Sub-themes
Teaching Arabic as a foreign language	This theme shows the teachers' thoughts on teaching Arabic as a foreign language to international learners.	Teaching experience Teaching international students
Skills of language learning	This theme focuses on the teaching of language skills particularly the speaking skills and students' common pronunciation errors.	Speaking teaching practices Speaking/ pronunciations errors Evaluation of students' language proficiency

Table V- 2 : Teachers' Interviews Analytical Result

5.5.1 Teaching Arabic as a Foreign Language

Comments on this theme reflect the teachers' experiences and perspectives on teaching international students Arabic as a foreign language. The table below defines the entire set of sub-themes within this theme.

Sub-theme	Definitions
Teaching experience	Comments on teachers' views on their years of teaching as a career.
Teaching international students	Comments referring to teachers' thoughts on teaching Arabic to International students.

Table V- 3 : Sub-Themes on Teaching Arabic as a Foreign Language

The teachers could reflect on and express their thoughts on teaching. They had pretty comparable years of experience teaching Arabic as a foreign language. This long experience implies that the teachers have confidence and pedagogical knowledge when teaching Arabic, raising their interest in teaching speaking skills to international students.

Teaching Arabic to international students is widely regarded as an essential profession, particularly in recent years. Teachers' comments revealed their thoughts on teaching Arabic to international students. Mr. WaelShawki asserted that he teaches students from different nationalities. His classes include Turkish learners, Europeans coming from various countries, as well as students from Africa and Asia, who represent a wide range of nationalities. However, most of Mr. Ahmed Rohbane's students are Turkish. He also has a minority of students from different countries such as India, Pakistan, Uzbekistan, Albania, and Macedonia. This diverse representation of nationalities among his students indicates that the Arabic language is not

limited to a specific group of learners but attracts individuals from various cultural backgrounds. Mr. Bilal Dabecha, on the other hand, commented on teaching a short range of students from Turkey, Germany, and France. It is worth noting that this diversity of students contributes to the richness of the learning environment among foreign learners.

The analysis of the interview data also revealed how the teachers taught younger international students. Mr. WaelShawki claimed he typically teaches basic lessons to students aged 18 to 23. According to his comments, language acquisition can vary based on the age at which learners begin their language studies. Younger learners may have a greater capacity for phonological acquisition, while older learners may encounter distinct challenges. Additionally, this age range aligns with the typical age group of university students, suggesting that many learners in this context are at a stage where they are transitioning into adulthood. Mr. Ahmed Rohbane mentioned that most of his students are beyond 18, and his classes are gender-mixed, accommodating both male and female students. Mr. Ahmed Rohbane agreed with Mr. WaelShawki, pointing out that adult learners may have different problems and motives than younger students, impacting their learning process. Furthermore, the diversity of mixed-gender classes can affect classroom interactions, potentially influencing the acquisition of Arabic among foreign learners.

It was necessary to determine the time dedicated to teaching Arabic as a foreign language in those teachers' classrooms. Mr. WaelShawki disclosed that the number of weekly study sessions for foreign Arabic learners varies across their faculty. According to him, some students study for 24 hours a week, while others study for 30. Mr.Shawki claimed that students in their program will study for five years. They primarily focus on Arabic during the first year to prepare students for future courses. Following that, students pursue Islamic studies for four years. Students who complete these studies will graduate with a bachelor's degree in Islamic studies. The program also provides higher degrees like Master's and doctoral degrees. Mr. Ahmed Rohbane also mentioned that the number of hours allocated to teaching Arabic varies between universities. However, Arabic is taught 21 hours a week at the institution where he lectures, including all four language skills.

Mr. Bilal Dabecha says foreign learners learn Arabic 30 hours a week. Furthermore, Mr. Dabecha provided further information about the Arabic course in all levels in his institution. He described the course as well-organized. The total duration of the course is 900 hours, divided into six levels; each level consists of 150 hours of classes. The teacher also noted that students are required to commit to their language development during this period. This structure offers

pace flexibility, enabling learners to adapt their study according to their individual needs and goals. Additionally, it provides students with clear, measurable milestones and an assurance of a comprehensive curriculum covering various language skills. Overall, the course design aligns with best language learning practices and ensures students receive an effective learning experience. When teaching foreign learners, Mr. Dabecha uses Arabic as the main language. However, he occasionally uses English and Turkish, particularly when dealing with some situations that require further explanation. According to Mr. Dabecha, teaching mainly in Arabic aligns with the immersive language learning approach, which is common in teaching Arabic as a foreign language. However, the use of English and Turkish, when necessary, may provide students with additional support and explanations in languages they are more familiar with.

At this point, it was critical to emphasise on the students' decision to acquire Arabic as a foreign language. In other words, it is vital to identify why students choose to learn Arabic. Students' motivation to study Arabic may be linked to their personal lives. Two lecturers openly addressed the possibility that students learn Arabic for religious and economic motives. Mr. WaelShawki emphasized that the predominant purpose for foreign students to learn Arabic is religious, primarily for the purpose of understanding the Quran and Islamic matters. However, there are also other reasons, behind Turkish students who learn Arabic including trade-related purposes due to trading operations between Turkish and Arab communities, as well as individuals working in politics and medicine. Nevertheless, in their specific faculty, the primary purpose is religion.

Relating to these comments, Mr. Rohbane claimed that foreign students choose to learn Arabic for different purposes, including academic purposes, learners who study translation for example are required to master the Arabic language. Sometimes the purpose is religious, such as people who study Islamic matters. On the other hand, the purpose can be professional, such as trading businesses or personal purposes like tourism for instance. Additionally, the purposes could be political.

Different purposes may lead to varying levels of motivation and commitment, which can affect the learners' progress and success in learning Arabic. For instance, students studying Arabic for religious reasons may prioritize pronunciation accuracy in Quranic recitation, while those learning for business purposes may focus on practical communication skills.

Speaking about the above reasons, the teachers discussed their students’ motivation for learning Arabic. As long as they embrace this language, they will have a keen interest in

understanding it. Mr. WaelShawki pointed out that his students, particularly Turkish students, are enthusiastic about studying Arabic. He underlined that around 30% of the Turkish language's lexicon had Arabic roots, which might be stimulating for Turkish students. Mr. Ahmed Rohbane and Mr. Dabecha both agreed that students' motivations varied considerably. Mr. Ahmed Rohbane emphasised the difficulty of evaluating motivation because it differs significantly from student to student. While some students are enthusiastic in learning Arabic, others may view it as a necessary prerequisite for specific objectives, such as academic or professional. Mr. Rohbane further emphasized that, in his center, students choose to learn Arabic, which makes them highly motivated because of their aims and objectives. Similarly, Mr. Dabecha noticed that his international students' motivation levels sometimes fluctuated. However, the majority of his international students are extremely willing to study Arabic because they feel it will help them achieve their personal and professional goals. He also admitted that certain students may lack motivation, which might hinder their efforts to correct their speaking errors. The teachers' responses revealed their thoughts toward teaching Arabic as a foreign language. According to the teachers' comments, learning has evolved beyond simply acquiring knowledge to include a wide range of personal preferences and life goal accomplishments.

Age was also a major consideration when teaching Arabic as a foreign language. Teaching younger students is a different experience for these teachers than teaching older learners. Because they are younger in the learning field, students are more interested in sharing their creativity and enthusiasm. However, over time, this passion morphed into aversion and stress.

The data also demonstrated the significance of motivation in the learning process. The teachers showed how motivation influences students' engagement, determination, and overall performance in language acquisition. As a result, teachers are more likely to make mistakes. To successfully personalise their teaching techniques and materials, teachers have to become aware of their students' motivations. One of the most important points raised by these findings is teaching the four skills in their classes. This point will be thoroughly discussed in the following section.

5.5.2 Skills of Language Learning

The second top-level theme reflected the teachers' pedagogical understanding of teaching language skills and explicitly speaking skills, as well as the challenges of dealing with the students' errors in their classes. The comments of the teachers on this top-level theme resulted in three thematic groups:

- Speaking teaching practices
- Speaking/ pronunciations errors
- Evaluation of students' language proficiency

Sub-theme	Definitions
Speaking teaching practices	Comments highlighting the importance of teaching speaking skills for foreign language learners.
Speaking/pronunciation errors	Comments reflecting the students' poor phonology skills: students struggle with pronunciation
Evaluation of students' language proficiency	Comments referring to the procedures of evaluation of students' language proficiency

Table V- 4 : Sub-Themes on Skills of Language Learning

The three teachers shared their perspectives on speaking skills in their institutions. Two teachers indicated that the university program needed to see speaking as an essential skill in their language teaching. Mr. WaelShawki claimed that there are just 4-hour weekly hours. The emphasis on speaking, with just 4 hours available, may impact student proficiency in spoken Arabic. Sharing the same thoughts, Mr. Dabecha revealed that the limited focus on speaking, with only 2 hours a week, may have implications for learners' proficiency, which eventually can lead to making more errors. However, Mr. Rohbane stated that at his faculty, teaching Arabic involves a balanced approach to the four language skills: listening, speaking, reading, and writing. The emphasis is on providing students with authentic texts in audible and readable formats. Additionally, he mentioned an output delay, allowing students to focus on absorbing and receiving input in listening and reading before engaging in productive language tasks.

This approach aligns with communicative language teaching principles, emphasizing the importance of input and comprehension before output. Providing authentic materials and

allowing students time to internalize language patterns through listening and reading helps learners develop a solid base in language proficiency. It also provides for a gradual progression towards more complex speaking and writing tasks. Furthermore, Mr. Rohbane explained that 21% of the total program hours are allocated to speaking skills. The allocation of such a percentage of the total hours to speaking skills might suggest a significant focus on oral communication, which is crucial for developing practical language proficiency. This approach ensures that learners have adequate opportunities to practice and improve their speaking skills.

These comments reflect the notion of students' pronunciation errors. Each teacher shared their common student' errors. Mr. WaelShawki identified several common errors observed among his foreign students in speaking Arabic. These include challenges related to gender errors (not distinguishing male and female forms), difficulties with singular and plural forms, issues concerning demonstrative and relative pronouns, and struggles in sentence structure, particularly among Turkish learners due to the differences between Turkish and Arabic.

Mr. WaelShawki feels that the causes of the most prevalent errors vary from student to student. However, he cites learners' mother tongues as a substantial contributor to these errors. He also discusses teaching methods and approaches used in certain countries, including Turkey, where techniques such as grammar translation are used. These approaches emphasise rules and grammar but may not intensely focus on speaking skills.

Phonologically, Mr. Rohbane reported some common errors related to the learners' difficulty producing specific sounds, such as not distinguishing between the /ك/ and the/ق/ sounds, the /ع/ and the/ء/ sounds, the /ح/ and the/ه/ sounds, the /ض/ and the /ظ/ sounds. Foreign learners also struggle to pronounce the /خ/ sound. These difficulties are often caused by differences between Arabic phonology and the phonological systems of their native languages. On another level, Mr. Rohbane stated that several common structural errors occur in his classes. Students frequently face difficulties correctly structuring sentences, particularly using adjectives with modified nouns. They also face difficulty distinguishing between verbs and subjects and tend to over-generalize vocabulary and grammatical rules in their speaking. According to the teacher's perspective, these errors primarily occur because of the differences and similarities between the phonological systems of Arabic and the learners' native languages. The presence of unfamiliar Arabic phonemes not found in the learners' mother tongues often leads to pronunciation difficulties.

Commenting on the students' pronunciation issues, it was critical to identify the intricate Arabic sounds in the teachers' classrooms. Mr. Dabecha recognized many problematic sounds for international learners. It is significant to notice that the complexity of these sounds varies depending on the students' native languages, demonstrating the idea of language interference. Furthermore, Mr. Dabecha highlighted five common problematic Arabic phonemes: /خ/ ,ظ/ ,ق/ ,ض//ح/ ,ط//, and /ع/. Learners tend to find sounds in a new language challenging if those sounds do not exist in their native language. In this case, these are the consonant sounds that do not have direct counterparts in many Indo-European languages. For example, the voiceless pharyngeal fricative /ح/ and voiced pharyngeal fricative /ع/ are unique to Arabic and can be particularly challenging for learners not accustomed to producing these sounds.

Mr. WaelShawki mentioned that the most difficult sounds for his students are /ع/, which is often confused with /أ/, and /ح/ and /خ/. He explained the difficulty of /ح/ and /خ/ to the similarity in pronunciation in Turkish, where both are pronounced as /ه/. Mr. WaelShawki acknowledged that the difficulty of pronouncing certain Arabic sounds for foreigners is indeed related to the position of the letter within a word or sentence. He explains that when challenging sounds like /أ/ and /ع/are found together in a word, particularly at the beginning, it becomes more difficult for learners to pronounce, as in the word "اعود." These pronunciation challenges are present at all proficiency levels but tend to diminish with higher proficiency levels if teachers actively address and work on them.

Mr. WaelShawki is aware that the difficulty of pronouncing certain Arabic sounds for foreigners is indeed related to the position of the letter within a word or sentence. He explains that when challenging sounds like /أ/ and /ع/are found together in a word, particularly at the beginning, it becomes more difficult for learners to pronounce, as in the word "اعود." These pronunciation challenges are present at all proficiency levels but tend to diminish with higher proficiency levels if teachers actively address and work on them.

As proficiency in articulating Arabic sounds requires substantial training, Mr. Wael emphasized the importance of imitation in improving foreign learners' pronunciation, where students listen to their peers and attempt to replicate their pronunciation. Additionally, the institution employs computer programs that visually illustrate the correct articulation of each sound, involving specific organs in the articulation system. However, achieving proficiency in articulation requires substantial training.

Highlighting the students' errors, the three teachers provided knowledgeable information about how to deal with those errors. Mr. Shawki mentioned some working strategies that help him provide feedback and correct the students' output. According to him, there are two types of mistakes: common and specific. Standard errors are addressed through direct correction in groups, preferably through imitation, where students receive guidance collectively. In contrast, particular errors are corrected individually, with each student receiving personalized assistance. Mr. Wael stated that some errors require reinforcement lessons, commonly referred to as "library hours," where time is dedicated to addressing these errors individually for some students or in a group of students when it is a common issue. A specific lesson called "Correcting Articulation"is designed to assist students with pronunciation problems.

Mr. Ahmed Rohbane presented the strategies he uses at his institution to assist international learners in overcoming the most common phonological errors. One of these ways is the use of minimal pairings training, which is a well-established phonological strategy. Minimal pairs training focuses on helping learners distinguish between sounds that are phonemic in the Arabic language like the /ص/ and the /س/ sounds. Additionally, the teacher mentioned the use of dictation exercises. In this practice, students listen to words with the familiar challenging sounds and attempt to transcribe them correctly. This technique is designed to improve both listening skills and sound production. It is worth noting that these training methods are employed across different levels of learners, indicating their effectiveness in addressing common phonological errors. Moreover, these methods emphasize listening and speaking skills, explicitly addressing foreign learners' difficulties in producing Arabic sounds.

Mr. Ahmed Rohbane also emphasised the benefits of using minimal pairs. By comparing sounds that learners easily misinterpret, they better understand the differences between these sounds. Dictation exercises complement this by reinforcing listening skills and encouraging learners to apply the accurate pronunciation in practical contexts. Furthermore, Mr. Rohbane emphasized the importance of practice and exposure to some unfamiliar sounds. He noted that mastering Arabic phonemes requires extensive listening and repeated practice to familiarize speech organs with these sounds. He also highlighted the long-term nature of this objective, suggesting that achieving proficiency in Arabic phonology is a gradual process.

Sharing Mr. Ahmed's view, Mr. Dabecha mentioned using minimal pairs as a teaching method to help foreign students with their pronunciation difficulties. Minimal pairs draw learners' attention to the specific sounds they find challenging. This method can work well with

such cases as it contrasts two words that differ in a single sound, which allows students to identify and focus on the phonemic distinctions they need to master.

The last sub-theme addresses the evaluation of students' language proficiency, and the three teachers disclosed that their institutions administer a level test at the start of the academic year to assist students in being placed at the appropriate level. Mr. Wael noted that they administer a placement test at the beginning of each class to assess students' Arabic skill levels. After the placement test, students are grouped into levels A, B, and C. However, he highlights a particular challenge they face. Some students come from religious secondary schools for imams and preachers, often referred to as "Proja schools," where they undergo a preparatory year for the Arabic language, resulting in a relatively high level of proficiency. In contrast, students from regular secondary schools may have had little exposure to Arabic, with some needing to recognize the Arabic script, resulting in extremely inadequate skill levels. Additionally, Mr. Shawki mentioned that they allocate more hours to beginner students compared to intermediate students.

Mr. Rohbane and Mr. Dabecha discussed implementing a placement test in their faculties. According to them, this sort of test comes in both oral and written forms. The test is meant to evaluate all four language skills: listening, speaking, reading, and writing, and results are used for organising students into groups depending on their language proficiency levels. This approach allows for customized teaching and the grouping of students based on their proficiency levels. This balanced assessment method also takes into account the four language skills and considers the students' progress throughout the course. By following these practices, teachers encourage tailored and engaging learning experiences for their students.

Regarding classroom evaluation, the teachers emphasised the significance of listening and speaking assessments. Only one teacher offered an in-depth explanation of the classroom evaluation procedure. Mr. Wael Shawki explained that they assess students' proficiency based on the four language skills: listening, speaking, reading, and writing. Their curriculum considers grammar a separate module rather than a skill to be studied. An oral exam is conducted in which at least two teachers collaborate to assess listening and speaking skills. Each teacher assigns a mark to the student's performance, and the final mark is calculated by averaging the scores from all participating teachers. While to assess reading and writing skills, a written exam is conducted. Mr. Dabecha, on the other hand, presented a different interpretation of the question; he considers his international students' performance to be generally good due to their strong enthusiasm to learn Arabic, which is frequently motivated by specific objectives or goals.

In this section, the three teachers expressed their thoughts on frequent aspects they encountered when supporting speaking skills in their classes. The data revealed that language errors and the students' language proficiency were the most critical difficulties. The teachers' comments on the students' language knowledge showed that the less interest the students have, the more difficult language and communication are. This could be related to students themselves. The hypothesis could be that if students have a strong desire to learn, this would have an impact on their efforts to overcome their language errors. Highly motivated students may tend to make fewer phonological errors as they invest more time in improving their pronunciation.

5.6 Summary

Throughout the interview analysis, it was simple to obtain knowledge of the teachers' perspectives on teaching Arabic as a foreign language. The teachers believed that teaching Arabic to international students is enjoyable as long as their students are motivated to learn. The teachers also emphasised the teaching of speaking skills. They believed that speaking skills are more important than the other skills. However, speaking was given less importance and had less time in their instructional schedules.

The teachers acknowledged that the teaching curriculum in their institutions had a consequence on their teaching methodology. The standards in the adopted curriculum altered their perspective on the significance of listening and speaking skills. The institution's philosophy focused on enhancing all four skills rather than just speaking skills.

Concerns were also raised concerning students' motivation and a clear mismatch between what motivates students to learn and what the curriculum/programme imposes on both teachers and students. The teaching programme’s timing was challenging for teachers who did not have the professional freedom to adjust it. The teaching programme was supposed to help students improve their listening and speaking skills, but it had a poor selection of teaching and an inefficient time division. The students were interested in developing their language proficiency, and the time allotted to speaking skill was insufficient. The institutions’ programme dominance influenced both teachers' and students' willingness to practice their speaking skills.

Working with foreign language students necessitates a higher degree of pedagogical knowledge, the primary resource for student learning progress. Consequently, the participating teachers showed sufficient pedagogical knowledge for teaching and assessing speaking skills based on their teaching circumstances. Their comments revealed that they became concerned

about teaching and assessing oral skills in the classroom. Due to their good pedagogical competence, the teachers were able to create an environment in which all students could acquire a reasonable academic level in speaking skills.

The teachers also emphasized their awareness of the impact of the students' errors and addressed how they would manage them. Teachers' perceptions of the students' oral errors were consistent. Significantly, their experiences in favourable classrooms reflected that they are seeking to teach oral skills. They were more aware that motivation has an impact on student achievement.

5.7 Discussion of the Interview Findings

According to the research, teachers teach all four skills directly. Teachers, on the other hand, attempt to encourage students' engagement and participation by providing opportunities for them to speak in their classes. Furthermore, this study contends that the way students engage and interact in language courses relies on their use of the foreign language and their interference with their mother tongue.

For this study, it was significant to have an interpretive understanding of teachers' experiences and perceptions of speaking in their classrooms. Interview outcomes suggest two significant findings 1) teachers' awareness of the importance of speaking skills, and 2) teachers' awareness of the students' pronunciation problems. Their responses indicated that they consider listening and speaking as necessary as reading and writing. They explained the value of both skills as the key to "communication".

Furthermore, findings from the interview data indicated that students had opportunities to practice their speaking skills. Interview data showed that speaking skills are not challenging because students are motivated to speak to teachers. However, the interview data highlight that most students have different pronunciation errors in their speech. As noted by the three teachers, students face some challeng~~es~~ in pronouncing some Arabic sounds, mainly emphatic and pharyngeal consonants such as [ÿ] ط,[À]ع.[d] ظ. [q].ق[□]خ.[ç]ص.[h]ه. [□] ض.[N] حFindings also show that students sometimes had low self-esteem, which prevented them from speaking. This could point out two assumptions 1) learners might feel self-conscious and fear talking in Arabic and 2) the impact of their surroundings on their self-esteem. This might make the students feel less confident and unable to express, share, and discuss their opinions in the classroom.

Despite the reasons mentioned above that decreased the students' motivations for speaking in Arabic, findings revealed teachers' implementation of different pedagogical strategies to encourage students to overcome these errors. To harness this positive potential, teachers showed some pedagogical practice with interactive pedagogic practices, which are most effective in developing students' confidence for better learning.

5.8 Learners' Questionnaire Analysis

This section presents the results from the first data-collecting technique, the learners' questionnaire. The sample consists of 50 questionnaires during the first term of 2022. The major goal of delivering the questionnaire was to examine the following:

-Discovering the main difficult sounds to speakers of other languages who are learning Arabic as a foreign language

These theoretical constructs will assist in answering the following research questions:

- What sounds represent a difficulty for speakers of other languages?

5.8.1 Population of the second data collection

This method's target population consists primarily of native English and French speakers who are learning Arabic as a foreign language. It is projected that the University of Turkey has 200 international students overall. It is vital to note that the majority of those students have a B2 level in English, which is the language of communication at the university.

5.8.2 Sample of the second data collection

There are three foreign institutions in the sample. The 29th May University in Istanbul, Turkey, is the name of the first establishment. The Afak Institution in Cairo, Egypt, is the second institution, and ETURN in Jordan is the third. It is important to note that only fifty individuals from these three distinct universities answered the survey. In order for the participants to complete the questionnaire, the distribution process lasted longer than six months with regular updates.

5.9 Questionnaire Analysis

The data will be presented in the form of a question-by-question from the questionnaire schedule. Each question is provided a chart, with a detailed explanation.

The difference was clear when focusing on the participants' gender. Figure 5.1 shows that 66% of the learners are females and 32% are males.

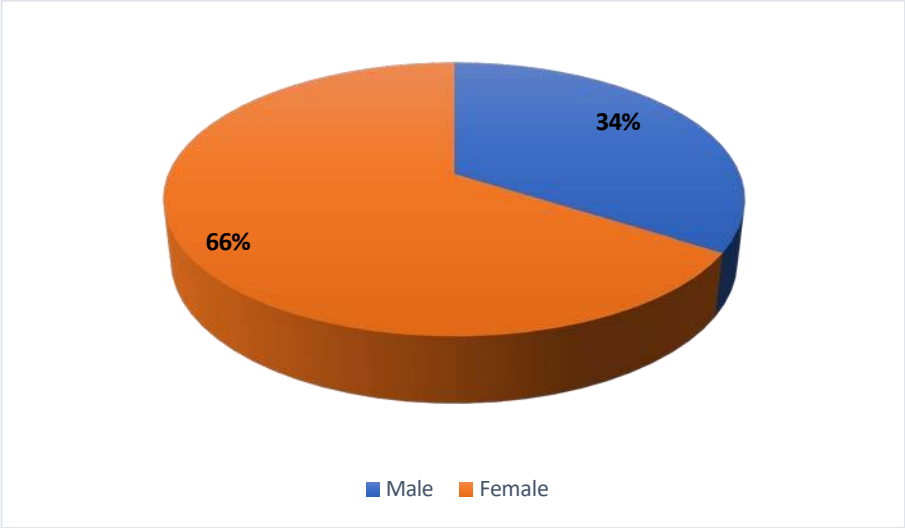


Figure V- 1 : 1students' gender

According to the data, the majority of Arabic language learners are between the ages of 21 and 30. 18% are 31-45 years old, while the minorities are 15-20 years old. Figure 5.2 illustrates the age range of all the participants.

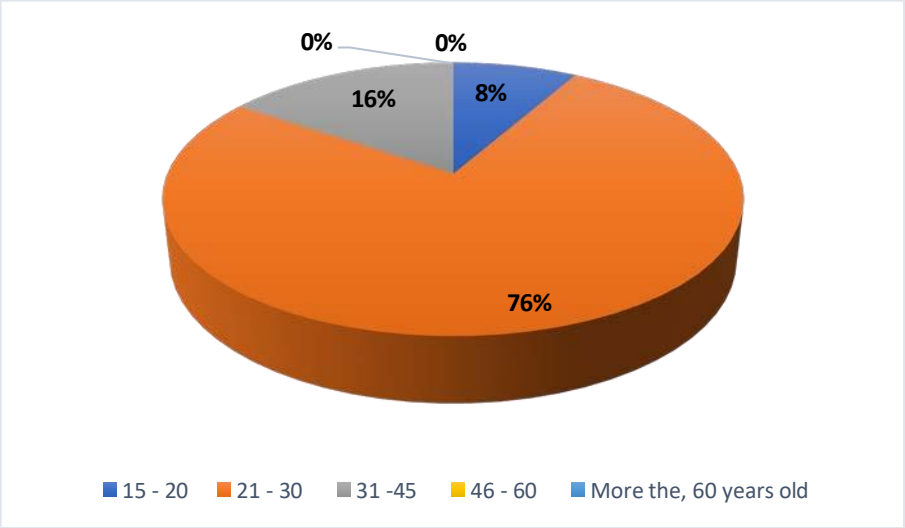


Figure V- 2 : participants' Age

According to the data, the participants are from all over the world, with 22% being from England, 16% from Turkey, 14% from France, 6% from Mali, and 6% from the United States. Figure 5.3 articulates the participants' origin.

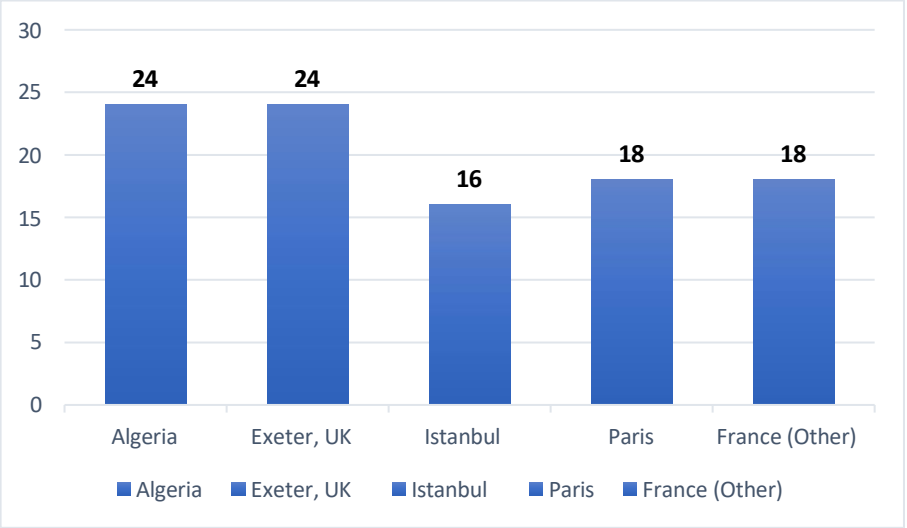


Figure V- 3 : The participants' origin

The statistics indicated that the participants in the present study live in diverse nations, with around 24% of them living in Algeria. 24% reside in Exeter City, UK, 16% in Istanbul, 18% in Paris, and 18% in France. Figure 5.4 shows the participants living place around the world.

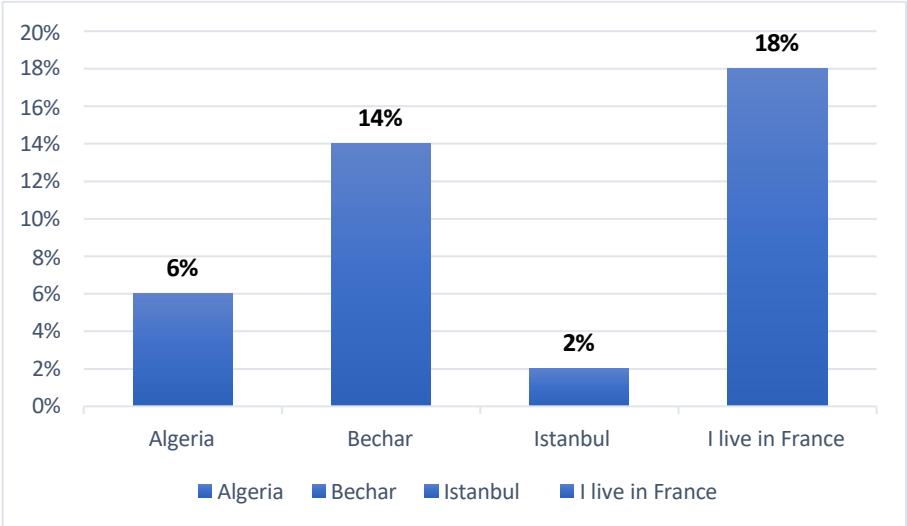


Figure V- 4 : The participants' living place

Figure 5.5 shows that the study's participants are originally from one country and have migrated to another for various reasons, including work and education. The majority stay in their new countries for six months to 10 years, which is considered sufficient time for language learning.

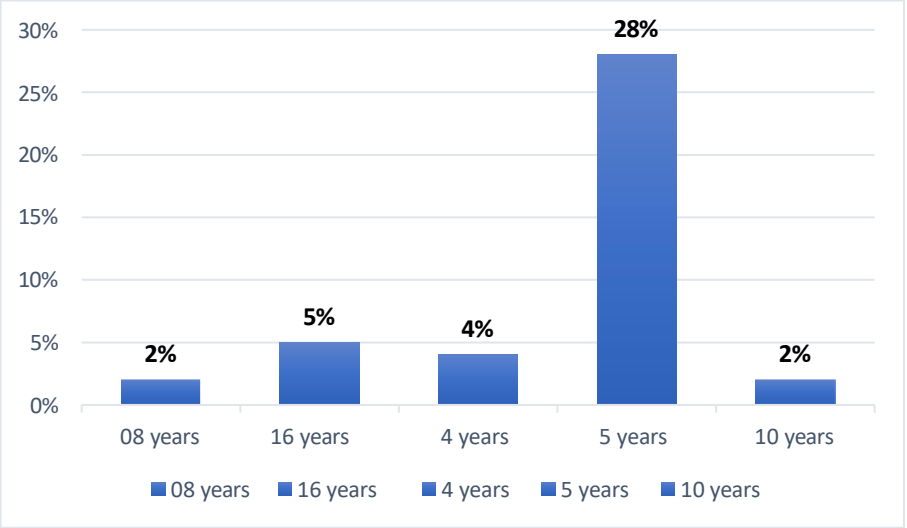


Figure V- 5 : The participants' settled place

As above, 44% claimed that English is their mother tongue. Out of the fifty participants, six claimed French as their mother tongue. 10 participants, 20% claimed Turkish as their mother tongue. In Pakistan, Urdu, an Indo-Aryan language, is spoken as the official language alongside English and is the mother tongue of 4% of the participants. Just one participant—2% of the total—spoke Hausa, a Chadic language spoken by the Hausa people of northern Nigeria, Niger, Chad, and Sudan. Two participants—4% of the total—spoke Pakistani as their mother tongue. Figure 5.6 articulates the participants' first spoken language.

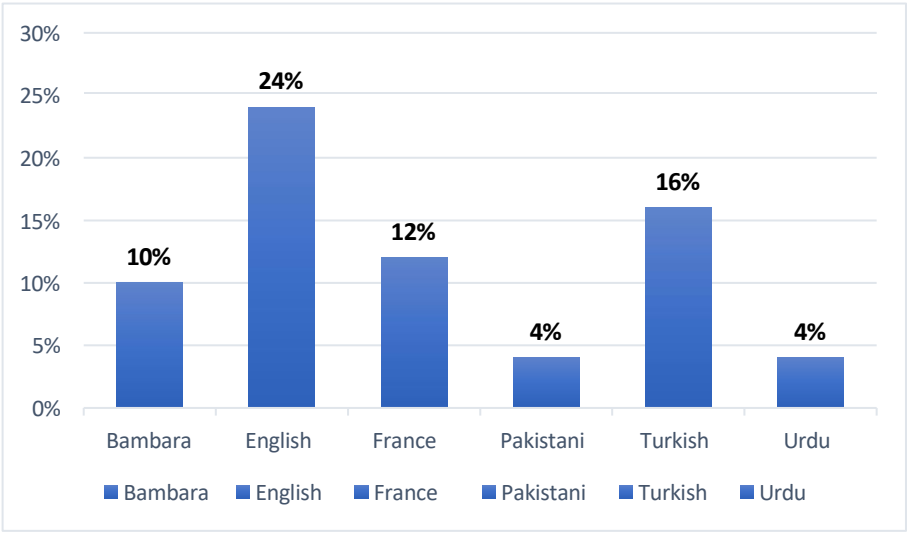


Figure V- 6 : The participants' First Language

As the bar chart shows, 39 of the fifty participants have a genuine bachelor's degree, 9 have a master's degree, 7 have a baccalaureate degree, and 1 has a PhD. This suggests that each participant has a strong educational background, making it easier for him or her to learn new languages and skills.

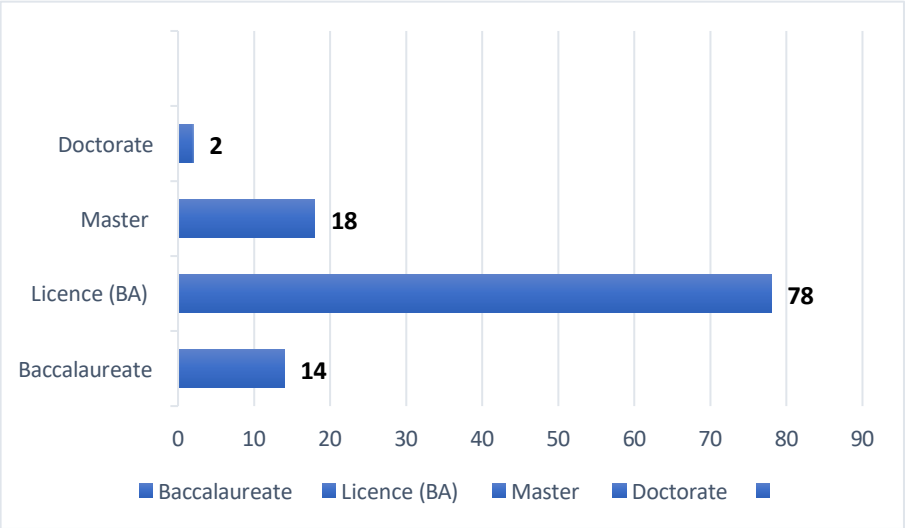


Figure V- 7 : The participants' Diploma

According to the statistics in Figure 5.8, practically every member of the network works full-time. There are 45 English learners. There are two chemistry teachers present. One works as an interpreter, while the other two teach at universities. The researcher has to understand the participants' backgrounds.

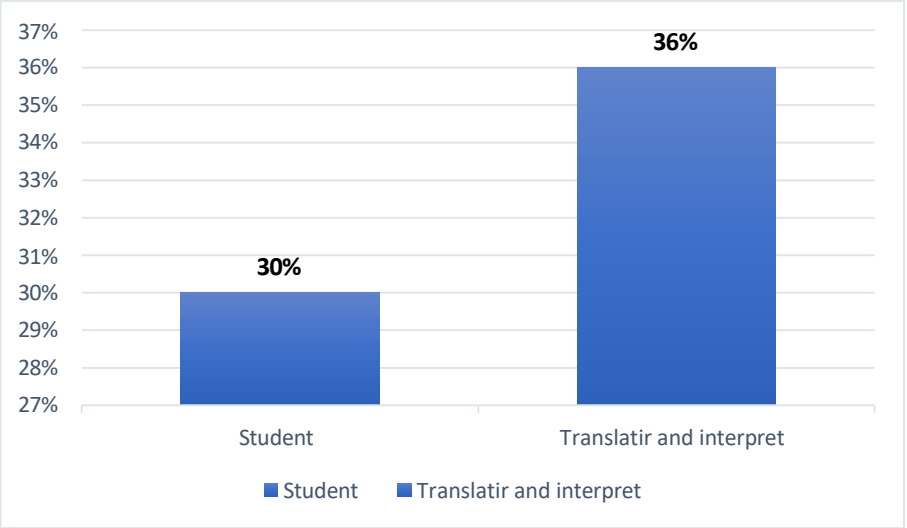


Figure V- 8 : The participants' Work Status

As shown in the graph all the participants are multilingual, they speak more than one language. The majority of them 62% speak 3 languages and 22% speak 4 languages. Only 10% speak 2 languages and 6% speak 5 languages. When we asked them what languages they speak, 30% said that they speak Turkish, English, and French. 15% said they speak Turkish, English, and Urdu. It is also an official language alongside English in Pakistan. 25% of the participants

said that they speak English and Kurdish, a language or group of languages spoken by Kurds in Kurdistan. Then 20% of the participants answered saying that they speak French, English, and Bambara, also known as Bamana or Bamanankan a linguafranca and national language of Mali. Figure 5.9 illustrates the number of languages each participant speaks.

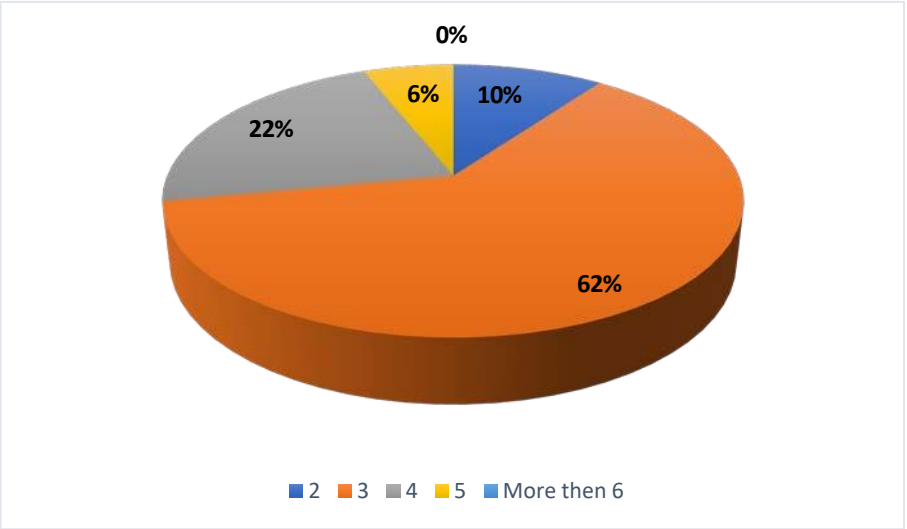


Figure V- 9 : The participants' Spoken Languages

When we asked the participants what inspired them to learn Arabic, their responses were not all the same. About 60% of them said that they are studying Arabic for religious reasons, mostly to read and commit to memory of the Quran, which is the holy book of Muslims, and to get more knowledge about the religion. A few of them mentioned that they are learning Arabic for travel purposes because they hope to travel to several Arab nations where the language is spoken. While a small percentage of participants expressed a desire to read Arabic literature, particularly the classics. Figure 5.10 shows the reasons that motivate the study participants to learn the Arabic language

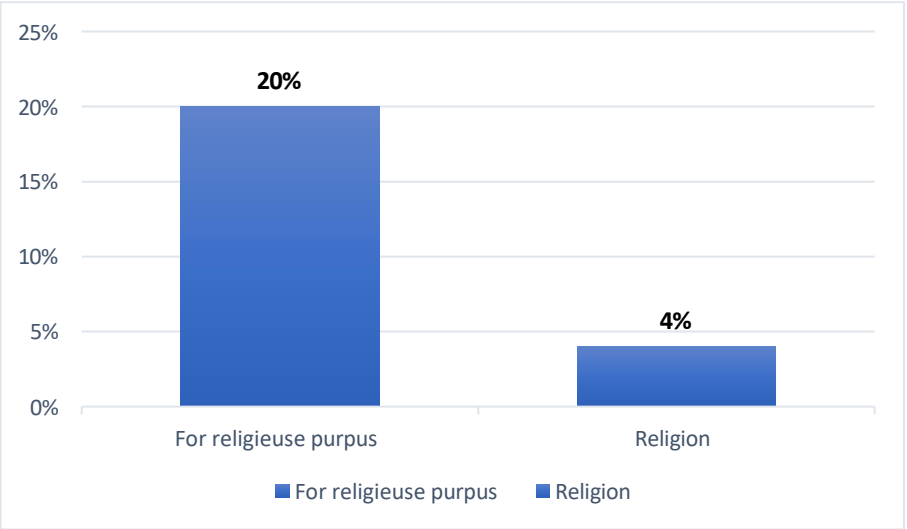


Figure V- 10 : The participants' motivations for learning Arabic

How do you approach learning Arabic?

The participants' responses differed when we asked how they went about learning Arabic. The majority of them—roughly 65%—said they attend classes virtually. In centres where they live, like the Islamic centre in France, 20% of respondents said they attend sessions with Arab lecturers. 15% of respondents stated that they study Arabic at college with Arab peers.

Since when have you been taking Arabic classes?

The participants gave somewhat comparable answers when asked how long the students had studied Arabic as a foreign language; the answers varied from two months to a year and a half. This suggests that the students are not very advanced. They speak a language that is entirely new to them and not at all like the one before. For most, this is their first exposure to studying or working with Arabic as a language.

How often do you have classes weekly?

Eighty percent (80%) of students reported taking Arabic twice a week, with 20% only taking Arabic on Wednesdays. We asked how many hours were allowed to the speaking ability. Approximately 60% of them reported that they spoke for two hours every week, listening to the teacher and repeating what they hear, with durations ranging from two to three hours. Thirty percent stated that three hours are dedicated to speaking skills, and that the teacher begins each lesson with a listen and repeat warm-up practice. They usually have a discussion to start the course so that students may listen and repeat as needed.

The graph above demonstrates that nearly all of the students said they had trouble understanding spoken Arabic. The students' levels of difficulty varied, with some saying it was very difficult for them to understand spoken Arabic and others saying it is only a little bit difficult. Figure 5.11 demonstrates the level of difficulty each participant faces in understanding Arabic.

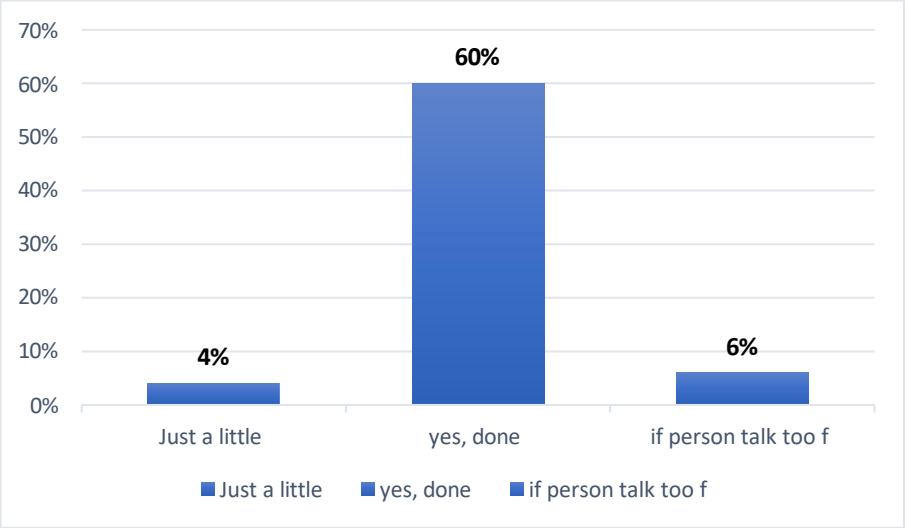


Figure V- 11 : The difficulty of understanding Arabic

When analysing the most difficult Arabic sounds to pronounce, of the / d/ / ظ, / d/ /د/, and/ ذ/ /D /, nearly all of the students—roughly 93%—said that /d/ / is the hardest sound to pronounce. Merely two pupils reported experiencing trouble in pronouncing the sound/ذ/ Subsequently, we instructed the students to select the word from a list that they felt was the hardest to say, using the /d/ sound in the initial, middle, and final positions, for example, درس.حفظ.منظر.ظهر. The students' responses were categorised into three broad groups. Approximately 42% of the students stated that pronouncing the word "save," which is حفظ, is the most difficult task. According to 30% of respondents, the middle position of the word "view" (منظر) is the hardest to pronounce. According to 24% of students, the most challenging beginning position is ظهر (back) /d/. Figure 5.12 provides a clear illustration of the Arabic sounds that the participants found the most challenging to pronounce.

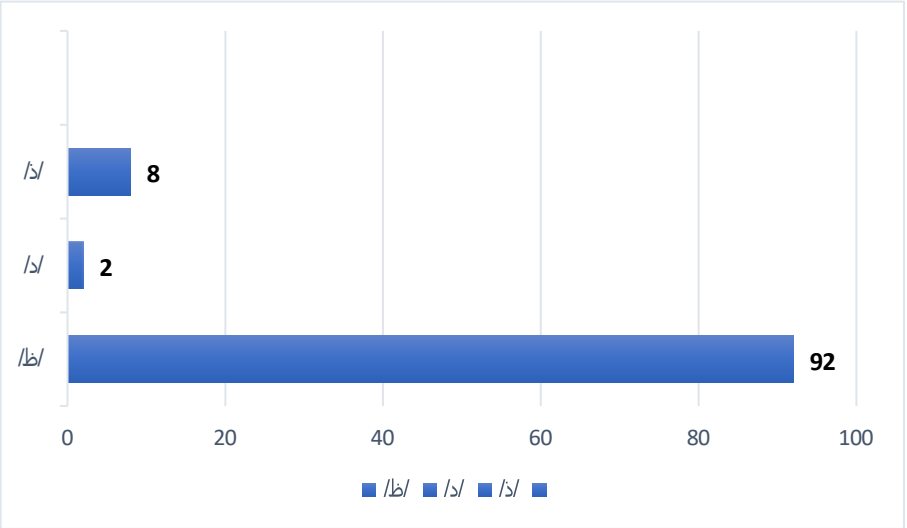


Figure V- 12 : learners' Conception of/ë /ظ, / / D/ذ ,/د/ /d /

Figure 5.13 demonstrates that about 94 % of the students said that the sound /q/ is the hardest sound to pronounce. This sound does not exist in most languages.

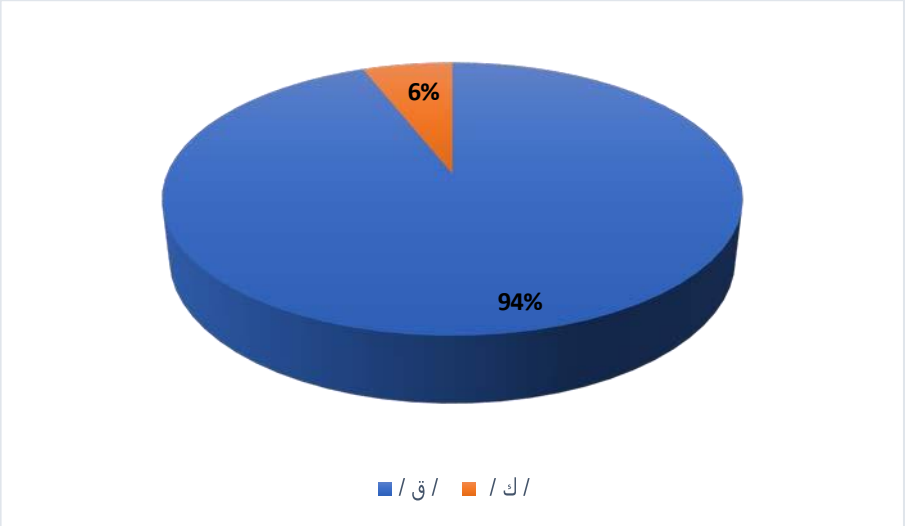


Figure V- 13 : learners' perception of /q/,/k/

Figure5.13

When we asked learners about the most challenging sound to pronounce among قال said, تنقلtravelled, لبق tactful, and كلب Dog. More than half of the learners said that the word تنقلtravelled is difficult for them to pronounce because the sound /q/ is in the pre-final position and proceeded by /t/ and /n/ and followed by /l/. The other half 48% claimed that the word لبق tactful is the most challenging word to produce though it occurs in the final position and is preceded by /b/ and /l/. Figure 5.14 shows the types of words the study participants find difficult to pronounce.

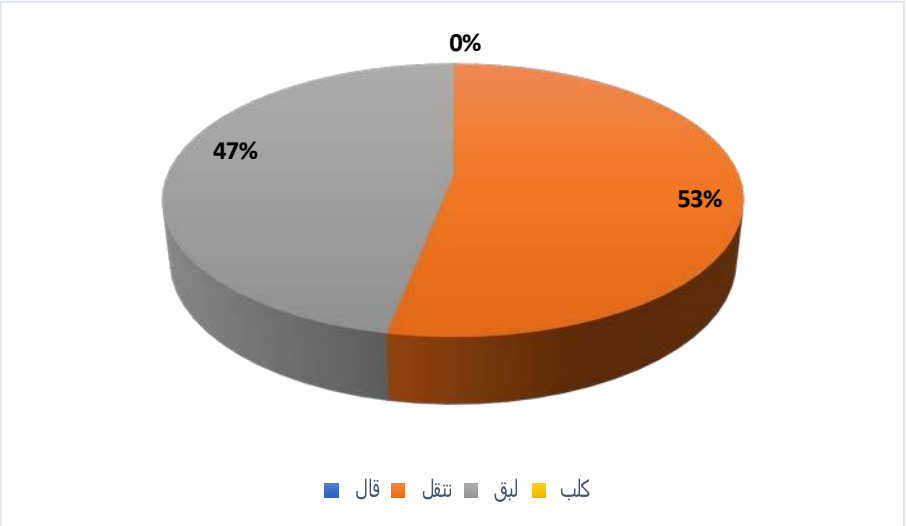


Figure V- 14 : learners' perception of /q/

As shown in figure 5.15 all the learners (100%) said that the sound /À//ع /is the most difficult sound to articulate.

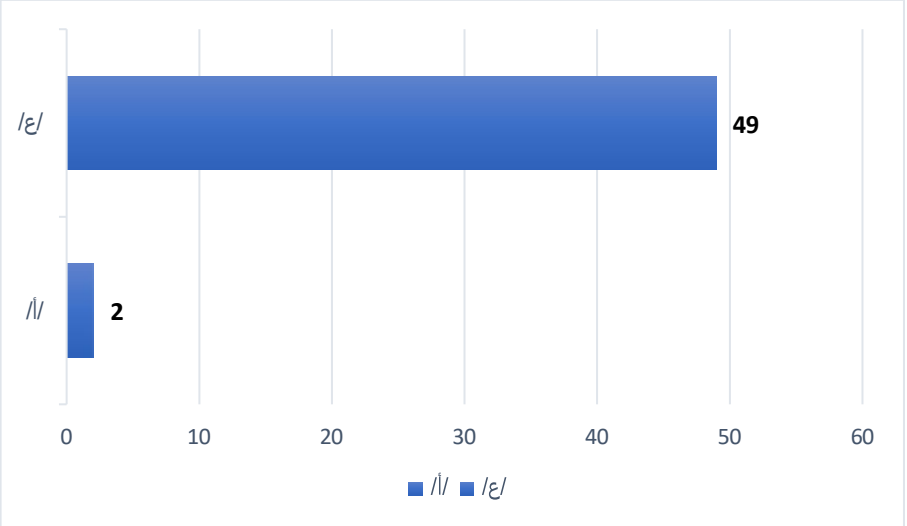


Figure V- 15 : learners' perception of /À //ع/ //أ/

Figure 5.16 shows another difficult type of words that the participants find challenging to pronounce. It shows that about 70% of the learners said the word اعلى 'the highest' is the most difficult word to produce. The sound /À//ع /is in the middle position preceded by a glottal stop/À/ /and followed by /l/. 16.3% said that the word بعيد 'far' is less difficult for them. About 12% of the learners said that the word عبرto cross is difficult. That reveals that regardless the position and the adjusting sounds, the sound /À//ع /is challenging for foreign students.

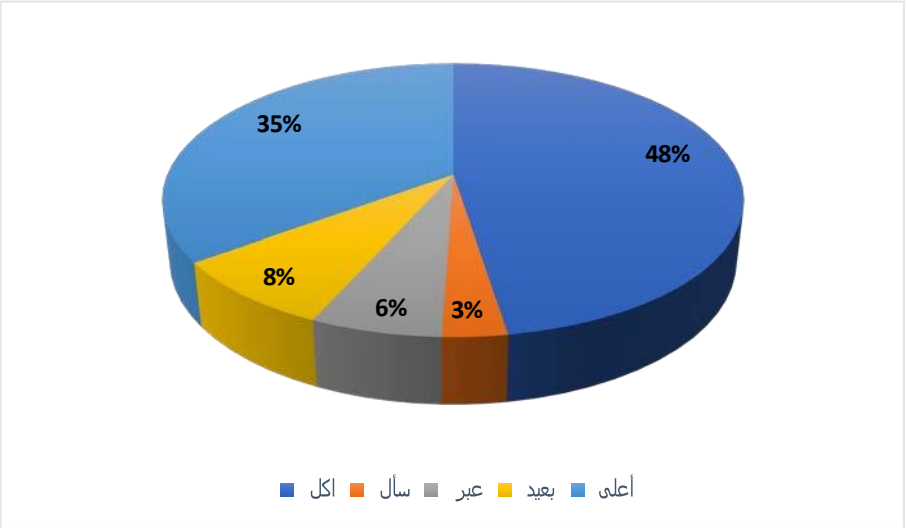


Figure V- 16 : learners' perception of /À /ع

When we asked students to choose the most challenging sound to pronounce among /ض// ض /, /ʕ// ط/ /ʕ// ط/ about 70% of the learners said that /ض// ض / is the most challenging to pronounce. 30% of them said that /ʕ// ط/ is a challenging sound for them. While no one mentions that /t/is difficult for them / ت// ت/. Figure 5.17 illustrates the hardest Arabic sound to pronounce.

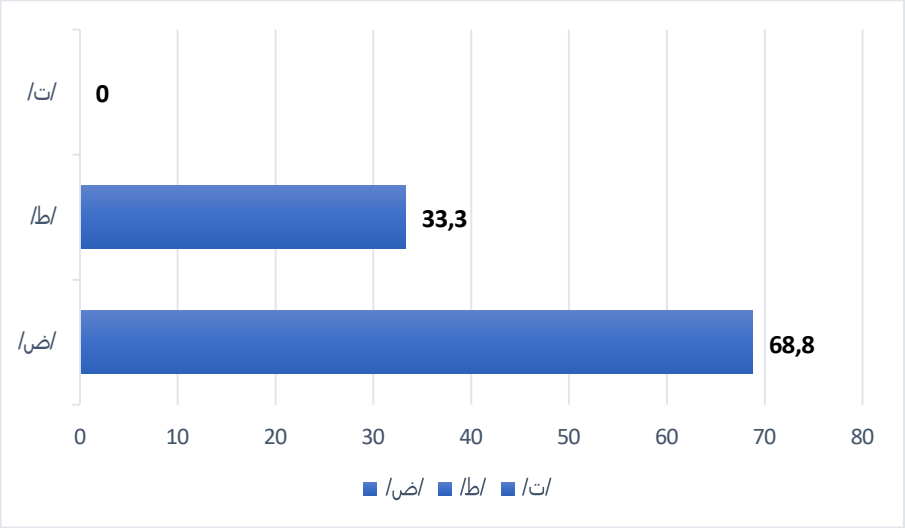


Figure V- 17 : learners' perception of /ê /ض/ /, /ÿ //ط/

As shown in figure 5.18 the words meaning tooth and رضيعwhich means baby are difficult for most learners to pronounce; about 50% of the learners said that they face trouble in pronouncing the /ض// **ض** / when it is in the middle position. About 30% of them said that the word ضرس is difficult since /ض// **ض** / is in the initial position so they do not know how to start articulating this sound.

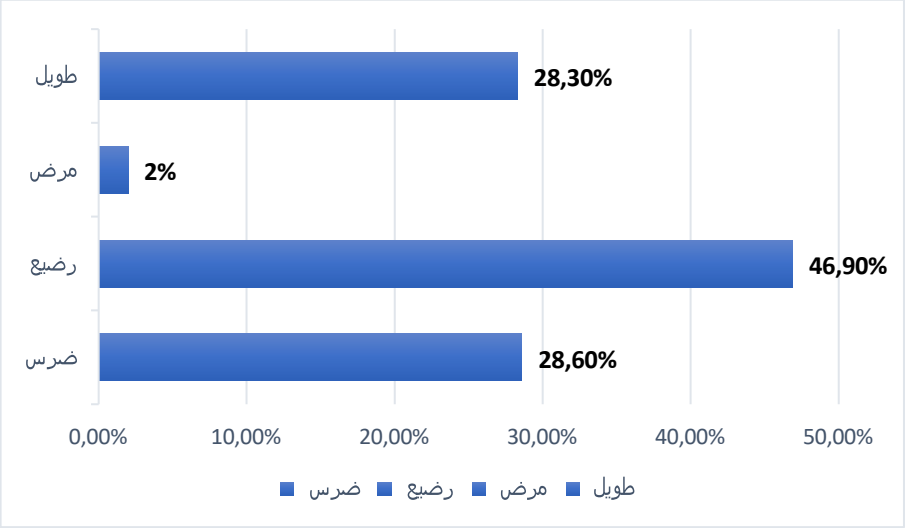


Figure V- 18 : learners' perception of /ê /ض/ /

As shown in figure 5.19 almost all the learners said that they facing a problem in pronouncing the /§// ص/ unlike /s/ and /z/ which, most students are familiar with and used to.

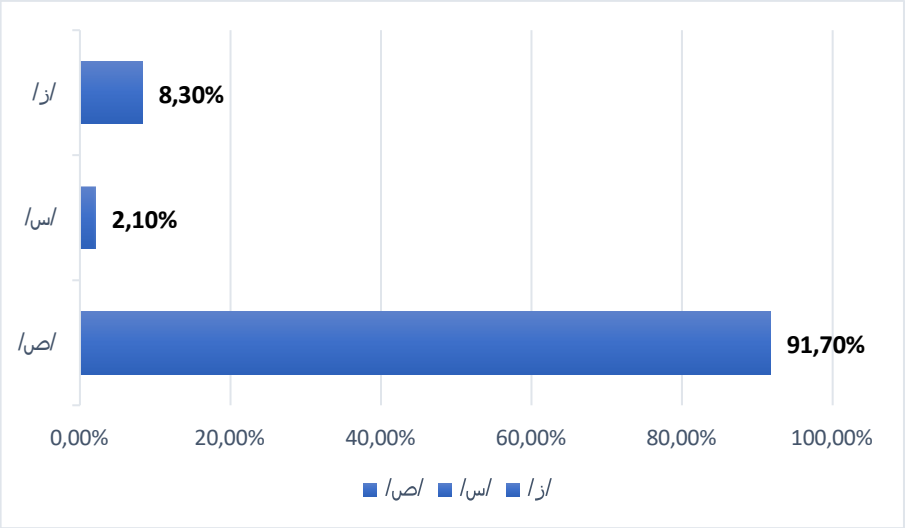


Figure V- 19 : The most challenging Arabic sound to pronounce

The graph 5.20 reveals that almost all the learners are facing troubles articulating /§// ص/82% of them said that the word مصاصةwhich means sucker where the sound /§// ص/ is used twice with a long vowel صا and a short vowel ص. So, for them the /§// ص is a difficult sound to produce regardless its position in the word. Researchers explain that the articulation of such sound involved that the back of the tongue should be raised towards the velum. It needs a lot of training to realize it.

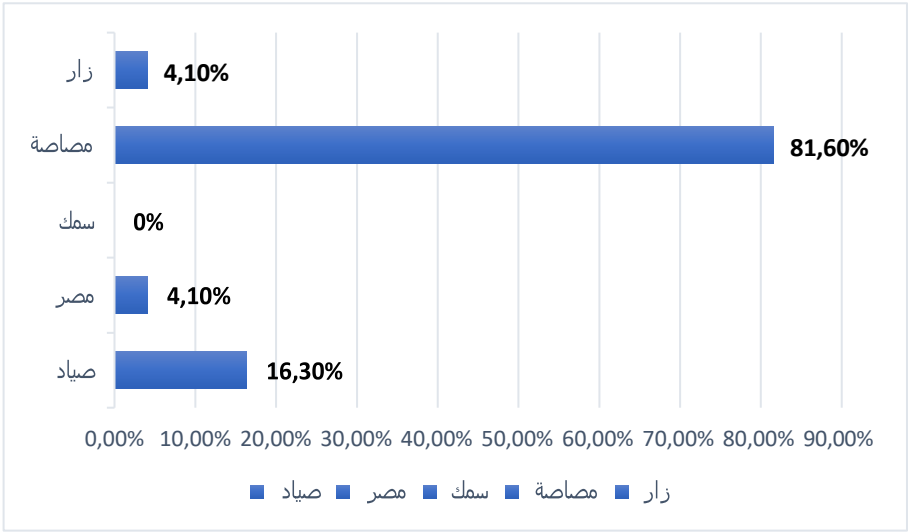


Figure V- 20 : learners' perception of /§ // ص/

As shown in graph 5.21, all the learners state that / X / / خis the hardest sound to produce: they confirmed that they are facing great difficulty in pronouncing such a sound.

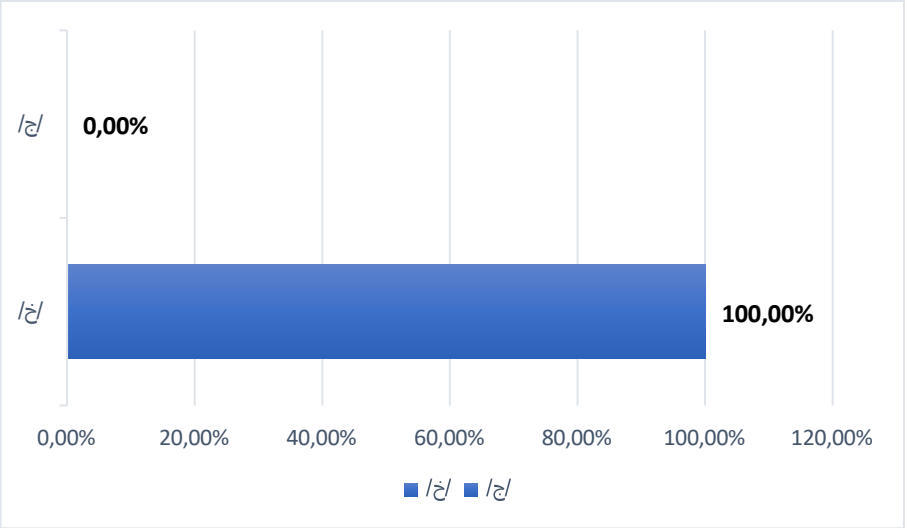


Figure V- 21 : learners' perception of /X // خ /ð /ح/

Figure 5.22 demonstrates that a large percentage of the students about 73% explained that the word خوخ, which means peach, is the most difficult word to produce as the sound/ X / / خ / appears twice in the word. 17% stated that the word خروفwhich means sheep is challenging for them.9% of the learners said the word نخيلwhich means palms is a difficulty for them. Therefore, we conclude that the sound/ X / / خ / is tough for non-Arabic speakers to pronounce.

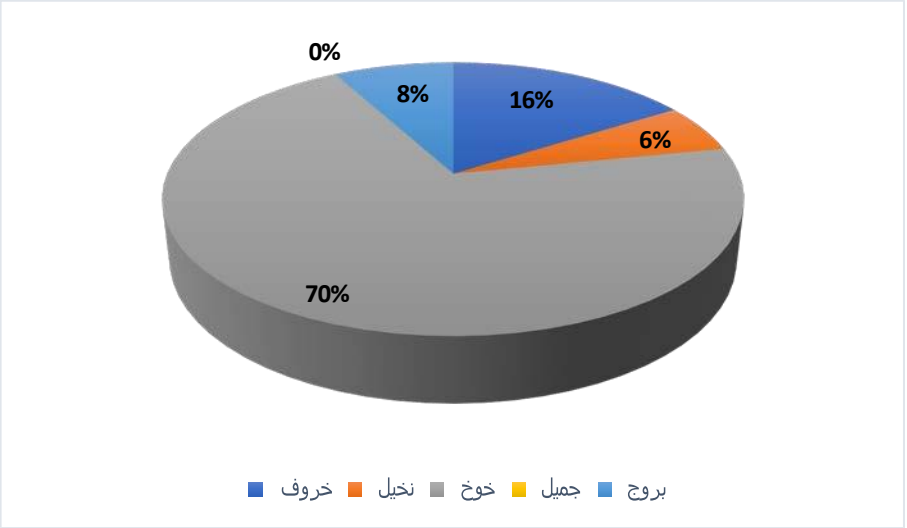


Figure V- 22 : learners' perception of /X / // خ

Of almost all the learners who answered the questionnaire, 82% said that /ð// ج // is not easy to pronounce while only 22% said that the sound /h/ /ه/ is difficult for them to pronounce. Figure 5.23 articulates other difficult Arabic sounds to pronounce.

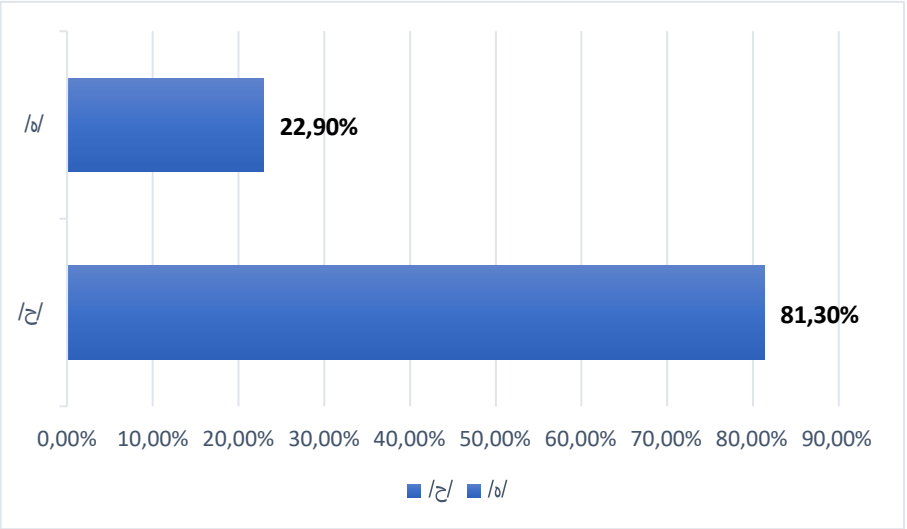


Figure V- 23 : learners' perception of / ð/ ج // h / / ه/

As appears in figure 5.24, the students' answers varied: about 62.5% said that the word بلح which means dates is the most challenging for them to pronounce where // ð// ج //// is in the final position preceded by /b/ and /l/. 14.6 of the learners stated that the word حبر which means ink, where the / ð// ج /sound appears in the initial position is very hard for them to pronounce.12.5% of the learners who answered the questionnaire explained that the word شهر which means a month is the most difficult word to produce. While 10.4% of them said that the wordبحرwhich means the sea is the hardest one.

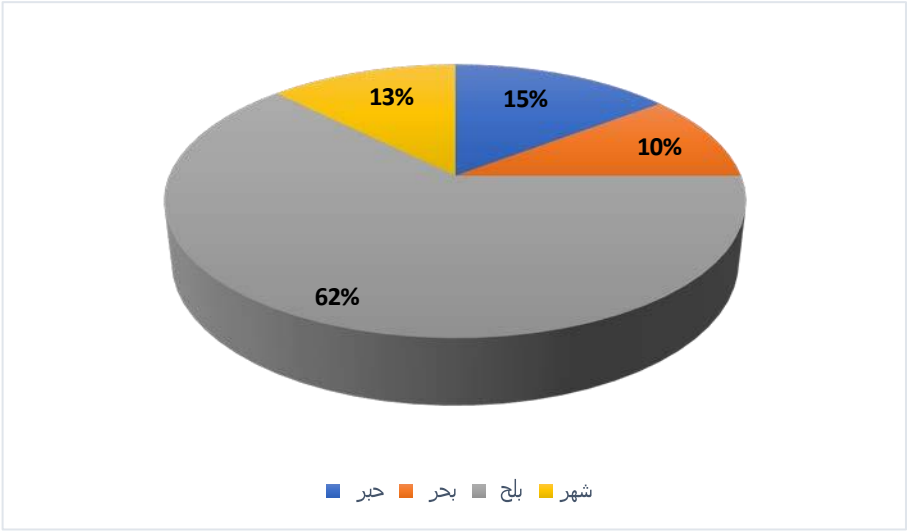


*Figure V- 24 : learners' perception of /*ð / ج//

Are there any other particular Arabic speech sounds or phonological features thatyou find hard to differentiate in spoken Arabic?

The first and most confounding issue foreign students face is phonological. There are several pharyngeal and glottal consonants and semi-consonants that most speakers struggle to produce. Consider ح ص ض ظ ط غ ع. Moreover, some sounds, like ر and ل, which are not strictly pharyngeal, can end up with a pharyngeal quality thanks to the linguistic phenomenon known as feature spreading. The following is a direct quote from one of the participants; *Stress and combination of sounds especially when it comes to consonants which they are not familiar with''.*

What aspects of Arabic grammar do you struggle with the most while speaking?

The learners agreed that gender, singular and plural forms are the most struggling aspects while speaking the Arabic language. About 40% of the learners said that singular and plural forms are very hard for them. The rules governing the singular/plural are very difficult and they are very different from those in their mother tongue.

Figure 5.25 demonstrates the best helpful strategies for students to overcome some speaking difficulties. The graph shows that 84% of them believe that *listen and repeat* is the best way to overcome the pronunciation difficulties

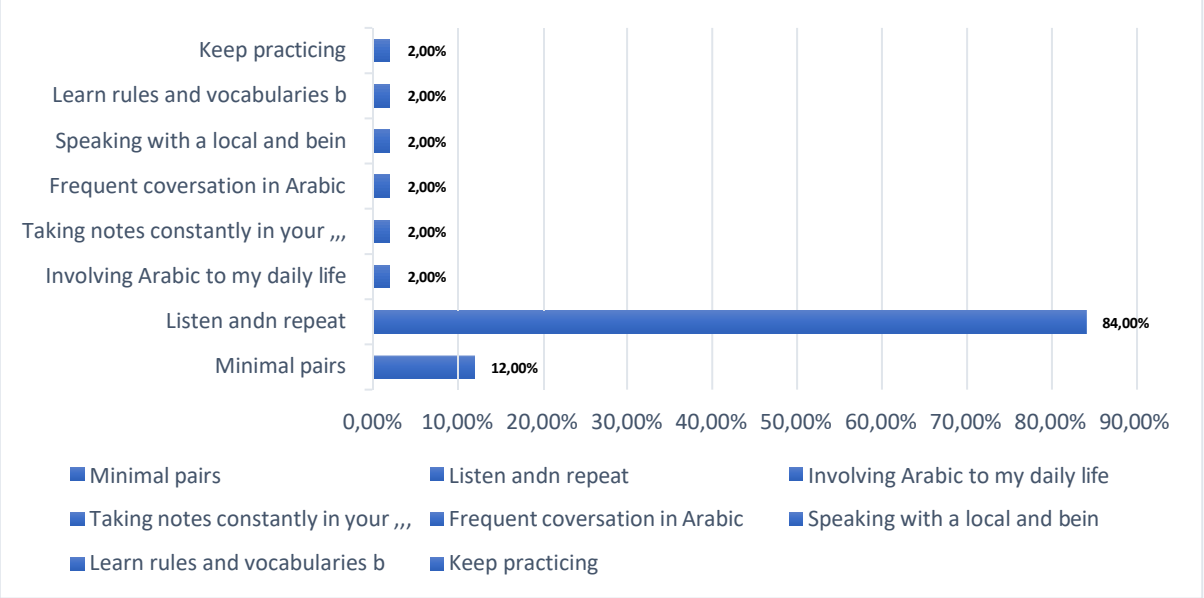


Figure V- 25 : The students' strategies to overcome speaking difficulties

Do you think that improving your Arabic pronunciation is essential for your overall language proficiency? Why?

The students shared common replies for this question; they all agreed that having a correct pronunciation helps them to an understandable communication, among the interesting replies is the following statement: "Yes, learning the common phrases that I need to use in everyday life situations with the correct way of pronouncing them will make it easier for others to understand me".

Have you ever received any guidance or feedback from Arabic instructors or native speakers? If yes please share your experience.

Most of the participants advocated the help of either their teachers or their close family members; one learner stated that; '*Yes, to learn a language is a process. We can improve the language with patience. I worked this summer in a dress shop and this work place very famous and stopped by Arabs. And when I am talking Arabic they became very happy and got surprised and wish me and pray me good lucks in learning Arabic also my teacher from university preparing class gave good information and words it was very useful''*.

5.9 Discussion of the Questionnaire Findings

All questionnaire respondents confirmed they can speak English, which is the common language among the participants despite their diverse mother tongue backgrounds. Thus, the researcher aims to compare contemporary standard Arabic MSA, English, and the participants' common language through contrastive analysis. The questionnaire results indicated that foreign Arabic students encounter challenges in producing specific Arabic consonant contrasts such as /ë//d/,/ê///D/,/§//s /,/ÿ//t /, /k/ /q/, /h/ /ð/,/À/ // /. These difficulties stem from the differences in sound systems between the two languages and interference from the learners' native language. In other words, since these sounds are not present in the learners' mother tongue, they tend to substitute them with sounds similar to those in their native language. Notably, foreign learners find producing emphatic Arabic consonants such as /d//ê//§//ÿ/ particularly challenging at both the phonetic and phonological levels.

Phonetically speaking, the articulation of emphatic consonants involves a coronal articulation and a secondary articulation involving the back of the tongue. This latter is a result of the retraction of the tongue body (AL-Solami, 2013). For foreign learners, this combination is both new and challenging to manage.

The phonological environment plays a crucial role in producing emphatic consonants accurately. In the current study, learners are asked to choose the most difficult word to pronounce from a list of carefully selected preceding and following consonants. The results show that the learners mispronounce the emphatic consonants in initial, middle, and final positions, though the sounds preceding and following them exist in their mother tongue.

Pharyngealisation is a phonological process whereby some segments (designated as emphatics, pharyngealised, velarized, uvularized) impose a backing effect on surrounding consonants and backing and lowering effects on vowels in their neighbourhood (Mustafawi, 2019). According to Al-Annani (2008, p. 48), voicing this sound depends on its environment. /h//ه / and - / N//ح /are hard for them to pronounce; these sounds are considered to be confusing. Thus, most of the learners confuse the /h/ and / N//ح /. Phoneticians attribute this confusion to the fact that both sounds have similar manners and places of articulation. The only difference lies in the vibration of the vocal cords. According to Al-Annani, the voicing of this sound depends on its environment, while / N//ح /is considered to be a voiceless sound in all positions.

The uvular stop /q/ is regarded as a challenging sound to produce since it exists neither in the student's mother tongue nor in English (as it is the common language that all the learners speak).

To sum up, both interview results and learners' questionnaire findings reveal that non-speakers of Arabic face difficulty producing emphatic or pharyngealised consonants /d//ê//§//ÿ/, pharyngeal consonants / ð/ /À/, uvular /q/and velar/X/ are problematic consonants to non-native speakers of Arabic.

5.10 Conclusion

This chapter presents the findings and results of the methods used in the current study. It clarifies the challenges foreigners face studying Arabic as a foreign language from the perspectives of both teachers and students. The results of both the learners' questionnaire and teachers' interviews are crucial as they give significance to pronunciation teaching. Additionally, by understanding these difficulties, teachers can develop suitable techniques and strategies to help learners overcome the challenges and achieve native-like pronunciation. By employing contrastive analysis, phonemic awareness, and intensive practice, individuals from various language backgrounds can effectively learn to produce Arabic sounds. In the following chapter, an examination will be made of the acoustic analysis of an Arabic native speaker and six Malian students at UTMB, along with a comparison to earlier research.

CHAPTER SIX
RESULTS OF THE THIRD METHOD

CHAPTER SIX : RESULTS OF THE THIRD METHOD

6.1 Introduction

This chapter presents the findings of the third research method, an experiment. The analysis of the results was conducted on two levels: articulatory and acoustic. The latter focused on comparing the length of the target consonants as uttered by the native speaker as a model, as well as the involvement of males and females, at the articulatory level by comparing the native speaker's articulation to the participants.

6.2 The Experiment Sample Size

In the current study, an experiment was conducted at Bechar University on a group of six international students; three of them are male and three are females. All the participants were 23 years old at the time of the research experiment. They are originally from Mali and began studying English as a foreign language at Tahri Mohammed University in Bechar in 2019 with the goal of earning a master's degree in five years. The participants speak French and English in addition to Bambara as their native language.

6.3 Brief Description of the Experiment

Acoustic recordings are the most appropriate approach for the current study since the primary goal is to examine challenging sounds and sound combinations that signify difficulties for Arabic language learners. The researcher may analyse the participants' pronunciation using acoustic recordings, revealing differences in emphatic and pharyngeal sounds that do not occur in Bambara.

In the first stage of the experiment, six Malian students were asked to read a conversation designed by the researcher (See Appendix 4). The participants' readings were captured using a magneto phone recorder, a recording machine that captures and plays back sounds so that the researcher may refer to them as needed. In the second stage, the researcher collated all the sounds that would be challenging for foreign students to pronounce and used them in words in isolation, as indicated in the table below.

Sound	Initial	Middle	Final
ط	طريق	محطة	تحط
ع	عدل	العمل	رجع
ح	حبيب	بحر	مفرح
ظ	ظافر	منظر	لاحظ
ق	قمر	بقرة	سباق
خ	خالد	تخف	خوخ
ص	صابر	مصاصة	قصص
ه	هارون	شهر	منبه
ض	ضرار	رضيع	ارض

Table VI- 1 : Arabic sounds in different word position

The words are carefully chosen based on their syllable structure and consonant clusters. The sounds preceding and following the challenging sounds should be present in the students' mother tongue. For example, بحر contains both /b/ and /r/. The challenging sound is /N/. In addition, the researcher used these sounds in the beginning, middle, and end of selected words.

6.4 Discussion of the Dialogue Recordings

The analysis is conducted on two levels. The first level is articulatory, where the researcher phonetically transcribes the entire dialogue as spoken by the native speaker, serving as a standard reference. This includes transcriptions from each participant, highlighting any mispronounced sounds. The second level is acoustical, where the challenging sounds are evaluated using PRAAT software.

6.5 Discussion of the Native Speaker Recordings

The native speaker in the present study is a teacher of Arabic language at the department of Arabic literature at Tahri Mohamed University Bechar. He has been teaching Arabic phonetics and phonology for more than 20 years. His pronunciation is taken as a standard reference to compare the students' performance. The following part of this section provides detailed transcriptions of the native speaker.

طارق. متى تحط الطائرة

-/ţa: r i q matataħuţuţa:ʔiratu /

مصطفئ. لا ادري انا في محطة القطار

/musţafala:ʔdriana: fi: maħaţatielqiţa:r/-

عادل: السلام عليكم. عدت من العمل مع عمتي عبلة/ Àudtu mina lÀamali maÀa ÀamatiÀabla/ -

علي: و عليكم السلام علمت ذلك عندما عايدتها. ع /ÀaliwaÀaleikumsala;mÀalimtuða:likaÀindmaÀ a:j adtuha: /-

حسام. كانت رحلة مفرحة الى البحر البارحة. ح-/ ħusa:mriħlatanmufriħatanilalbaħri/

حبيب. حضر كل المحامين و المحاسبين. ح-/ħabi:bħadˁarakulualmuħa:mi:nawaalmuħa:sibi:na/

ظافر. ظهر ظبي عند الظهيرة.ظ

da:firdaharadabj unÀindadahi:ra./-/

مظهر. منظر ظريف. ظ

madharmandarda:rif./-/

قمر التقيت قريبتي قرب محطة القطار ق

/qamariltaqaj tui:qurbamaħaţatielqiţa:r/-

عقيلة. كانت قريبة من القصر. ق

/taqi:laka:natqari:batanminaalqasr/-

خالد. اخذت الخوذة و بعض الخوخ خ

/Xa:lidaXadtualXu:ðatawabat□aalXu:X/-

خولة. لا تخف. خالك خليل سيرافقك. خ

/XawlalataXafXa:lukaXali:lsaj ura:fiquka/.-

صابرين. اصبر. الصيد يتطلب صبرا. ص

/§a:bri:ni§bira§aj duj ataţalabu§abran/ -

صابر. صدقتي. اريد مصاصة. ص

§a:bir§adaqtiuri:duma§a:§a/ -/

مهدي هذا شهر الهدايا. ه

/mahdij ha:ða:ʃahru**a**lhada:j a:/-

هارون. نعم اشتريت منبها اهديه ل مهند هه

/ha:ru:nn**a**À**a**m iʃtaraj tumun**a**bih**a**nlimuhan**a**d /-

ضرار. ضاع رضيع من امه

/□□iira:r□a:tara□i :tunminumihi/-

ضرغام كنت هناك اطارد ضفدعا اخضرا/

/□irÄa:mkuntuhuna:kauţa:ridu□i f □atanaX□aran/-

6.6 Results of the Students' Recordings Analysis

As previously stated, the recordings of the participants are phonetically transcribed using the International Phonetics Alphabet (IPA). The researcher transcribed all the data manually through careful listening See Appendix 4. The following sections feature the transcripts of all six participants. Each consonant will be presented separately.

6.6.1 Participants' Pronunciation of [ÿ]ط in Different Positions

	طارق /ţa: r i q/	الطائرة / ţa:ʔiratu /	تحط /taħuţu/	محطة /maħaţati	القطار / el**q**iţa:r/
Participant A	/ta: r i q/	/ ta:ʔiratu /	/taħutu/	/maħatati	/ el**q**ita:r/
Participant B	/ta: r i q/	/ ta:ʔiratu /	/taħutu/	/maħatati	/ el**q**ita:r/
Participant C	/ta: r i q/	/ ta:ʔiratu /	/taħutu/	/maħatati	/ el**q**ita:r/
Participant D	/ta: r i q/	/ ta:ʔiratu /	/taħutu/	/maħatati	/ el**q**ita:r/
Participant E	/ta: r i q/	/ ta:ʔiratu /	/taħutu/	/maħaţati	/ el**q**ita:r/
Participant F	/ta: r i q/	/ ţa:ʔiratu /	/taħutu/	/maħatati	/ el**q**ita:r/

Table VI- 2 : Participants' Pronunciation of [□] ط in Different Positions

A quick glimpse at Table 6.2 reveals that all the participants mispronounce the sound [( ] ط**.** They tend to pronounce it as the French dental sound [t] which they are used to. For instance, all the participants pronounce the word طارق/ţa: r i q/**,** a male first name**,** as/ta: r i q/ and the wordالطائرة/ ţa:ʔiratu /**,** the plane, as/ ta:ʔiratu /**.**

6.6.2 Participants' Pronunciation of [À] ɛin Different Positions

	عبلة /tabla/	علي /tali/	العمل /ltamali/	عندما /tindma/	مع /mata/
Participant A	/1abla/	/ʔali/	/l1amali/	/indma/	/ma1a/
Participant B	/1abla/	/ʔali/	/l1amali/	/indma/	/ma1a/
Participant C	/1abla/	/ʔali/	/l1amali/	/indma/	/ma1a/
Participant D	/1abla/	/ʔali/	/l1amali/	/indma/	/ma1a/
Participant E	/1abla/	/ʔali/	/l1amali/	/indma/	/ma1a/
Participant F	/1abla/	/ʔali/	/l1amali/	/indma/	/ma1a/

Table VI- 3 : Participants' Pronunciation of [□] ɛin Different Positions

As can be noticed in Table 6.3 all the students exhibit difficulty in pronouncing the sound [À] ɛ**.** For example**,** all the students could not pronounce[t] ɛ accurately; they tend to pronounce it as the glottal stop [1] أsometimes and do not pronounce it at all other times. The participants pronounce the word عبلة**/Àabla**/, a female first name, as **// abla**/and the word **عندما /Àindma/,** which means while, as **/indma/.**

6.6.3 Participants' Pronunciation of [ð]ح in Different Positions

	حبيب /ħabi:b/	حسام / ħusa:m/	البحر /albaħri/	المحامين /almuħa:mi:na/	مفرح /mufriħ/
Participant A	/**ha**bi:b/	/usa:m/	/albahri/	/**a**lmuħa:mi:n**a**	/mufri/
Participant B	/**ha**bi:b/	/usa:m/	/albahri/	/**a**lmua:mi:n**a**	/mufrih/
Participant C	/**ha**bi:b/	/usa:m/	/albahri/	/**a**lmuha:mi:n**a**	/mufri/
Participant D	/**ha**bi:b/	/usa:m/	/albahri/	/**a**lmuha:mi:n**a**	/mufri/
Participant E	/**ha**bi:b/	/usa:m/	/albahri/	/**a**lmuha:mi:n**a**	/mufri/
Participant F	/**ha**bi:b/	/usa:m/	/albahri/	/**a**lmua:mi:n**a**	/mufrih/

Table VI- 4 : Participants' Pronunciation of [□]حin Different Positions

Table 6.4 shows that all the participants are unable to pronounce [N]ح inthe given words. They supplanted the sound [ð] by [**h**] in some words and do not pronounce it in other words.

By way of illustration, all the students pronounce the word البحر/albaħri/, the sea, as /albahri/ and the word مفرح/mufriħ/, which means happy, as /mufri/.

6.6.4 Participants' Pronunciation of [ë] ظin Different Positions

	ظبي /dabj un/	ظافر / da:fir/	منظر / mandar./	ظريف /da:rif/	الظهيرة /adahi:ra/
Participant A	/zabj un/	/ za:fir/	/ manzar./	/za:rif/	/azahi:ra/
Participant B	/dabj un/	/ za:fir/	/ mandar./	/za:rif/	/azahi:ra/
Participant C	/zabj un/	/ za:fir/	/ manzar./	/da:rif/	/adahi:ra/
Participant D	/zabj un/	/ za:fir/	/ manzar./	/za:rif/	/azahi:ra/
Participant E	/dabj un/	/ za:fir/	/ manzar./	/da:rif/	/azahi:ra/
Participant F	/dabj un/	/ za:fir/	/ manzar./	/za:rif/	/adahi:ra/

Table VI- 5 : Participants' Pronunciation of [□] ظin Different Positions

It can be noticed in Table 6.5 that all the participants mispronounce the sound [d] ظ in all the words. They tend to pronounce it as [z] ز in some words and as [d]د in others. For instance, all the 3 participants pronounced the word **ظبي**/dabj un/, gazelle, as /zabj un/, and the three others pronounced it as /dabj un/. Also when they were asked to pronounce the word**منظر** / mandar/, a view, all the participants pronounced it as / manzar./

6.6.5 Participants' Pronunciation of [q] ق in Different Positions

	قمر /qamar/	قرب /qurba/	القطار /el**q**iṭa:r/	القصر /**a**lqasr/	عقيلة /taqi:l**a**/
Participant A	/**k**amar/	/**k**urba/	/el**k**ita:r/	/**alk**asr/	/a**k**i:l**a**/
Participant B	/**k**amar/	/**k**urba/	/el**k**ita:r/	/**alk**asr/	/a**k**i:l**a**/
Participant C	/**k**amar/	/**k**urba/	/el**k**ita:r/	/**alk**asr/	/a**k**i:l**a**/
Participant D	/**k**amar/	/**k**urba/	/el**k**ita:r/	/**alk**asr/	/a**k**i:l**a**/
Participant E	/**k**amar/	/**k**urba/	/el**k**ita:r/	/**alk**asr/	/a**k**i:l**a**/
Participant F	/**k**amar/	/**k**urba/	/el**k**ita:r/	/**alk**asr/	/a**k**i:l**a**/

Table VI- 6 : Participants' Pronunciation of [q]قin Different Positions

As shown in Table 6.6 all the participants find it difficult to pronounce the sound [q]ق.

All of them produce it as [k] ك for instance, when they were asked to say **قرب**/qurba/, meaning near, they pronounced it as /**k**urba/ which means a problem in Arabic.

6.6.6 Participants' Pronunciation of [X] خ in Different Positions

	خولة /Xawl**a**/	**خالد** /Xa:lid	**تخف** /t**a**Xaf/	**خليل** /Xali:l/	**الخوخ** /**a**lXu:X/
Participant A	/kawl**a**/	/**k**a:lid/	/t**ak**af/	/**k**ali:l/	/**a**lu:/
Participant B	/kawl**a**/	/**k**a:lid/	/t**aa**af/	/**k**ali:l/	/**a**lu:/
Participant C	/kawl**a**/	/**k**a:lid/	/t**aa**af/	/**k**ali:l/	/**a**lu:/
Participant D	/kawl**a**/	/**k**a:lid/	/t**ak**af/	/**k**ali:l/	/**a**lu:/
Participant E	/kawl**a**/	/**k**a:lid/	/t**aq**af/	/**k**ali:l/	/**a**lu:/
Participant F	/kawl**a**/	/**k**a:lid/	/t**ak**af/	/**k**ali:l/	/**a**lu:/

Table VI- 7 : Participants' Pronunciation of [X] خin Different Positions

Table 6.7 shows that almost all the participants mispronounce the sound [□] **خ** in all the provided words. In some words, they tend to pronounce it as velar[k]كand other times they do not pronounce it at all. For example, all the participants pronounced the word **خولة**/Xawl**a**/, a female first name, as /kawl**a**/. In pronouncing the word **الخوخ**/**a**lXu:X/ the sound [□] **خ** disappeared totally and a kind of click can be heard instead.

6.6.7 Participants' Pronunciation of [§]صin Different Positions

	صبرا /§abran/	مصاصة /ma§§a:§a/	صابر / §a:bir/	صدقتي /§adaqti/	الصيد /a§§aj du/
Participant A	/**s**abran/	/ma§§a:**s**a/	/**s**a:bir/	/**s**ada**k**ti/	/a**ss**aj du/
Participant B	/**s**abran/	/ma**s**a:**s**a/	/**s**a:bir/	/**s**ada**k**ti/	/a**s**aj du/
Participant C	/**s**abran/	/ma**s**a:**s**a/	/**s**a:bir/	/**s**ada**k**ti/	/a**s**aj du/
Participant D	/**s**abran/	/ma§a:**s**a/	/**s**a:bir/	/**s**ada**k**ti/	/a**s**aj du/
Participant E	/**s**abran/	/ma**s**a:**s**a/	/**s**a:bir/	/**s**ada**k**ti/	/a**s**aj du/
Participant F	/**s**abran/	/ma**s**a:**s**a/	/**s**a:bir/	/**s**ada**k**ti/	/a**s**aj du/

Table VI- 8 : Participants' Pronunciation of[§]صin Different Positions

A quick glimpse at Table 6.8 reveals that all the participants find it challenging to produce the sound **[§]ص**; all of them pronounced as the French sound**[s]**. For instance, the six participants articulated the word **صبرا**/§abr**a**n/, meaning patience, as /**s**abr**a**n/.

6.6.8 Participants' Pronunciation of [h]ه in Different Positions

	هارون /ha:ru:n/	هذا / ha:ða/	شهر /ʃahru/	مهند /muhann**a**d /	منبه /mun**a**bih/
Participant A	/ a:ru:n/	/ a:ða/	/ʃa1ru/	/muhann**a**d /	/mun**a**bi /
Participant B	/ha:ru:n/	/ha:ða/	/ʃa1ru/	/muhan**a**d /	/mun**a**bi /
Participant C	/a:ru:n/	/ a:ða/	/ʃa1ru/	/muaan**a**d /	/mun**a**bi /
Participant D	/a:ru:n/	/ ha:ða/	/ʃa1ru/	/muaan**a**d /	/mun**a**bi /
Participant E	/a:ru:n/	/ a:ða/	/ʃa1ru/	/muan**a**d /	/mun**a**bi /
Participant F	/ha:ru:n/	/ ha:ða/	/ʃa1ru/	/muan**a**d /	/mun**a**bi /

Table VI- 9 : Participants' Pronunciation of [h]ه in Different Positions

As noticed in Table 6.9 almost all the participants mispronounced **[h]ه**. 2 participants succeeded in pronouncing it in the word**هارون**/ha:ru:n/, male first name, and 4 participants found

it difficult to produce it. Thus, it is articulated as a glottal stop in the word **شهر**/ʃahru/, a month, and as a whisper in a **منبه**/mun**a**bih/, meaning alarm.

6.6.9 Participants' Pronunciation of [ê]ض in Different Positions

	ضرار /□iira:r/	ضاع /□a :ta/	رضيع /ra□i :t/	اخضر /aX□aran/	ضفدعا /□i f□atan/
Participant A	/ziira:r/	/da :1a/	/razi :/	/a**k**daran/	/zi f daan/
Participant B	/ziira:r/	/da :1a/	/razi : /	/a**k**daran/	/zi f daan/
Participant C	/ziira:r/	/da :1a/	/razi : /	/a**k**daran/	/zi f daan/
Participant D	/ziira:r/	/da :1a/	/razi : /	/a**k**daran/	/di f daan/
Participant E	/ziira:r/	/da :1a/	/razi : /	/a**k**zaran/	/zi f daan/
Participant F	/ziira:r/	/da :1a/	/razi : /	/a**k**daran/	/zi f daan/

Table VI- 10 : Participants' Pronunciation of [ê]ضin Different Positions

As it can noticed in table 6.10, all the participants mispronounced the sound [□]**ض**. They pronounced it as [z] in some words and as [d] in others. For example all the participants pronounced **ضرار**/□iira:r/, a male first name, as /ziira:r/and **ضاع**/□a :ta/, lost, as /da :1a/.

6.7 Discussion of the Participants Recordings

Table 6.11 generates all the Arabic sounds as each experiment participant pronounces them.

The sound	STUDENT A	STUDENT B	STUDENT C	STUDENT D	STUDENT E	STUDENT F
ط	/t/	/t/	/t/	/t/	/t/	/t/
ع	/1/	/1/	/1/	/1/	/1/	/1/
ح	/h/	/h/	/h/	/h/	/h/	/h/
ظ	/z/	/d/	/z/	/z/	/d/	/d/
ق	/k/	/k/	/k/	/k/	/k/	/k/
خ	/x/	/k/	/x/	/k/	/x/	/h/
ص	/s/	/s/	/s/	/s/	/s/	/s/
ه	/ /	/ /	/h /	/ /	/h /	/ /

ض	/d/	/d/	/z/	/d/	/z/	/d/

Table VI- 11 : Sounds as Pronounced by Participants

Table 6.12 provides a detailed summary of the participants' accurate and incorrect pronunciation of Arabic sounds. The examination found that all participants incorrectly pronounced the sounds /ص/, /ق/, /ظ/, /ع/, /ط//ح/ and /ض/.

	Number of students	Correct pronunciation	Wrong pronunciation	Percentage
ط	6	0	6	**100%**
ع	6	0	6	**100%**
ح	6	1	5	**83.33%**
ظ	6	0	6	**100%**
ق	6	6	6	**100%**
خ	6	1	5	**83.33%**
ص	6	6	6	**100%**
ه	6	2	4	**66.33%**
ض	6	0	6	**100%**

Table VI- 12 : Participants' Correct and Wrong Pronunciation

6.8 Comparing the Participants' Performance to the Native Speaker

This section thoroughly examines the differences and similarities between the participants' pronunciation and the Arabic native speaker pronunciation chosen as the stakeholder in this experiment. The comparison suggested a lot of intriguing details on the pronunciation errors made by the participants.

The student's first language, French, influences the target language, modern standard Arabic. Student A tends to pronounce **/ţ /**as the French sound **/t/.** The articulation of this sound is the same as that of [t] and [d] the only difference is that in [ʗ] the back of the tongue is raised towards the soft palate as secondary articulation. This em phatic sound involves the learners adjusting their tongue position to engage the pharyngeal muscles, a combination that might be unfamiliar and difficult to control.

When pronouncing the /ʈ/ sound in initial, middle, and final positions such as in /**À**عبلة/l**Àamali** / العمل /**maÀa**/معall the students exhibit difficulties. They prefer to pronounce it as

the glottal stop /ʔ / and at other times the sound disappears. Phonetically speaking - /ʕ//ع /is a voiced, oral pharyngeal, produced with the pharynx and the back of the tongue.

The results indicated that learners, who speak French, English, and Bambara, do not often use pharyngeal sounds, for them articulating these sounds is challenging. For instance, the Bambara sound system has no pharyngeal fricatives, making articulation of /ʕ//ع/ quite difficult.Almost all the students struggle to pronounce/ħ/ sound in all positions. For instance, in words such asحبيب,بحر,مفرح they tend to swallow the sound /ħ/ meaning they do not pronounce it. The production of /ħ/ requires approximating the dorsum to the wall of the pharynx. The air escapes through the constricted space with audible friction. This type of articulation is new to the learners.

Furthermore, in words such asخالد خوخ تخف, students make a huge effort to pronounce the /x/ sound in the initial position. However, the middle and final position, they tend to pronounce it as /k/ sometimes and other times as an unintelligible whisper. The production of [□] خ, voiceless velar fricative, involves the back of the tongue being raised and retracted towards the uvula. The air is forced through the confined space causing the uvula to vibrate. The students are familiar with the type of articulation.

It is also revealed that the participants struggled to enunciate terms like قصر قمرعقيلة correctly. In every word they tended to pronounce /q/ as /k/ in articulating voiceless uvular stop [q] ق the back of the tongue is pressed against the uvula, causing the air to be blocked; the compressed air is released with an explosion. Non-speakers of Arabic find it problematic to realise such articulation.

In articulating words like ظافر منظر, all the students could not reach the correct pronunciation; three students pronounced [d] ظas /d/, and three others pronounced it as /z/. This confusion is due to the nature of the articulation of this sound. In producing [d] ظ, voiced emphatic interdentally, the back of the tongue is raised towards the velum. The air fills the oral cavity and forces its way through the constricted passage between the tip of the tongue and the upper teeth. This combination is not unique for the participants because it occurs in their mother tongue, Bambara, and the languages they speak French and English.

When the participants pronounced the following wordsصابر اصبر مصاصة, the researcher noticed that in various contexts and positions the student pronounced the /ص/ / §/ as /s/ /س/

which exists in his mother tongue. Generally, [ç] is produced similarly to [s] the only difference is that the back of the tongue is raised towards the velum in the articulation of the emphatic sound [ç].This concluded that English, French, and Bambara speakers were unfamiliar with this articulation style.

Additionally, although the /h/ exists in the student's mother tongue, and they are familiar with it, they show difficulty in pronouncing it. In words such as ,مهند منبه they tend to pronounce /h/ as a glottal stop //ʔ / or they do not pronounce it at all. Two participants pronounced /h/ correctly in the initial position in هارون. This sound is articulated at the glottis. The air flows with little friction.

6.9 Discussion of the Participants' Recordings Results

The results indicated that the students struggled to pronounce //□/due to their unfamiliarity with the sound. They tend to pronounce it as /d / in different positions and settings: initial, middle, and final in words like ضرار رضيع ارض. This is because in producing the emphatic sound [□]**ض ,**the tip of the tongue comes in firm contact with the root of the upper teeth, the tongue is grooved**,** and the back is raised towards the soft palate. Students struggled to accomplish such articulation; thus, they pronounced it as /d /.

It is critical to show the summary of this section. Selected transcripts were analysed to understand the nature of the participants' pronunciation in the recorded classes. Findings indicated that the Arabic language includes numerous sounds that do not exist in English and French, making their articulation challenging for foreign learners. The study highlights that sounds such as/**ه/ /ع//خ//ح/ /ق/** are difficult since they are pharyngeal and require the use of parts of the vocal tract that are not typically engaged in the articulation of English and French sounds. Furthermore, Arabic has a set of emphatic consonants such as **/ص/ /ظ/ /ض//ط/** that are produced with a secondary articulation involving the pharynx, giving them a heavy or dark quality. These emphatics are particularly difficult because they involve a secondary articulation that learners must coordinate with the primary place of articulation. For instance, Bambara does not have emphatic consonants; hence, learners produce these sounds without the necessary articulation.

6.10 Discussion of the Findings of the Acoustic Analysis

As mentioned earlier, the present study investigates the difficulties encountered by foreigners learning Arabic as a foreign language, mainly speakers of French and English.

Emphatic and pharyngeal consonants, which do not exist in these languages, are of particular interest. Thus, the participants in this study are asked to pronounce chosen words containing emphatic and pharyngeal sounds; their recordings are analyzed using PRAAT software to measure the duration of consonants in different positions: initial, medial, and final. The results are compared with native speakers of Arabic taking into consideration gender differences.

6.10.1 The Significance of Gender Differences in Acoustic Analysis

Gender differences in speech production influence the acoustic properties of consonants, including duration and other formants, such as frequency and pitch. In his article, Pepiot stated that mean fundamental frequency, associated with the perceptual notion of pitch, is commonly considered the significant difference between adult male and female voices. (PEPIOT, 2013). The participants in the current study are three male and three female Malian students. The mean duration of both male and female participants will be measured and discussed so that the research can prove the impact of gender in reaching accurate pronunciation.

6.10.2 The Significance of Duration in Acoustic Analysis

Duration is a crucial feature of speech, which can importantly influence the intelligibility and accuracy of pronunciation. It refers to the length of time a sound is held during speech. In this study, duration measurements of emphatic and pharyngeal consonants in Arabic are taken in milliseconds and compared between native and non-native speakers of Arabic. The results of the native speakers were analysed using PRAAT as shown in the figure below. The circled value represents the duration of /h/ in words.

Consonant duration can be influenced by many factors such as the consonant position in the word, the vowel quality, and the number of syllables. The current study examines one factor namely the effect of the consonant position. This study aims to show that some consonants are of difficulty for foreign learners. The measurement of consonants in different positions is made via PRAAT as shown in the spectrogram below.

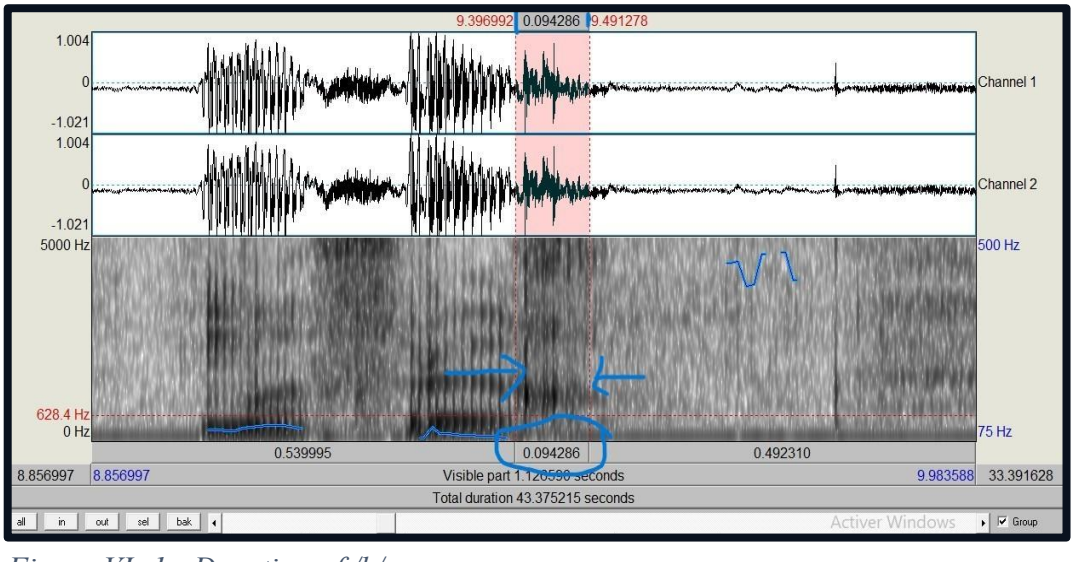


Figure VI- 1 : Duration of /h/

6.11 Procedure and Measurements: Results of Acoustic Analysis

According to Khelf, acoustic analysis, a method used primarily in phonetics, has become an increasingly necessary skill across linguistics. The analysis of acoustic signals is mainly performed with the help of generally available software (Khelf, 2020). Both native speakers' recordings and participants' recordings are analysed using PRAAT. As mentioned earlier, each participant is requested to read 27 words containing the consonants in question in different positions: initial, middle, and final position. The number of possible productions for the entire study is 162 items.

6.11.1 Results of the Male Native Speaker's Recordings Analysis

As mentioned in the previous chapter, in this study the male native speaker, who is a teacher of Arabic language at the department of Arabic literature, is taken as a reference so we can compare the participants' results with those of the native speaker.

Sound	Initial position(ms)	Middle position (ms)	Final position(ms)	Mean (ms)
ط	0.13	0.11	0.08	0.10
ع	0.15	0.11	0.17	0.14
ح	0.20	0.12	0.17	0.16
ظ	0.13	0.15	0.14	0.14
ق	0.10	0.13	0.06	0.09
خ	0.11	0.11	0.05	0.09
ص	0.11	0.24	0.11	0.15
ه	0.21	0.13	0.06	0.13
ض	0.13	0.21	0.08	0.14

Table VI- 13 : Resultsof the native speaker's recordings

Table 6.13 shows that the consonant duration is different in the initial, middle, and final positions for instance the duration of [ ] ط voiceless emphatic dental stop in the initial position is **0.13 ms** in the middle **0.11 ms**, and final position **0.08 ms** as shown in the spectrogram below. The duration is highlighted in yellow.

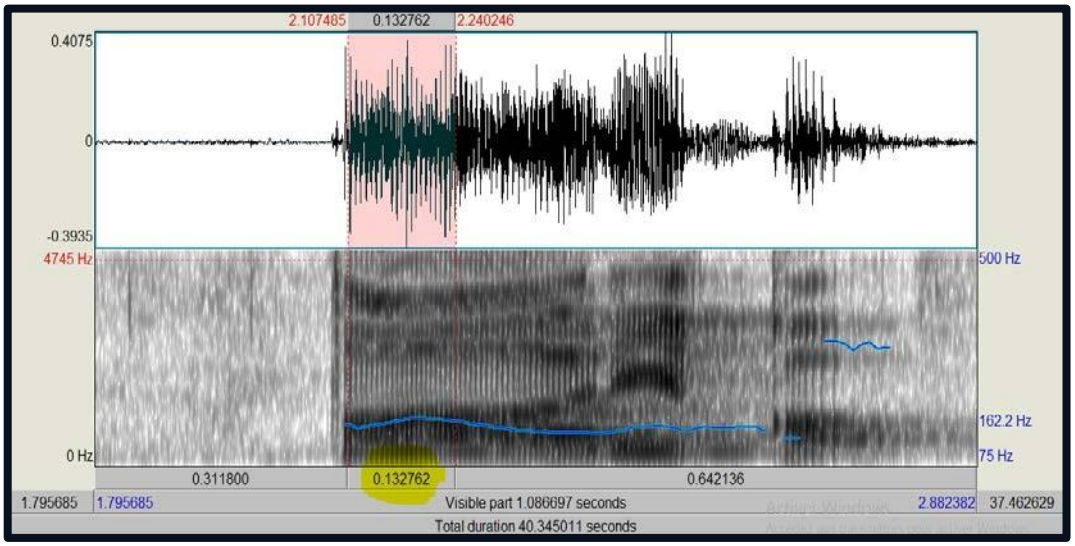


Figure VI- 2 : sound /ţ/ in initial position as pronounced by male NS

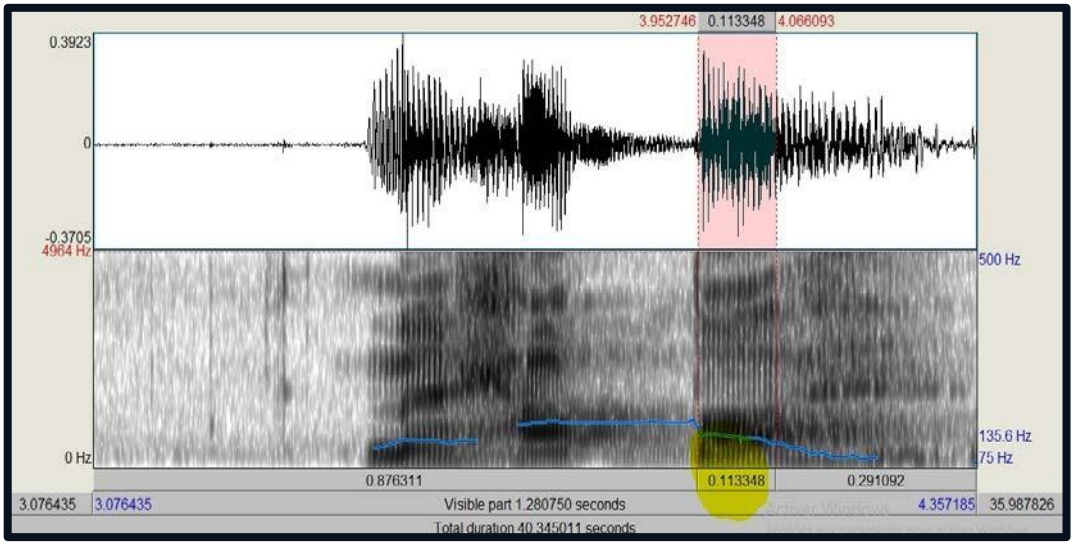


Figure VI- 3 : sound /ţ/ in middle position as pronounced by male NS

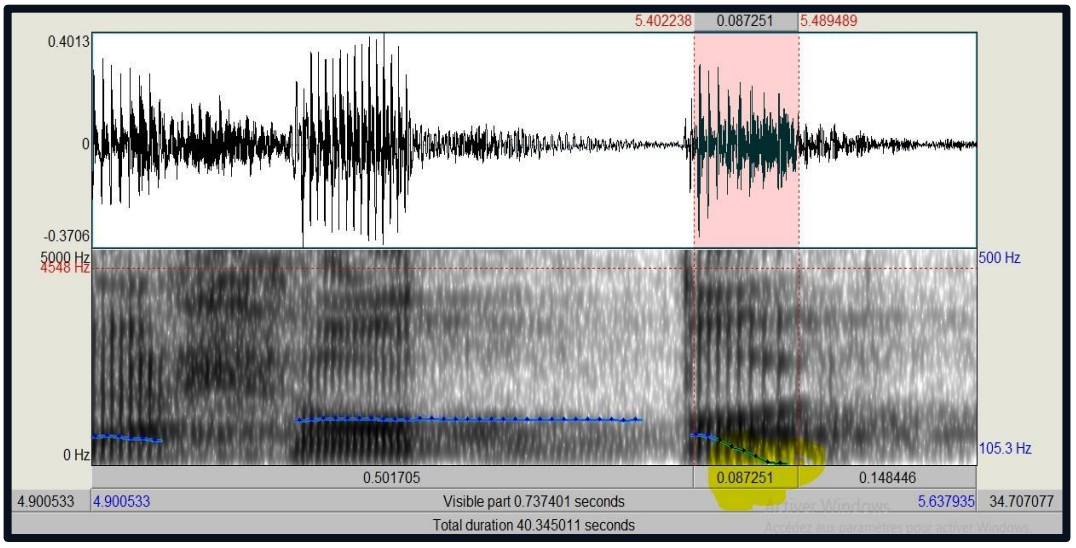


Figure VI- 4 : sound /ţ/ in final position as pronounced by male NS

6.11.2 Results of the Female Native Speaker's recording Analysis

As mentioned in Chapter Four, the female native speaker (FNS) in this study is a teacher of Arabic at the Department of Arabic Literature. She is famous for her fluency and accurate pronunciation of Arabic sounds since she has taught the rules of *tajweed* for over 10 years.

Sound	Initial position(ms)	Middle position (ms)	Final position(ms)	Mean (ms)
ط	0.12 ms	0.09 ms	0.06ms	0.09ms
ع	0.15 ms	0.13 ms	0.12ms	0.13ms
ح	0.09 ms	0.10 ms	0.09ms	0.09ms
ظ	0.14 ms	0.10 ms	0.07ms	0.10ms
ق	0.09 ms	0.12 ms	0.06ms	0.09ms
خ	0.17 ms	0.09 ms	0.05ms	0.10ms
ص	0.15 ms	0.08 ms	0.06ms	0.09ms
ه	0.14 ms	0.09 ms	0.06ms	0.09 ms
ض	0.14 ms	0.12 ms	0.06ms	0.10 ms

Table VI- 14 : Female Native Speaker Recording Analysis

In the table above it can be noticed that the duration of consonants varied depending on their position in the word initial, middle or final. For instance, the duration of the voiceless emphatic dental stop[ ] ط in initial position is **0.12 ms** in the middle position and **0.09 ms** and **0.06 ms** in the final position as shown in the spectrogram below. The duration is highlighted in yellow.

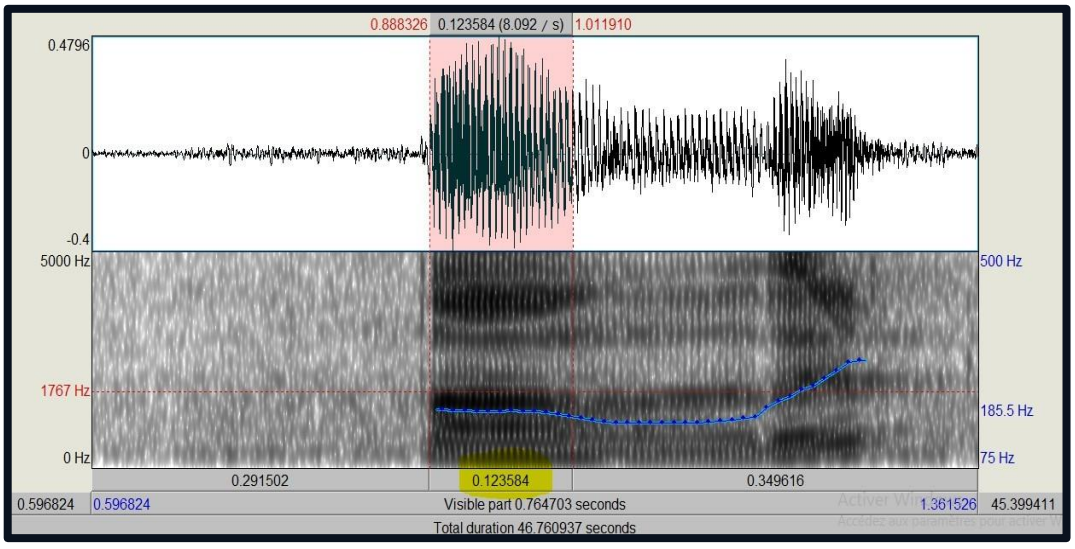


Figure VI- 5 : sound /ţ/ in initial position as pronounced by Female NS

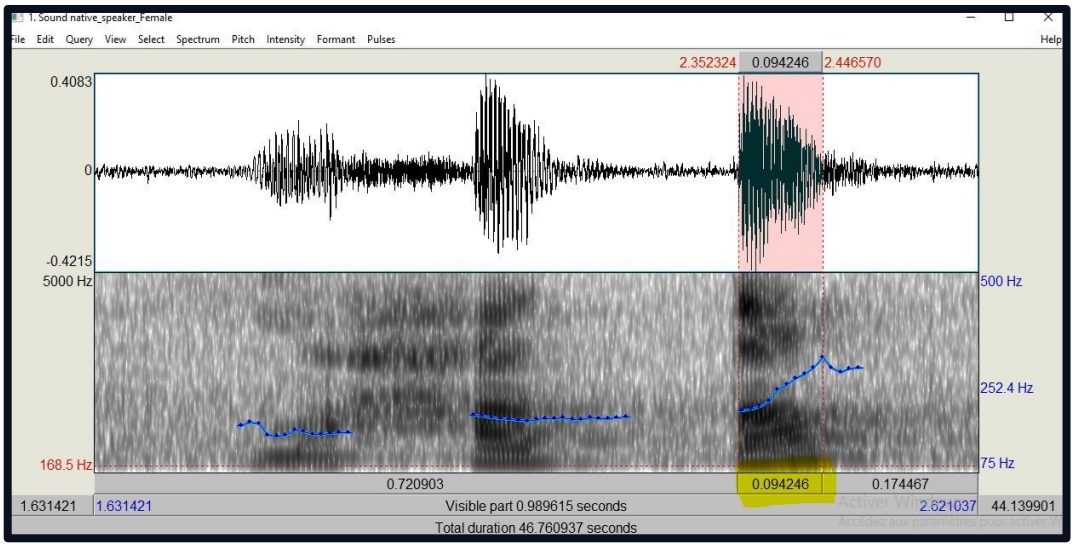


Figure VI- 6 : sound /ţ/ in Middle position as pronounced by Female NS

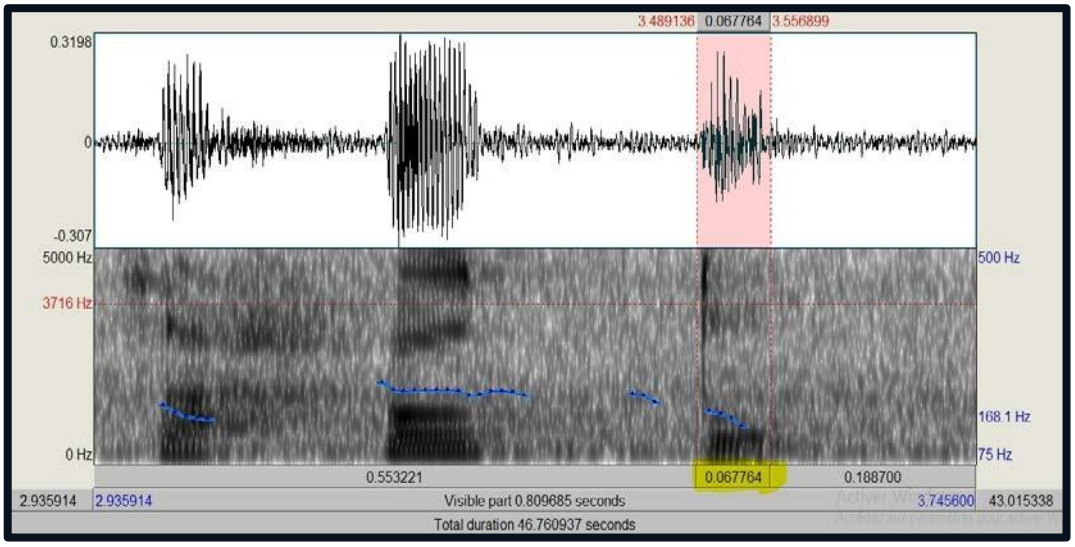


Figure VI- 7 : sound /ţ/ in final position as pronounced by Female NS

6.12 Comparison of the Mean Duration between Male and Female Native Speakers

Sound	Mean MNS	Mean FNS
ط	0.10ms	0.09ms
ع	0.14ms	0.13ms
ح	0.16ms	0.09ms
ظ	0.14ms	0.10ms
ق	0.09ms	0.09ms
خ	0.09ms	0.10ms
ص	0.15ms	0.09ms
ه	0.13ms	0.09 ms
ض	0.14ms	0.10 ms

Table VI- 15: Mean Duration of Male and Female native speakers

Gender differences can impact the acoustic properties of consonants, including duration. In the current study male and female native speakers of Arabic exhibit different patterns in consonant duration. Table 6.15 represents the mean duration of male and female native speakers of Arabic. Comparing this duration of a male native speaker with a female native speaker of Arabic reveals that;

The duration of most consonants is slightly longer in the native male speaker compared to the native female speaker except for [N] ح and [ç]ص which show the most significant difference with male speaker having a noticeably longer duration. This distinction is due to the acoustic and articulatory properties of these consonants

Generally, male speakers have longer vocal tracts compared to females, the average length of the adult female vocal tract is about 14.5 cm, while the male average is 17 to 18 cm long (Simpson, 2009). Additionally, the pharyngeal constriction for Arabic pharyngeal consonants requires considerable larynx rising which is more articulated in males due to their larger larynx size. The combination of a longer vocal tract and larger larynx in males permits for greater pharyngeal volume and a more articulated larynx-raising gesture while producing Arabic pharyngeal sounds such as [N] ح.

Acoustic studies indicate that emphatic consonants are produced with pharyngealisation which involves retracting the tongue root and elevating the larynx resulting in a longer duration. Males tend to emphasise these features than females.

6.13 Results of the Participants' Acoustic Analysis

It is of capital importance to mention that participants A, B, and C are males and participants D, E and F are females

6.13.1 The Duration of [ÿ] ط in Initial, Middle, and Final Position

	Initial position	Middle position	Final position	Mean
Participant A	0.16 ms	0.10 ms	0.11 ms	0.12 ms
Participant B	0.19 ms	0.12 ms	0.06 ms	0.12 ms
Participant C	0.15 ms	0.10 ms	0.08 ms	0.11 ms
Participant D	0.15 ms	0.10 ms	0.09 ms	0.11 ms
Participant E	0.11 ms	0.12 ms	0.11ms	0.11 ms
Participant F	0.18 ms	0.08 ms	0.08 ms	0.11 ms
Mean	0.15 ms	0.10 ms	0.08 ms	

Table VI- 16 : Duration of [□] ط in Initial, Middle, and Final Positions

Table 6.16 shows that the duration of [ـ] ط is changeable depending on its position in the word; initial, final, and middle. For instance, [ـ] ط tends to be longer in the initial position due to the emphasis placed on initial sounds in Arabic. The duration decreases slightly as it occurs between other sounds influenced by the phonetic context. [ـ] ط is usually shorter in the final position, with less duration due to the flow of speech. For instance, the mean duration of [ـ] ط the initial position is 0.15 ms, 0.10 ms in the middle position, and 0.08 ms in the final position.

6.13.2 Duration of[À]ع in Initial. Middle and Final Position

	Initial position	Middle position	Final position	Mean
Particiant A	0.15 ms	0.10 ms	0.12ms	0.12 ms
Particiant B	0.10 ms	0.08 ms	0.07ms	0.08 ms
Particiant C	0.11 ms	0.08 ms	0.09 ms	0.09 ms
Particiant D	0.15 ms	0.10 ms	0.08 ms	0.11 ms
Particiant E	0.15 ms	0.12 ms	0.09 ms	0.12 ms
Particiant F	0.14 ms	0.09 ms	0.08 ms	0.10 ms
Mean	0.13 ms	0.09 ms	0.08 ms	

Table VI- 17 : Duration of[À]ɛ in Initial. Middle and Final Position

According to Table 6.17, it is obvious that the duration of **[**À**]**ɛis inconstant. It varies based on its position in the word. For example, the mean of **[**À**]**ɛin the initial position is**0.13 ms, 0.09 ms**, in the middle position, and **0.08 ms** in the final position.

6.13.3 Duration of[ð] ɕin Initial. Middle and Final Position

	Initial position	**Middle position**	**Final position**	**Mean**
Particiant A	0.15ms	0.11ms	0.09 ms	0.11 ms
Particiant B	0.11ms	0.12ms	0.06ms	0.09 ms
Particiant C	0.12 ms	0.12 ms	0.06 ms	0.10 ms
Particiant D	0.14 ms	0.08 ms	0.06 ms	0.09 ms
Particiant E	0.10 ms	0.09 ms	0.10 ms	0.09 ms
Particiant F	0.22 ms	0.12 ms	0.06 ms	0.13 ms
Mean	0.14 ms	0.10 ms	0.06 ms	

Table VI- 18 : Duration of[ð]] ɕin Initial. Middle and Final Position

According to Table 6.18, it is evident that all the participants pronounce the [N] ɕwith different time durations. For instance, while participant A produced [N] ɕwith a time duration equal to **0.15 ms** in the initial position, **0.11ms** in the middle position, and **0.09 ms** in the final position. Participant E produced [N] ɕwith a different time duration; in the initial position, it is 0.10 ms. In the middle position, it is 0.09 ms, and in the final position, it is **0.10 ms.**

Additionally, the mean duration of [N]ɕ changed according to its position: initial, middle, or final. As shown in Table 6.11 above, the mean duration of [N]ɕ in the initial position is **0.14 ms**, in the middle position is **0.10 ms,** and in the final position is **0.06 ms**.

6.13.4 Duration of [ë] ظin Initial. Middle and Final Position

	Initial position	Middle position	Final position	Mean
Particiant A	0.14ms	0.08ms	0.14 ms	0.12 ms
Particiant B	0.14ms	0.13ms	0.11ms	0.12 ms
Particiant C	0.15 ms	0.11 ms	0.10 ms	0.12 ms
Particiant D	0.11 ms	0.10 ms	0.08 ms	0.09 ms
Particiant E	0.17 ms	0.13 ms	0.15 ms	0.15 ms
Particiant F	0.17 ms	0.15 ms	0.13 ms	0.15 ms
Mean	0.14 ms	0.12 ms	0.11 ms	

Table VI- 19 : Duration of [ë] ظin Initial. Middle and Final Position

A quick glimpse at Table 6.19 reveals that the mean duration of [d] ظ is changeable. It differs from one participant to another depending on its position in the word. It tends to be longer in the initial position and shorter in the final position. For example, the mean duration of [d] ظ in the initial position is **0.14 ms**, in the middle position is **0.12 ms**, and in the final position is **0.11 ms.**

6.13.5 Duration of [q] قin Initial. Middle and Final Positions

	Initial position	Middle position	Final position	Mean
Particiant A	0.05 ms	0.05 ms	0.07 ms	0.05 ms
Particiant B	0.09ms	0.13 ms	0.07ms	0.09 ms
Particiant C	0.09 ms	0.12 ms	0.06 ms	0.09 ms
Particiant D	0.09 ms	0.13 ms	0.07 ms	0.10 ms
Particiant E	0.17 ms	0.12 ms	0.09 ms	0.12 ms
Particiant F	0.12 ms	0.12 ms	0.07 ms	0.10 ms
Mean	0.10 ms	0.11 ms	0.07 ms	

Table VI- 20 : Duration of[q] قin Initial. Middle and Final Position

According to the obtained results, the participants produced [q]قwith different mean durations; for instance, participant A pronounced [q]ق with a mean duration of **0.05ms**, participant B produced it with a mean duration = **0.09 ms** while participant F produced it in

0.10 ms. Furthermore, the duration of [q]ق is not constant, it changes depending on its positioning within the word. Thus, the mean duration of [q]ق in the initial position is **0.10 ms**, in the middle position, it is **0.11 ms**, and in the final position, it is **0.07 ms**.

6.13.6 Duration of [χ]خin Initial, Middle, and Final Position

	Initial position	Middle position	Final position	Mean
Particiant A	0.09 ms	0.13 ms	0.19 ms	0.13 ms
Particiant B	0.14 ms	0.09ms	0.07 ms	0.10 ms
Particiant C	0.17 ms	0.10 ms	0.07 ms	0.11 ms
Particiant D	0.15 ms	0.12 ms	0.09 ms	0.12 ms
Particiant E	0.15 ms	0.12 ms	0.08 ms	0.11 ms
Particiant F	0.12 ms	0.09 ms	0.06 ms	0.09 ms
Mean	0.13 ms	0.10 ms	0.09 ms	

Table VI- 21 : Duration of[χ]خin Initial, Middle, and Final Positions

Table 6.21 shows that the participants produced [□]خ with different mean durations; for instance, participant D produced [□]خ in **0.13 ms**, participant B produced it with a mean time equal to **0.10 ms** whereas participant F pronounced it in **0.09 ms.** Moreover, the mean duration of [□]خ is shifting depending on its position in the word. The mean duration of [□]خin the initial position is **0.13 ms**, in the middle position is **0.10 ms,** and in the final position is **0.09 ms.**

6.13.7 Duration of [§]صin Initial, Middle, and Final Positions

	Initial position	Middle position	Final position	Mean
Particiant A	0.13ms	0.17ms	0.12ms	0.14 ms
Particiant B	0.14ms	0.10ms	0.07ms	0.10 ms
Particiant C	0.12ms	0.09ms	0.06ms	0.09 ms
Particiant D	0.11ms	0.10ms	0.07ms	0.09 ms
Particiant E	0.17ms	0.11ms	0.11ms	0.13 ms
Particiant F	0.16ms	0.08ms	0.05ms	0.09 ms
Mean	0.13 ms	0.10 ms	0.08ms	

Table VI- 22 : Duration of [§]صin Initial, Middle, and Final Positions

According to table 6.22, it is evident that all the participants articulated the [ç]صwith different mean durations. While Participant A produced it with a mean duration of **0.14 ms** participant F produced it with **0.09 ms**. Additionally, the mean duration of [ç]ص is not constant. It varies depending on its position in the word; for instance, the mean duration of [ç]ص in the initial position is **0.13 ms**, in the middle position is **0.10 ms** and in the final position is **0.08 ms**.

6.13.8 Duration of [h]ه in Initial, Middle, and Final Positions

	Initial position	Middle position	Final position	Mean
Particiant A	0.13 ms	0.17 ms	0.07 ms	0.12 ms
Particiant B	0.12ms	0.08ms	0.06 ms	0.08 ms
Particiant C	0.11 ms	0.08 ms	0.07 ms	0.08 ms
Particiant D	0.14 ms	0.10 ms	0.06 ms	0.10 ms
Particiant E	0.18 ms	0.13 ms	0.05 ms	0.12 ms
Particiant F	0.18 ms	0.10 ms	0.06 ms	0.11 ms
Mean	0.14 ms	0.11 ms	0.12 ms	

Table VI- 23 : Duration of [h]ه in Initial, Middle, and Final Positions

Table 6.23 shows that the participants produced the [h]ه with different mean durations e.g., Participant B produced [h]ه with a mean duration of 0.08 ms while Participant E produced in 0.12 ms. The mean duration of [h]ه differs within the word positioning. The mean duration of [h]ه in initial position is **0.14 ms**in the middle position is **0.11 ms**and in the final positionis **0.12** ms.

6.13.9 Duration of [ê] ضin Initial, Middle, and Final Positions

	Initial position	Middle position	Final position	Mean
Particiant A	**0.11 ms**	**0.11 ms**	**0.09 ms**	**0.10 ms**
Particiant B	**0.12 ms**	**0.11 ms**	**0.08ms**	**0.10 ms**
Particiant C	**0.13 ms**	**0.10 ms**	**0.09 ms**	**0.10 ms**
Particiant D	**0.10 ms**	**0.08 ms**	**0.07 ms**	**0.08 ms**
Particiant E	**0.10 ms**	**0.08 ms**	**0.07 ms**	**0.08 ms**
Particiant F	**0.11 ms**	**0.16 ms**	**0.10 ms**	**0.12 ms**
Mean	**0.11 ms**	**0.10 ms**	**0.08 ms**	

Table VI- 24 : Duration of [ê] ضin Initial, Middle, and Final Positions

As can be noticed in Table 6.24 the mean duration of [□] **ض** is fluctuating according to its position in the word. All the participants tend to produce [□] **ض** in the initial position is longer than in the middle and final positions. For instance, the mean duration of [□] **ض** in the initial position is **0.11 ms** in the middle position is **0.10ms** and in the final position is **0.08 ms**

6.14 Discussion of the Findings

The present study is designed to investigate the phonological differences encountered by foreigners learning Arabic as a foreign language. Duration is a crucial feature of speech, which can influence pronunciation's intelligibility and accuracy. In some languages, changes in the duration of a sound may be determined by the linguistic environment and may be associated with the preceding or segmental sounds. These durational changes in turn may become cues for the associated phoneme or production pattern. (Peterson, 1960). The acoustic analysis of the recordings of both native speakers and the participants shows that emphatic and pharyngeal consonants are challenging to non-native speakers of Arabic. The above results show that all the participants had difficulty giving the consonants in question the accurate duration in different contexts.

This result is in agreement with some recent studies. For instance, Alshehri stated that the sounds **[ÿ] ط,[À]ع.[d] ظ. [q].ق[□].خ[ç].ص[ḥ]ه. [□] ض**.and [N] ح are problematic for non-native speakers of Arabic (Alshehri, 2021). Additionally, it is due to the phonotactic differences between the participant's languages, French and English, and the target language Arabic. Shehatta asserts that 9 consonants in Arabic have no equivalent in Arabic. Those Arabic

consonants tend to present considerable difficulties to speakers of English as they learn Arabic as a foreign language (Shehatta, 2015).

Pharyngealised sounds or what is commonly known as emphatic consonants (**[ÿ] ط**,[d] **ظ**,.[ç]**ص**, [□] **ض**) are of tricky to foreign learners. For instance, all the participants produced them with different mean durations. This challenging can be interpretable in light of previous research findings; for instance, Alwabari states that pharyngealised consonants are sounds that involve secondary articulation. The constriction at the pharynx is qualitatively the same whether it is primary or secondary articulation, however, the degree of constriction in the case of secondary articulation ~~is~~ (i.epharyngealised consonants) is wider than the degree of constriction for primary articulation (Alwabari, 2013).

The findings show that all the participants face considerable difficulty in producing Arabic pharyngeal consonants ([N]**ح**, **[À]. ع)** Participants encounter problems in distinguishing the pharyngeal fricative [N] from its counterpart [h]**ه**. This challenge may be attributed to the major differences between the systems of the languages the participants speak at the segmental level. As mentioned previously the participants speak French and English in addition to their mother tongue Bambara which has a sound system different from the Arabic system.

For example, pharyngeal sounds are not consonants that exist in French nor in English consequently, the participants exhibit some difficulty in producing them. Mispronunciation of the pharyngeal consonants leads to a change in the mean duration of these sounds. Moreover, the results above show that the most difficult consonant that all the participants mispronounce and the difference in the mean duration is considerable in the pharyngeal consonant **[À].** This result disagrees with other studies (Alshehri, 2021) (Shehatta, 2015). Alshehri's findings argue that the first and most challenging sound to non-speakers of Arabic is the voiced velar fricative [9] **غ** (Alshehri, 2021) while Shehata stated that pharyngeal fricative [N]poses a serious challenge to 90% of native speakers of English.

Comparing the mean duration of all the participants shows that they all produce both sounds. [q].**ق** and [□]**خ**with significant mean duration differences; this latter leads to mispronunciation. This finding is contradictory with Shehata's results which have shown that the uvular plosive [q] and velar fricative [□] are a little bit easier for speakers of English to acquire.

6.15 Gender Differences

Gender differences can impact the acoustic properties of consonants, including duration. In the current study male and female native speakers of Arabic exhibit different patterns in consonant duration when compared to native speakers.

6.15.1 Comparison of the Mean Duration between Male and Female Native Speaker

Table 6.25 represents the mean duration of male and female native speakers of Arabic. Comparing the mean duration of male native speakers with female native speakers of Arabic reveals that the duration of most consonants is slightly longer in the native male speaker compared to the native female speaker except for [N] ح and [ç]ص which show the most significant difference with male speaker having a noticeably longer duration. This distinction is due to the acoustic and articulatory properties of these consonants.

Generally, male speakers have longer vocal tracts compared to females the average length of the adult female vocal tract is about 14.5 cm, while the male average is 17 to 18 cm long (Simpson, 2009). Additionally, the pharyngeal constriction for Arabic pharyngeal consonants requires considerable larynx rising which is more articulated in males due to their larger larynx size. The combination of a longer vocal tract and larger larynx in males permits for greater pharyngeal volume and a more articulated larynx-raising gesture while producing Arabic pharyngeal sounds such as [N] ح.

Mean duration	طms	عms	حms	ظms	قms	خms	صms	هms	ضms
Male N/S	0.10	0.14	0.16	0.14	0.09	0.09	0.15	0.13	0.14
Female N/S	0.09	0.13	0.09	0.10	0.09	0.10	0.09	0.09	0.10

Table VI- 25 : Comparison of the mean duration between male and female native speaker

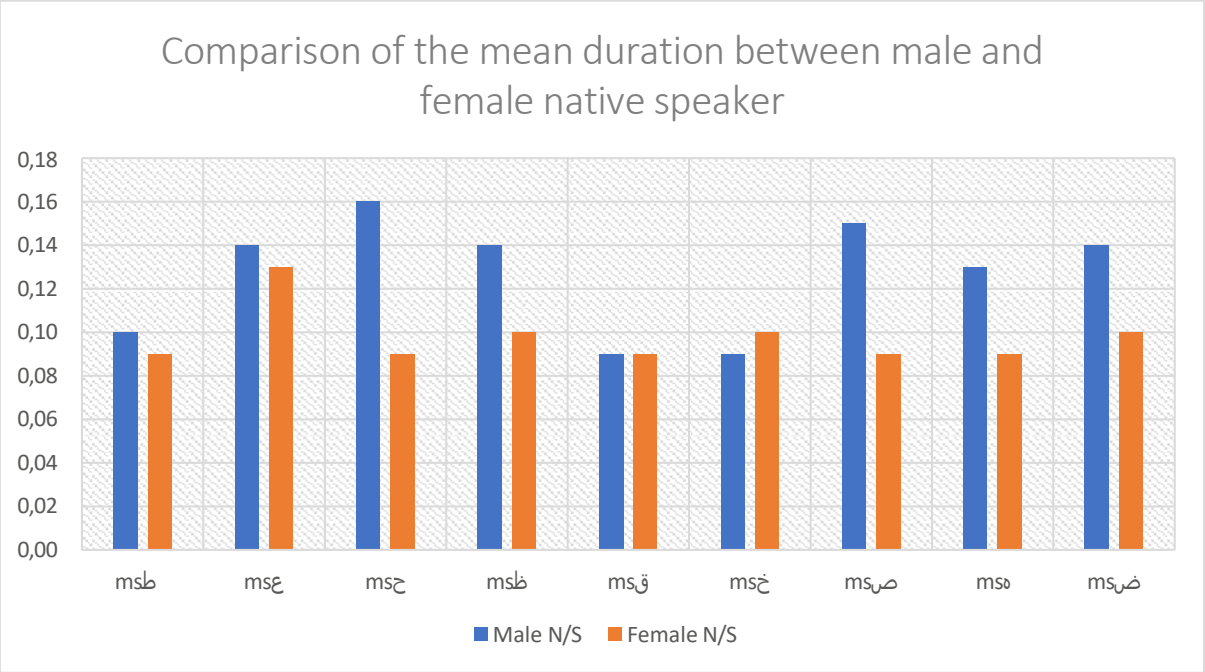


Figure VI- 8 : Comparison between male and female native speakers

Acoustic studies indicate that emphatic consonants are produced with pharyngealisation, which involves retracting the tongue root and elevating the larynx, resulting in a longer duration. Males tend to emphasise these features more than females.

6.15.2 Comparison between male native speakers means duration and male participants' mean duration.

Mean duration	طms	عms	حms	ظms	قms	خms	صms	هms	ضms
Male N/S	**0.10**	**0.14**	**0.16**	**0.14**	**0.09**	**0.09**	**0.15**	**0.13**	**0.14**
Male participants	**0.11**	**0.09**	**0.10**	**0.12**	**0.07**	**0.11**	**0.11**	**0.09**	**0.10**

Table VI- 26 : Comparison between male native speaker mean duration and male participants' mean duration

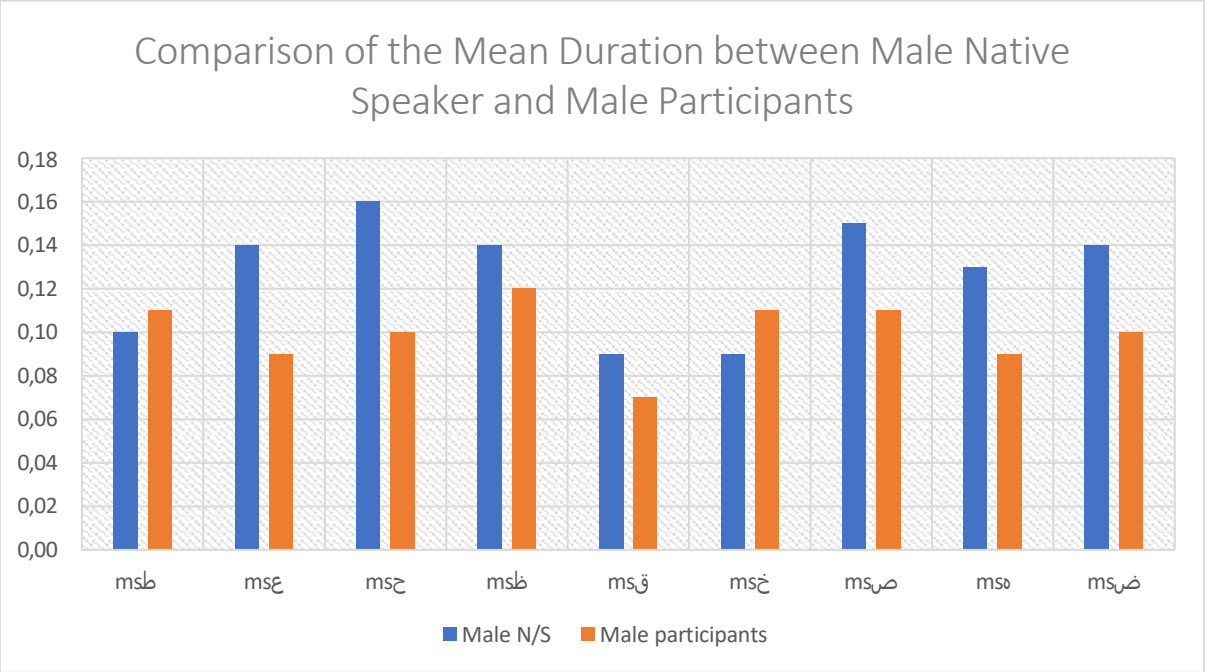


Figure VI- 9 : Comparison of the Mean Duration between Male Native Speaker and Male Participants

As shown in the graph above, male participants tend to produce Arabic consonants longer than male participants do. Male non-native speakers of Arabic exhibited variations in the duration of consonants compared to male native speaker. For instance, pharyngeal consonants [N],**[À]** were produced with a mean duration of **0.08 ms** by male participants, significantly shorter than the native speaker's **0.14 ms.** These variations indicate that pharyngeal sounds are of great complexity for male non-speakers of Arabic and lead to mispronunciation.

6.15.3 Comparison between female native speakers means duration and female participants' mean duration

Mean duration	طms	عms	حms	ظms	قms	خms	صms	هms	ضms
Female N/S	0.09	0.13	0.09	0.10	0.09	0.10	0.09	0.09	0.10
Female participants	0.11	0.11	0.10	0.13	0.10	0.10	0.10	0.11	0.09

Table VI- 27 : Comparison between female native speakers means duration and female participants' mean duration

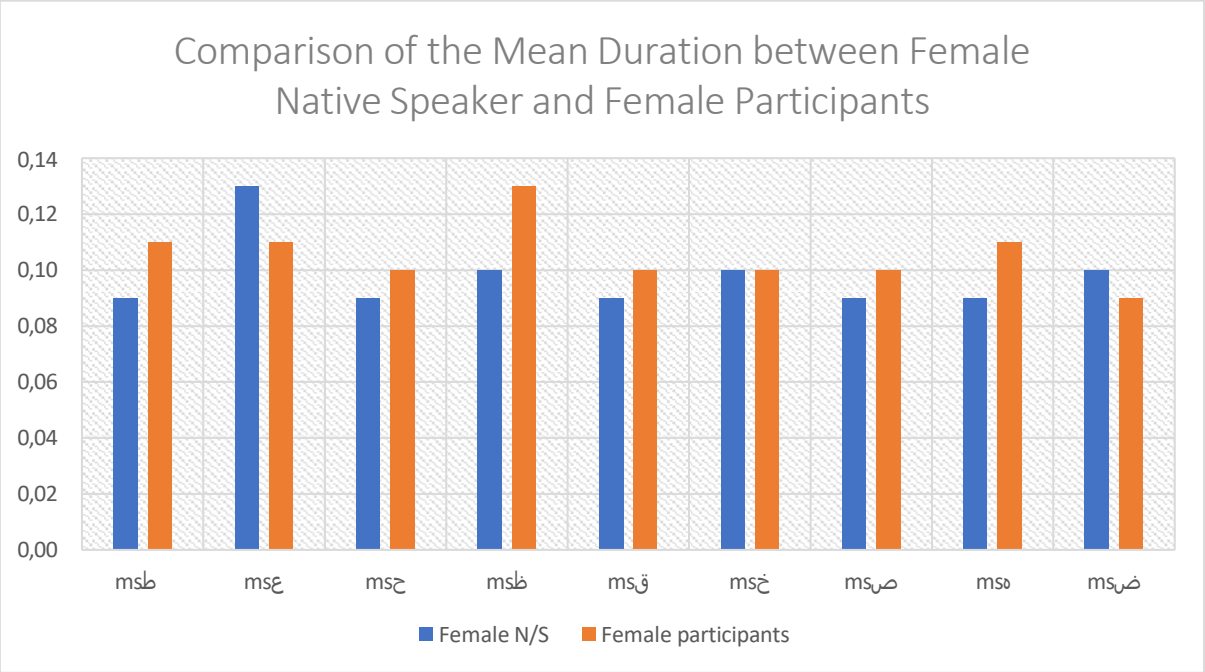


Figure VI- 10 : Comparison of the Mean Duration between Female Native Speaker and Female Participants

The graph above reveals that almost all the female participants exhibited longer duration for almost all the consonants compared to the native female native speaker. For example, the pharyngealised [d] is produced with a mean duration of **0.13ms** by female participants, when in fact the native speaker's duration is **0.10 ms**. Exceptionally, female participants tend to produce [t] in a shorter duration **(0.11 ms)** compared to the female native speaker **(0.13 ms).** These deviations demonstrate that female non-native speakers of Arabic find it difficult producing emphatic and pharyngeal sounds more particularly [t].

6.15.4 Comparison between male and female participants

Mean duration	طms	عms	حms	ظms	قms	خms	صms	هms	ضms
Male N/S	0.11	0.09	0.10	0.12	0.07	0.11	0.11	0.09	0.10
Female participants	0.11	0.11	0.10	0.13	0.10	0.10	0.10	0.11	0.09

Table VI- 28 : Comparison between male and female participants

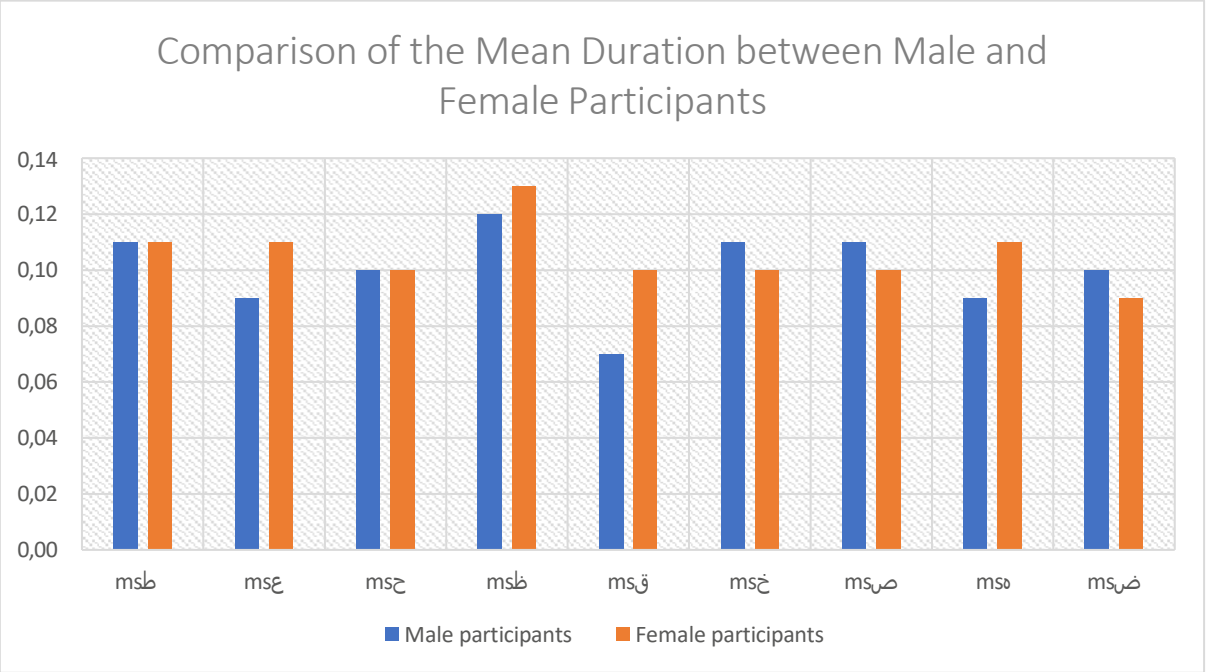


Figure VI- 11 : Comparison of the Mean Duration between Male and Female Participants

As can be noticed in Figure 6.11 there is no significant difference between the mean duration of both male and female native speakers in producing the consonants in question. However, we can notice a considerable difference in the mean duration of the pharyngeal sound [ʈ] and uvular [ɢ]. Alwabari states that it is worth noting that there was a lack of consensus among scholars of Arabic phonology on labelling [ɢ] as either a uvular or pharyngeal consonant (Alwabari, 2013). However, concerning the place of articulation, [ɢ] is considered as a uvular sound that is articulated with the back of the tongue pressed against the uvula, causing the air to be blocked; the compressed air is released with an explosion.

6.16 Summary of the Main Findings

The comparisons highlight fundamental outcomes. The male native speaker shows longer duration for most consonants compared to female native speakers. Furthermore, male participants tend to have shorter durations for many consonants compared to the native male speaker, suggesting difficulties in maintaining the correct length of articulation and hence lead to mispronunciation. The findings also highlighted that female participants usually have longer durations for many consonants compared to female native speaker indicating that they are struggling to produce these sounds. The consonants [ʏ] ط,[ʌ]ع.[d] ظ. [q].ق[ʁ].خ[ç]ص.[h]ه. [ʁ] ض.and [N] ح are problematic to speakers of other languages mainly French and English as they

learn Arabic as a foreign language. Additionally, pharyngeal consonants [ɴ] ح[ṭ]ع are the most challenging sounds for non- native speakers of Arabic both males and females.

6.17 Reliability of the Result

To check the validity and reliability of the results a T-test with repeated measures is conducted. T-test is a type of statistical test that is used to compare the means of two groups. It is one of the most widely used statistical hypothesis tests in pain studies (Kim T. K., 2015). T-tests can be divided into two types; independent T-test which can be used when the two groups under comparison are independent of each other, and the paired t-test which can be used when the two groups under comparison are dependent on each other. In the current study, the independent t-test is used to check the validity and reliability of the current study hypothesis, which states that pharyngeal and emphatic constants are problematic to speakers of other languages as they learn Arabic as a foreign language. The T-test includes the t—t-value, degrees of freedom (df), significance level (2tailed), mean difference, standard error of the difference and 95% confidence interval of the difference. The P–value (probability) is measured using Excel.

1. **T-test Comparing the Mean between Male Native speaker and Male Participants' Duration**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
NSPEAKERDURATIO N	Equal variances assumed	7.221	.016	2.939	16	.010	.02889	.00983	.00805	.04972
	Equal variances not assumed			2.939	11.659	.013	.02889	.00983	.00740	.05037

Table VI- 29 : Independent Samples Test of the male N/S and Male Participants

		Standardizer[a]	Point Estimate	95% Confidence Interval	
				Lower	Upper
NSPEAKERDURATION	Cohen's d	.02085	1.386	.329	2.408
	Hedges' correction	.02190	1.319	.313	2.293
	Glass's delta	.01302	2.219	.780	3.603

Table VI- 30 :Independent Samples Effect Sizes

T-test statistic; 2,939

P-value 0.026

The P-value for the male participants' T-test is **0.026** which is lower than the typical significance level of 0.05. This suggests that there is statistically significant difference in the mean consonant duration between the male native speakers of Arabic and the male participants.

2. **T-test of Comparing Mean between Female Native Speaker and Female Participants**

	NORPARSPEAKER	N	Mean	Std. Deviation	Std. Error Mean
SPEAKERDURATION	NSPEAKER	18	.1122	.02510	.00592
	PARTICIP	18	.1028	.01320	.00311

Table VI- 31 : Group Statistics

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
SPEAKERDURATION	Equal variances assumed	19.246	.000	1.413	34	.167	.00944	.00668	-.00414	.02303
	Equal variances not assumed			1.413	25.732	.170	.00944	.00668	-.00430	.02319

Table VI- 32 : Independent Samples Test of the Female N/S and Female Partcipants

		Standardizer[a]	Point Estimate	95% Confidence Interval	
				Lower	Upper
SPEAKERDURATION	Cohen's d	.02005	.471	-.195-	1.130
	Hedges' correction	.02051	.460	-.191-	1.105
	Glass's delta	.01320	.716	.011	1.402

Table VI- 33 : Independent Samples Effect Sizes

T-test Statistic 1.413

P-value 0.09

The P-value for the female participants' T-test is **0.09** which is higher than the typical significance level of 0.05. This suggests that there is no statistically significant difference in the mean consonant duration between the female native speakers of Arabic and the female participants.

3. T-Test T-test Comparing the Mean between Male and Female Participants' Duration

	GENDERNSPAEKER	N	Mean	Std. Deviation	Std. Error Mean
PARTICIDURATION	MALE	9	.1000	.01500	.00500
	FEMALE	9	.1056	.01130	.00377

Table VI- 34 : Group Statistics

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
PARTICIDURATION	Equal variances assumed	.493	.493	-.887-	16	.388	-.00556-	.00626	-.01883-	.00772
	Equal variances not assumed			-.887-	14.871	.389	-.00556-	.00626	-.01891-	.00780

Table VI- 35 : Independent Samples Test of the Male and Female Participants

		Standardizer[a]	Point Estimate	95% Confidence Interval	
				Lower	Upper
PARTICIDURATION	Cohen's d	.01328	-.418-	-1.347-	.523
	Hedges' correction	.01395	-.398-	-1.283-	.498
	Glass's delta	.01130	-.491-	-1.431-	.476

Table VI- 36 : Independent Samples Effect Sizes

T-test Statistic 1328

P-value 0.06

The P-value for the male and female participants' T-test is **0.06** which is higher than the typical significance level of 0.05. This suggests that there is no statistically significant difference in the mean consonant duration between male and female participants. In order to confirm the results obtained from the t-test analysis, ANOVA test is conducted to check whether there is a difference in the mean duration of consonants as produced by male and female participants.

6.18 ANOVA TEST

SPEAKERDURATION					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.001	1	.001	1.996	.167
Within Groups	.014	34	.000		
Total	.014	35			

Table VI- 37 : ANOVA

ANOVA is a statistical method used to compare group means and procedures, determining if the means of various groups are different by examining the variance in each group and comparing it with the variance between groups. (Kenton, 2024). As mentioned in the table above, the ANOVA test revealed that the **fisher statistics** is **1.9666** with a **sig** equal to **0.167** which is higher than the typical significance of **0.05**. ANOVA test indicates that there is no significant difference between the mean duration of Arabic consonants when produced by male and female non-native speakers.

6.19 Interpretation of T-test Results

The findings of the t-test demonstrated that there is a significant difference in the mean duration of the native speaker and male participants. It indicates that male participants do not accurately produce emphatic and pharyngeal consonants. The latter tend to be challenging for them. However, female participants did not exhibit a considerable variation in the mean duration of those consonants. This non-significance dissimilarity can be attributed to female participants being too attentive when producing these sounds. Additionally, male and female non-speakers of Arabic have different levels of difficulty with Arabic consonants mainly emphatic and pharyngeal consonants.

Although gender in phonetics and phonological studies is crucial, the t-test results reveal that gender does not significantly affect the complexity of producing emphatic and pharyngeal Arabic consonants. Male and female participants did not significantly differ in the mean duration when producing the consonants in question. This result is in agreement with some studies; for instance, Shehata states that the learners' perceptions of the Arabic consonants contrast, and could be influenced by the learning environment rather than by gender (Shehata, 2024). Salem argues that gender as a social factor does not appear to affect emphasis production in the Oran speech community [( ] ط sound was produced similarly in both male and female speech. (Salem, 2023).

6.20 Conclusion

This chapter provided results, explanations, and discussions of the third research tool in the present study, the experiment. The main aim of this study was to find out the most challenging sounds that represent problems for speakers of French and English as they learn Arabic as a foreign language. The findings demonstrated that regardless of the gender of the learners male or female, emphatic consonants (ظ [ðˤ],ط [tˤ],.ص[sˤ], ض [dˤ] as well as pharyngeal consonants (ح [ħ], ع [ʕ], خ [x] .ق [q] are problematic to non-speakers of Arabic.

6.21. Pedagogical Implications and some Recommendations

This section addresses the pedagogical implications related to this research. First, it provides a comprehensive overview of the general pedagogical implications of teaching Arabic to non-native speakers. Next, it offers recommendations for future teachers, followed by suggestions and recommendations for Arabic as a Foreign Language (AFL) learners based on the findings of this study. Lastly, it will outline directions for future research focused on teaching Arabic to non-native speakers.

6.21.1. The Pedagogical Implication in Language Teaching

The study of Contrast Analysis (CA) and Error Analysis (EA) has significant implications for the course design, testing, and evaluation of foreign Language (FL) learners. By examining the linguistic and cultural differences between the learners' native and target language, CA provides a framework for identifying areas of difficulty that the learners may encounter. On the other hand, EA provides a systematic approach to understanding the errors that learners make and the underlying causes of these errors.

In terms of course design, CA can help teachers develop materials tailored to the specific needs of their learners. By focusing on areas of difference between the learners' native language and the target language, teachers can create lessons that address the learners' specific needs and interests. According to Lado (1957), teachers can use CA to identify potential areas of difficulty for learners and to develop targeted exercises that help learners overcome these difficulties.

In addition, EA can inform course design by providing insights into the types of errors that learners are making and the underlying causes of these errors. By analysing learners' errors, teachers can identify patterns and common errors, and use this information to design activities and exercises that target these specific areas of difficulty. For example, if learners are struggling with verb tenses, teachers can design activities that focus on the correct use of verb tenses.

Furthermore, both CA and EA can inform testing and evaluation. By using CA to identify potential areas of difficulty, teachers can design tests that assess the learners' understanding of these areas. This allows teachers to evaluate the effectiveness of their teaching and to make adjustments to their approach as needed. Similarly, by analysing learners' errors, teachers can evaluate the effectiveness of their teaching and identify areas where learners may need additional support.

In a nutshell, the implications of CA and EA are far-reaching and have important implications for course design, testing, and evaluation in ESL and EFL classrooms. By incorporating insights from these research areas into their teaching practice, teachers can provide more effective and efficient instruction, leading to better learning.

Limited research has been conducted on the acquisition of Arabic phonological features by adult learners. However, this study encountered several challenges. Initially, the plan was to perform the experiment at Exeter University, where Arabic is taught to English speakers, but due to visa issues, the research had to be relocated to Tahri Mohamed University in Béchar province, Algeria. Additionally, the onset of the COVID-19 pandemic disrupted the data collection process. Despite attempts to personally start the experiment with participants, the pandemic hindered the progression.

Furthermore, sourcing relevant literature to support the study findings in the discussion chapter was difficult due to the limited empirical research on Modern Standard Arabic contrastive consonants and the challenges faced by Bambara native speakers learning Arabic.

A key challenge encountered was the questionnaire distribution. Initially, 400 questionnaires were circulated to potential participants. However, despite multiple outreach efforts over six months, only 50 completed responses were collected.

The most significant problem arose from the lack of equipped laboratories suitable for acoustic studies. Furthermore, the absence of institutions teaching Arabic to foreigners or speakers of other languages made it challenging to find places to conduct the research. Surprisingly, it was discovered that no international institutions were teaching Arabic as a foreign language in Algeria.

6.21.2. Recommendations for Teachers and Students

Based on the findings of this study, the researcher offers several suggestions for teachers and learners of Arabic as a Foreign Language (AFL). Teachers serve as the primary models for learners regarding pronunciation; therefore, they must demonstrate correct and accurate pronunciation of Arabic sounds and words. The study suggests that teachers should highlight mispronounced sounds and words, encouraging learners to enhance their pronunciation by frequently listening to authentic pronunciations from native speakers, using these as benchmarks for correct pronunciation. Furthermore, AFL teachers should be aware of potential interference and interlanguage errors from the learners' first language (L1).

Learners need to be highly motivated to explore and produce unfamiliar sounds. It is essential for them to focus on pronunciation activities and to regularly verify their pronunciation accuracy. This research indicates that learners should read words with their correct phonetic transcription.

According to the study results, further research is necessary to widen our knowledge in this area. This research can serve as a reference for those exploring the field of teaching Arabic to speakers of other languages. Future studies are recommended to build upon this work, increasing its complexity. For example, researchers could investigate Arabic consonant clusters with a focus on syllable structure. Additionally, suprasegmental features are of significant importance in phonology.

GENERAL CONCLUSION

GENERAL CONCLUSION

This section reports the main conclusion about the research questions investigating the phonological difficulties foreign learners face when they learn Arabic as a foreign language. The main aim of the current study is to examine the perception and production of consonant contrasts among non-native speakers of Arabic. This research aims to shed light on the different sounds that seem challenging for speakers of other languages, mainly native speakers of English and French, and hence, set up an appropriate syllabus that could help them improve their pronunciation and reach a native-like accent

This study examines the perception and production of consonant contrasts among non-native speakers of Arabic. This work aims to shed light on the different sounds that seem challenging for speakers of other languages, chiefly native speakers of English and French, and hence, set up an appropriate syllabus that could help them improve their pronunciation and reach a native-like accent. Therefore, contrastive analysis (CA) and error analysis (EA) are significant tools on which the research should rely to investigate areas of difficulties while learning Arabic as a foreign language to provide a systematic approach to understanding the errors and their underlying causes. At this stage, a discussion of the main theories of sound perception and their role in acquiring the spoken form of the target language is of great help to introduce the prominent pedagogical approaches and teaching methods for teaching Arabic as a foreign language. This helps to investigate how each approach contributes to developing Arabic language skills and their compatibility with different learners within a determined research methodology.

The methodology used in conducting the study aims to gather valid data through the analysis of teachers' interviews and the learners' questionnaires. While the first section presents the findings from the NVivo analysis of the teachers' interviews, the second section provides descriptive data on the learners' utterances and involvement through the questionnaire analysis, in addition to the analysis of the data collected from the experiment held at Tahri Mohamed University Béchar. The results were analysed on two levels: articulatory and acoustic by using PRAAT software that captures the length of contrast consonants in different positions: initial, middle and final.

The interviews' findings reveal that teachers teach all four skills directly. They attempt to encourage students' engagement and participation by providing opportunities for them to speak in their classes. Furthermore, this study contends that how students engage and interact

in language courses relies on their use of the foreign language and their mother tongue interference.

For the present study, having an interpretive understanding of teachers' experiences and perceptions of speaking in their classrooms was significant. Interview outcomes suggest two significant findings: 1) teachers' awareness of the importance of speaking skills, and 2) teachers' awareness of the students' pronunciation problems. Their responses indicated that they consider listening and speaking as necessary as reading and writing. They explained the value of both skills as the key to "communication". Furthermore, findings from the interview data indicated that students had opportunities to practise their speaking skills. Interview data showed that speaking skills are not challenging because students are motivated to speak to teachers. However, the interview data highlight that most students have different pronunciation errors in their speech. As noted by the three teachers, students face some challenges in pronouncing some Arabic sounds, mainly emphatic and pharyngeal consonants such as [ÿ] ط,[À]ع.[d] ظ. [q].ق[□]خ.[ç]ص.[h]ه. [□] ض.[N].

Findings revealed teachers' implementation of different pedagogical strategies to encourage students to overcome these errors. To tackle this positive potential, teachers showed some pedagogical practice with interactive pedagogic practices, which are most effective in developing students' confidence for better learning.

Regarding the learners' questionnaire findings, it was found that all questionnaire respondents confirmed that they can speak English, which is the common language among the participants despite their diverse mother tongue backgrounds. Thus, the researcher aims to compare contemporary standard Arabic MSA, English, and the participants' common language through contrastive analysis. The questionnaire results indicated that foreign Arabic students encounter challenges in producing specific Arabic consonant contrasts such as /ë//d/,/ê///D/,/§//s /,/ÿ//t /, /k/ /q/, /h/ /ð/,/À/ // /. These difficulties stem from the differences in sound systems between the two languages and interference from the learners' native language. In other words, since these sounds are not present in the learners' mother tongue, they tend to substitute them with sounds similar to those in their native language. Notably, foreign learners find producing emphatic Arabic consonants such as /d//ê//§//ÿ/ particularly challenging at both the phonetic and phonological levels. Phonetically speaking, the articulation of emphatic consonants involves a coronal articulation and a secondary articulation involving

the back of the tongue. The phonological environment plays a crucial role in producing emphatic consonants accurately. In the current study, learners are asked to choose the most difficult word to pronounce from a list of carefully selected preceding and following consonants. The results show that the learners mispronounce the emphatic consonants in initial, middle, and final positions, though the sounds preceding and following them exist in their mother tongue.

Pharyngealisation is a phonological process whereby some impose a backing effect on surrounding consonants and backing and lowering effects on vowels in their neighbourhood. /h//ه / and / N//ح /are hard for them to pronounce; these sounds are considered to be confusing. Thus, most of the learners confuse the /h/ and / N//ح /. Phoneticians attribute this confusion to the fact that both sounds have similar manners and places of articulation. The only difference lies in the vibration of the vocal cords. The uvular stop /q/ is regarded as a challenging sound to produce since it exists neither in the student's mother tongue nor in English (the common language that all learners speak).

To sum up, both interview results and learners' questionnaire findings reveal that non-native speakers of Arabic face difficulty producing emphatic or pharyngealised consonants /d//ê//§//ÿ /, pharyngeal consonants / ð/ /À/**,** uvular /q/and velar/X/ are problematic consonants to speakers of other languages.

The results of the quasi-experimental study affirmed that the acoustic analysis of the recordings of both native speakers and the participants shows that emphatic and pharyngeal consonants are tricky for non-native speakers of Arabic. All the participants face challenges giving the consonants in question the accurate duration in different contexts.

Sounds like **[ÿ]ط,[À]ع.[d] ظ**. [q].ق[□]خ.[ç]ص.[h]ه. [□] ض.and [N] ح are problematic ~~for~~ non-native speakers of Arabic. Additionally, it is due to the phonotactic differences between the participant's languages, French and English, and the target language Arabic. Pharyngealised sounds or what is commonly known as emphatic consonants (**[ÿ]ط**,[d] **ظ**,.[ç]ص, [□] **ض**) are challenging to foreign learners. For instance, all the participants produced them with different mean durations. This difficulty can be interpretable in light of previous research findings showing that all the participants face considerable difficulty in producing Arabic pharyngeal consonants ([N]ح, **[À] ع) .**Participants face difficulty in distinguishing the pharyngeal fricative

[N] from its counterpart [h]ه. This difficulty can be attributed to the significant differences between the systems of the languages the participants speak at the segmental level. As mentioned previously, the participants speak French and English. Mispronunciation of the pharyngeal consonants leads to a change in the mean duration of these sounds. Moreover, the results show that the most challenging consonant that all the participants mispronounce and-the difference in the mean duration is considerable is the pharyngeal consonant **[À].** A comparison of the participants' mean duration shows that they all produce both sounds. [q].ق and [□]خwith significant mean duration differences leading to mispronunciation.

Findings of the articulatory analysis of the participants' recordings indicated that the Arabic language includes numerous sounds that do not exist in English and French, making their articulation challenging for foreign learners. The study highlights that sounds such as/ /ق ه/ /ع//خ//ح// are problematic since they are pharyngeal and require the use of parts of the vocal tract that are not typically engaged in the articulation of English and French sounds. Furthermore, Arabic has a set of emphatic consonants such as /ط//ض/ /ظ/ /ص/ that are produced with a secondary articulation involving the pharynx, giving them a heavy or dark quality.

All the research tools used in the current study revealed that emphatic, pharyngeal and uvular sounds are intricate for non-native speakers of Arabic to perceive and produce. Those findings confirm our hypotheses, which state that AFL learners struggle to produce pharyngeal and emphatic sounds, such as **[ÿ]**ط,**[À]**ع.[d] ظ. [q].ق[□]خ.[ç]ص.[h]ه. [□] ض.and [N] ح since these sounds exist in Arabic and have no equivalent in the learners' first language. Because of phonotactic differences between Arabic as the target language (TL) and French and English, Arabic emphatic and pharyngeal consonants tend to be significantly difficult for speakers of other languages to pronounce. Moreover, speakers of other languages, mainly French and English, face pronunciation difficulties due to interference from their mother tongue.

REFERENCES

References

Anzhelika,S

Abbas, F. (2010). *Contrastive Grammar of English and Arabic.* Jordan: Jordan Book Center.

Abdelgane , M., & Idris, M. (2020). Challenges of Pronunciation to EFL Learners in Spoken English. *Multicultural Education*, 193-203.

Abdullah Hussein Ali Alnosairee1, N. W. (2021). A Sociolinguistics Study in Arabic Dialects. *Journal of linguistics*, 1-17.

Abuchariah, E. A. (2013). SALMA; Standard Arabic Language Morphological Analysis. *Conference: Communications, Signal Processing, and their Applications (ICCSPA), 2013 1st International Conference.* jordan.

Al-Ani, S. H. (1970). *Arabic Phonology; An Acoustical and Physiologial Investigation.* Paris: Mouton The Haugue.

Al-Batal, M. (2018). *Arabic as one Language; Integrating Dialect in the Arabic Language Curriculum.* Georgetown University Press.

Aleta, F., Kang, J., & Axelsson, O. (2016, February). Soundscape Descriptors and A Conceptual Framework For Developing Predictive Soundscape Model. *Landscape and Urban Planning, 169*, 65-74. Consulté le Nivember 14, 2023

Alhwari, M. (2005). L2 acquisition of Arabic Morphosyntactic Features. *Perspectives on Arabic Linguistics*, 273-312.

Aljarelah, A. (2024, June). Language and International Communication; the Impact of Language on International Understanding and Diplomatic Relations. *The American Journal of Social Sciences and Education Innovations, 6*(6), 144-175.

AL-Jarf, R. (1994). *A contrastive Study of English AND Arabic Morphology.*

Al-khersheh, M. H. (2015). A Review Study of Interlanguage Theory. *International Journal of Applied Linguistics and English Literature, 4*(3), 123-131.

Al-khresheh, M. (2013). The Misuse of Word Order in the Writing of Jordanian EFL Learners. *The Misuse of Word Order in the Writing of*. Jordan, Jordan: unpublished.

Allsop, D., Chelladurai, J., Kimball , E., Marks, L., & Hendricks, J. (2022, March). Qualitative Methods with Nvivo Software; A Practical Guide for ANALYZING. *Psych, 4*(2), 124-159.

Almelhes, S., & Alsaiari, H. (2024, july). AConceptual Framework for Teaching Arabic as Second Language. *Theory and Practice Language Studies, 14*(7), 2110-2118. doi:DOI: https://doi.org/10.17507/tpls.1407.18

Alnosairee , A., & Sartini, N. (2021, April 1). A Sociolinguistics Study in Arabic Dialects. *PRASASTI Journal of Linguistics, 6*(1), 1-17.

AlSaleem, B. (2020). *ECRIF* هندسة تعليم اللغات نرة جيدة في تعليم اللغات و. Jordan: dar Z Elhouda.

Alshalan, k. (2020, junuary). a comparaison between english and arabic sound systems regarding places of articulation. *open access library journal*, 24-32.

Alshehri, a. H. (2021, july 21). arabic as aforeign language; phonological analysis of speech sounds produced by students. *cqnqdiqn center of science and eduaction*.

Al-Sobhi, B. M. (2019, July 3). The Nitty-gritty of Language Learners'Errors- Contrastive Analysis, Error Analysis and Interlanguage. *International Journal of Education and Literacy Studies, 7*(3), 49-60.

AL-Solami, M. (2013, september 4). arabic Emphatics; phonetic and phonological remarks. *open journal of modern linguistics*, pp. 314-318.

Alwabari, S. A. (2013). *non-native production of Arabic pharyngeal and pharyngealized consonnats.* Carleton University.

Andrew, P. (2014). *The Critical Period Hypothesis for Language Acquisition; A Look AT THE Controversy.* Tijuana: Feulle.

Archila-Suerte, P., Bunta, F., & Hernandez, A. (2014). Speech Sound Learning Depends on Individuals' Ability not Just experience. *International Journal of Bilingualism*, 1-23.

Awasthi, J. (1995). *A linguistic Analysis of Errors Committed by Nepali Learners of English(unpublished doctoral dissertation.* India: University of Hyderabad.

Beghoul, y. (2007). *The Phonological Interlanguage.* Constantine: University Mentouri.

Beghri, M. S. (2012). Error Analysis: Sources of L2 Learners' Errors. *Theory and Practice in Language Studies,, 2*(8), 1583-1589.

Bin-Muqbit, M. (2006). *Phonetic and Phonological aspects of Arabic gutturals and Emphatics.* Madison : ProQuest Dissertation and Theses Global.

Bouhania, B. (2013). Contact-induced Phonological Contrast between Urban /θ/ and Bedouin /γ/ in. *Alize-Revue Angliciste de la Reunion, 37*, 90-112.

Bouhania, B. (2019, June). South Algerian EFL Learners' Evalustion of CBLT. *Social and Human Sciences Review, 20*(1), 403-414.

Braun , V., & Clarke, V. (2006). Using Thematic Analysis in Psychology. *Qualitative Research in Psychology, 3*(2), 77-101.

Brinton , L. J., & Brinton, D. M. (2000). *The Linguistic Strucure of Modern English.* Amestrdam/Philadelphia: John Benjahmins Publishing Company.

British Council. (2021, April 22). *British Council Teaching English*. Récupéré sur British Council: https://www.teachingenglish.org.uk/professional-developmen

Brotto, D., Benvegnu, F., Colombo, A., Filippis, C. D., Martini, A., & Favorretto, N. (2023, October 13). Age-related Changes in AUDITORY Perception. Hearing Loss in the ELderly; aging ear or Aging Brain. *Aging Clinical and Experemental Research*, 2349-2354.

Brown, D. (2006). *Principles of Language Learning and Teaching 5th edition.* Longman Edition.

Brown, H. D. (2007). *Teaching by Priciples An Intractive Approach to Language Pedagogy.* New York : Pearson Longman.

Brown, L., Dubois, D., & Gjestland, T. (2015). Acoustic Environment and Soundscapes. In *Acoustic Environment and Soundscapes.*

Busaidi, F. (2015). Arabic in Foreign Languaguage Programmes; difficulties and Challenges. *Journal of Educational and Psychological Studies, 9*(4), 701-717.

Chaker, A. (2012). *Arabic Phonology.* Lebanon: Dar Alkitab Al-ilmyah.

Chomsky, N. (1965). *Aspects of the Theories of Syntax.* oxford: MIT Press.

Corder, S. P. (1981). *Error Analysisnd Interlanguage.* Oxford: Oxford University press.

Creery, R. W., Spratford, M., Kirby , B., & Brenan, M. (2017, May). Individual Differences in Language and Workin Memory Affect Childeren Speech Recognition in Noise. *HHS Public Access, 56*(5), 306-315.

Crystal, D. (2008). *A Dictionnary of Linguistics and Phonetics.* (6, Éd.) Victoria-Australia: Blackwell Publishing.

Daniel, L. O. (2011). *Introductory Phonetics and Phonology in English.* Cambrodge Scholars Publishing.

Dulay, H., Burt, M. K., & Krashen, S. (1982). Language two. *Modern Language Journal*, 273.

Duneibat, B. M. (2022). Production of Gluttrals by Non-Native Speakers of Arabic. *Indonesian Journal of Applied Linguistics*, 334-347.

Education, masters programme in. (2005). *research methodology in education.* The Queen University.

Eisa, S. A. (2020). The Pros and Cons of the Grammar Translation Method on the Performance of Saudi EFL Learners" (A case study of the third class in Saudi secondary schools in Northern borders) Affiliation (Jazan University, Saudi Arabia). *AJSP*, 393.

Ekawati, D., Hidayat, H., & Rosayada, D. (2024). Enhancing Vocabulary, Dialogue, and Writing Skills in Arabic through Communicative Language Teaching: An Experimental Study. *International Journal of Religion, 5*(9), 896-907. doi:ttps://doi.org/10.61707/5880sz57

ElGhamidi, M. B. (2015). *ARABIC PHONETICS AND phonology.* Saudi Arabia: Tawba.

Ellis, R. (1985). *Understanding Second Language Acquisition.* Oxford: Oxford University Press.

Ellis, R. (1997). *Second Language Acquisition Oxford Introduction to Language Study.* London: Series Editor H.G Widowson.

Embarki, M. (2013). Phonetics. Dans M. Embarki, *The Oxford Handbook of Arabic Linguistics* (pp. 23-44). Oxford: Oxford University Press.

Field, J. (1999). Key Concept: Bottom Up versus Top Down. *ELT Journal, 53*(4), 338-339.

Fisiak, J. (1981). *The Study of Second Language Acquisition.* Oxford: Oxford University Press.

Gass, S. M., & Selinker, L. (2001). *Second Language Acquisition; An Introductory course 2nd edition.* Michigan State: Lawrence Erlbaum Associates, Publishers MAHWAH, New Jersey.

Gibson, J. J. (1966). *The Senses Considered as a Percetual System.* London: George Allen & Unzin LTD.

Gibson, J. J. (2015). *The Ecological Approach to Visual Perception Classic Edition.* New York and London: Psychology Press Talor &Francis Group.

Girard, T., Pinar, M., & Trapp, P. (2011). N EXPLORATORY STUDY OF CLASS PRESENTATIONS AND PEER EVALUATIONS: DO STUDENTS PERCEIVE THE BENEFITS? *Academy of Educational Leadership Journal, 15*(1), 77-94.

Gurbuz, C., & Cabaroglu, N. (2021). EFL students' perceptions of oral presentations: Implications for motivation, language ability and speech anxiety. *Journal of Langauge and Linguistic Studies, 17*(1), 600-614.

Gut, u. (January 2008). PRAAT Manual. *linguistics laboratory*.

Haile, K. W., Hailu, S. M., & Fikadu, F. (2018). Literary Materials in Teaching Reading Skill: Teachers Perspective in Shanto Secondary and Preparatory School. *Journal of Education and Practice, 9*(31), 41-48.

Hakem, D. H. (2022, May 30). Arabic; A Language Worth a Worldwild Language. *ASJP, 13*(2), 380-394.

Halbach, A. (2002). Exporting Methodologies; The Reflective Approach in Teacher Training. *Language Culture and Curriculum*. doi:DOI: 10.1080/07908310208666648

Harmer, J. (1998). *How to Teach English AN Introduction to the Practice of English Language Teaching.* England: Longman.

Hassel, A., & Schroeder, S. (2020, october 26). Interactions between Lower-and Higher-Level Processing when Reading in Second Language ; An Eye -Tracking Study. *Routeledge, 57*(10), 940-964.

Hayati, W. (2019). An Analysis of Written Errors; Acase of Second Semester Students of English. *LET;Linguistics, Literature and English Language journal, 9*(1), 77-87.

Heale, h. N. (June2019). triangulation in research with examples. *evidence-Based Nursing*, 66-68.

Hedge, T. (2000). *Teaching and Learning in the Language Classroom.* Toronto: Oxford University Press.

Heslwood, Z. M. (2011). Instrumental Studies in Arabic Phonetics. *Current Issues in Linguistic Theory*, 183-185.

Hetrzon, R. (2013). the semitic languages. *international Journal of Ethiopian and Eritherian Studies*, 206-229.

Hickok, G. (2013). the Cortical Organisation of Speech Processing ; Feedback Control and Predictive Coding the Context of a Dual-Stream Model . *PMC pub Meb Central*, 393-402.

Hickok, G., & Poeppel, D. (2007, june). the Cortical Organiwation of Speech Processing. *Nture Reviews Neurosciences, 8*(5), 393-402.

Holt, L., & Lotto, A. (2008, February). Speech Perception zithin an Auditory Cognitive Science Framework. *Current Direntions in Psychological Sciences, 17*(1), 42-46.

Hong, J. Y., & Jeon , J. Y. (2015). Influence of Urban Context on soundscape Perception; a Structural Aquation modeling Approach. *Landscape and Urban Planning, 141*. Consulté le october 16, 2023

Honnagan, T., Magnuson, J., & Graniger, J. (2013, september 2). Spoken Word Recognition without Trace. *Originakl Reseach Article, 4*.

Huehnergard, J. (2019). *The Semetic Languages.* London and New York: Routledge .

ICEF Academy. (2014, December 1). *ICEF Monitor*. Récupéré sur Market Intellignce for International Students recruitement from ICEF.

James, C. (2013). *Errors in Language Learning and Use; Exploring Error Analysis.* London: Routeldge.

Jenner, E. G. (2024, April). *The Audio-lingual Method.* Tiruchirappalli.

Johnson , C., & Hall, M. (2002). Communication an essential Aspect of Diplomacy. *43th Annual ISQ convention* (pp. 1-16). NewOrleans: Diplomatic Theory and Practice.

Jones, D. (1967). *An Outline of English Phonetics.* Cambridge: Heffere and Sons.

Josephine, E. (2019, november 12). *research gate.* Récupéré sur REsearchGate: www.reseachgate.net

Kabir, S. (2016). *Basic Guidelines for Research: An Introductory Approach for All disciplines.* Chittagong: book zone publication.

Kang, C. (2021). Language Transfer from Second Language English to Third Language French and its Implications. *Advances in Vocational and Technical Education Clausius Scientific Press*.

Karma, N., & Muqattash, L. (2010). *English Language Study Skills.* Cairo: United Arab Company for Supplies and Marketing.

Kenton, W. (2024, July 30). *Investopedia*. Récupéré sur what is analysis of variance (ANOVA): https://www.investopedia.com/terms/a/anova.asp

Keshavars, M. H. (2003). *Contrastive Analysis AND Error Analysis.* Tahran : Rahnama Publications.

Khelf, y. (2020). Voice Onset Time and Vowel Duration of Arabic-Accented English: A Case Study on Béchar University's Students. Dans y. Khelf, *Voice Onset Time and Vowel Duration of Arabic-Accented English: A Case Study on Béchar University's Student* (p. 155). Sidi BelAbes: Djillali Liabes University Sidi Bel-Abbes.

Kim, B. J., & Oh, S.-H. (2013, September 3). Age-Related Changes in Cognition and Speech Perception. *Korean J Audiological Society*, 54-58.

Kim, T. K. (2015). T-test as Parametric Statistic. *korean Journal of anestheology* , 540-546.

kong, P. R., & Han, k. T. (2024). Psychological and Physiological Effects of Soundscapes; A Systematic Review of 25 Experement in English and Chineese Literature. *Science of the Total Environment*.

Krashen, S. (1982-2003). *Principles and practice in Second Language acquisition* . California: Pergmanon Press Inc.

Ladefoged, P., & Johnson, K. (2014). *A Course in Phonetics.* (7, Éd.) Cengage Learning.

Lado, R. (1957). *Language Across Culture.* London: London.

Larsen-Freeman, D. (2000). *Techniaues and Principles in Language Teaching second Edition.* (R. Campell, & W. Rhutherford, Éds.) UK: Oxford University Press.

Leaver , B., & Stryker, S. (1989). Content-Based Instruction for Foreign Language Classroo,. *Foreign Language Annals, 22*(3), 269-275.

Levelt, W. J. (1991). Lexical Access in Speech Production Stages Versus Casecading . Dans W. J. Levelt, *Speech Motor Control and Stuttering* (pp. 1-8). Elsivier Science Publishers.

Liberman, A. M., & Mattingly, I. G. (1985). The Motor Theory of Speech Perception Revised. *Cognition, 21*(1), 1-36.

Lightbown, P. M., & Spada, N. (2013). *How Languages are Learned.* Oxford: Oxford University Press.

Liu, P., Rigoulot, S., & Pell, M. D. (2015, ;ay). Cultural Differences in On-Line Sensitivity to Emotional Voices; Comparimg East and West. *Frontiers in Human Neuroscience, 9*. Retrieved october 15, 2024

Louis Cohen, l. M. (2005). *research methods in education 5th edition.* london and new york: british library cataloguing.

Mad Ali, S., & Rizqia, A. (2024, july 2). Technology Integration in Arabic Language Skills. *Arabic Language Educational Journal, 6*(2), 74-81. doi:https://doi.org/10.62097/alfusha.v6i2.1735

Main, P. (2023, November 30). *Top-Down Processing and Bottom Up Processing.* Récupéré sur Structural Learning.

Matsumoto, D., & Juang, L. (2016). *Culture and Psychology sixth Edition.* San Francisco: Cengage Learning.

Mc Clelland , J., & Elman , J. (2005, August 12). An Active interactive Model of Speech Perception. *The Journal of the Acoustical Society of America, 70*(1), 96-97.

Mc Clelland, D., & Elman, j. (1984). *ONR Final Status Report.* DTIC Selected.

Miliani, M. (2007). *Foreign Language Teaching Approaches, Methods and Techniques.* Dar Elgharb.

Miller , K. J., Schalk, G., Hermes, D., Ojemann, J. G., & Rao, R. P. (2016). Spontaneous Decoding of the Timing and Content of Human Object Perception from Cortical Surface Recordings Reveals Complementary Information in the Event-Related Potential and Broadband Spectral Change. *Comput Biol PCBI*.

Mohd Hafizan Ab Halim, K. A. (2023). Studies in Arabic Syntax. *Human Resource Management Academic Research Society*, 951-963.

Mohn Sham Kamis, N. M., Kasim, A. A., Said, N. L., Omar, A. F., Nazir, M., & Kamis, M. S. (2019). A Review of Teaching Grammar Translation Method (GTM) for Malaysian Gifted Learners when Reading Arabic Text. *International Journal of Innovation, Creativity and Change., 8*(6), 105-120.

Momani, M. M., & Altaheer, A. M. (2015, November). A Contrastive Analysis of English and Arabic from a Syntactical Perspective. *Canadian Open English and Literature Journal, 2*(1), 1-8.

Morton , J., & Johnson, M. (1991, april). CONSPEC and CONLERN; a Two- process Theory of Infant Face Recognition. *Psychological Review, 98*(2), 164-181.

Mullan, U. (2019). arabic Syntax. *Alhassanian English*, 1-26. Récupéré sur A.

Munro, M., & Derwing, T. (2011, july). The Foundation of Accent and Inteligibility in Pronounciation Research. *Language Teaching, 44*(3), 316-327.

Murphy , V., Baffoe, J. B., Chalmers, H., Macaro, E., Rose, H., Vanderplank, R., & Woore, R. (2020). *Foreign language Learning and its Impact on Wider Academic Outcomes; A Rapid evidenceassesment.* Oxford: university of Oxford.

Mustafawi, E. (2019). arabic phonology. Dans E. Mustafawi, *arabic phonology.* qatar university.

Nebbou, K. (2022, May 14). types of Interviews. (T. Researcher, Intervieweur)

Nickel, G. (1971). *Papers in Contrastive Linguistics* . London: Combridge University Press.

Nielbo, F. (2014). Auditory Affordances- the Role of Action in Perception of Urban Soundscapes. reserachgater publication.

Nouioua, r. (2015, octobre). sound perception. (a. zitouni, Intervieweur)

Oldoni, D., DE Coensel, B., Bockstael, A., Boes, M., De Baets, B., & Botteldooren, D. (2015). The Acoustic Summary as a tool for Representing Sound Environments. *Landscape and Urban Planning, 144*, 34-48. Consulté le september 9, 2024

Omari, F. (2016, January). Teaching Arabic Language for Non-Native Speakers in the Light of Modern Linguistics. *Dirasat Humanand Social Sciences, 43*(3), 2529-2539.

Owen, J. (2006). *A linguistic HIstory of Arabic.* oxford: oxford university Press.

Palmer, D. C. (2008, october). On Skinners's Definition of Verbal Behavior. *International Journal of Psychology ang Psychological Therapy, 8*(3), 295-307.

PEPIOT, E. (2013, january 30). *Voice, speech and gender: male-female acoustic differences and crosslanguage variation in English and French speakers.* Récupéré sur HAL Id: halshs-00764811: https://shs.hal.science/halshs-00764811

Peters, V., & Wester, F. (2007, October). How Qualitative Data Software may Support the qualitative Analysis. *Quality and Quantity, 41*(5), 635-659.

Peterson, G. E. (1960). duration of syllabic nuclei in english. *acoustical society of america*, 693-703.

Piaget, J. (1952). *When thinks Begins the Origins of Intelligence in Children.* New York: International University Press.

Pisoni, D., & Levi, S. (2007). Some Observations on Represantations and representational Specifity in Speech Perception and Word Recognition. Dans D. P. Pisoni, & S. V. Levi, *the Oxford Handbooks of Psycholinguistics* (pp. 3-18). newYork: Gaski11.

Plicha, B. (2002). Best Practices in the Acquisition, Processing, and Analysis of Acoustic Speech Signals. *michigan state university*, 22.

Proucet, M. (s.d.). *ECRIF;Seeing Learning* .

Pulvermuller, F., & Fadiga, L. (2010). Active Perception; Sensorimotor Circuits as Crotical Basis for Language. *Nature Reviews Neoroscience, 11*(5), 351-360.

Qacem, F. (2020, December). Crosslinguistic Influence of the First Language; Interlingual Errors in the Writings of ESL Saudi Learners. *Macrolinguistics, 8*(2), 105-120.

Rabiah, S. (2012). Language as Tool for Communication and Cultural Reality Discloser. *1st International Conference on Media, Communication and Culture*, (pp. 1-11). Malisaya. Récupéré sur ttps://orcid.org/0000-0002-1690-0025

Richards , J., & Rodgers , T. (1986). *Approaches and Methods in Language Teaching.* New York: Canbridge University Press.

Richards, J. C. (1971). *Error Analysis; Perspectives on Second Language Acquisition.* London: London University Press.

Richards, J., & Rodgers, T. (2001). *appraches and Mehods in Language Teaching 2nd edition* . London: Cambridge University Press.

Richars , J., & Rodgers, T. (2001). *Approaches and Methods in Language Teaching second edition.* NewYork: Cambridge University Press.

Rimmele, J., Zion-Golumbic, E., Schoroger, E., & Poeppel, D. (2014, december 14). The Effects of Selective Attention and Speech Acoustics on Neural Speech tracking in a Multi-Talker Scene. *Cortex in Press*.

Roddy, S. (2018). *Sound. Ecological Affordances and Embodied Mappings in Auditory Display* . Northern Irland: Ulster University.

Rozen, R. (1991). *A Comprehensuve Inquiry into the Nature, Origin and Fabrication of Life.* New York: Columbia University Press.

Rubin , H., & Rubin, I. (2019). *Continuing Design; Making the research Credible in Qualitative Interviewing 2nd ed The Art of Hearing Dta.* Thousand Oaks: SAGE Publication INK.

Ryczkowska, A. (2023). the Significance of Aging for the effectiveness of affective Regulation in Context Music Perception. *ANNALES, 36*(1), 133-184.

Sadiq , O. A., Siddig, B. e., & Elmahi, A. (2022). Contrastive Analysis of most Relevant Features of English and Arabic Languages. *Journal of Positive SchoolnPsychology, 6*(7), 4198-4210.

Salem, N. (2023, march 03). tHhe Effect of Gender on the Voiceless Emphatic Stops in Arabic-French Code Switching ; an acoustic study on Oran Spoken Dialect. *Lamguage Practices*, pp. 315-339.

Salim, J. A. (2013, May 17). A Contrastive Study of English-arabic Noun Morphology. *International Journal of English Linguistics, 3*(3), 122-132. doi::10.5539/ijel.v3n3p122

Sawaie, M. (2007, june). Language. *Linguistic Socety of America, 83*(2), 461.

Shah, M. (2010). Arabic Language and Islam: An annotated survey. *Oxford Bibliographies Online: Islamic Studies*, 3-4.

Shehata, A. (2024, february 28). Learner' perception of arabic consonant contarsts; gender and language context effects. *languages*, p. 77.

Shehatta, A. (2015). problematic english consonants for native english speakers; learners' perspectives . *international journal of educational investigations*.

Shinn-Cunningham, B. G. (2008). Object-Based Auditory and Visual Attention. *Trends in Cognitive Sciences, 12*(5).

Shukla, s. (2020, november 27). concepts of population and sample. (pp. 35-41). india: indore , P India.

Simpson, A. P. (2009, march 17). phonetic differences between male and female speech . *language and linguistics Compass*, pp. 621-640. Récupéré sur .

singh, y. k. (2006). *fundaments in research methodology and statistics.* new delhi: new age international.

Singh, y. k. (2006). *Fundaments in Research Methodology and Statistics.* New Delhi: New Age International.

Southworth, M. F. (1969). The Sonic Environment of Cities. *Environment and Behavior, 1*, 49-70.

Stewart, J. H. (2005, August). Foreign Language Study in Elementary Schools; Benifits and Implications for Achievement in Reading and Math. *Early Childhood Education Journal, 33*(1), 11-16.

styler, w. (2023, november 19). using PRAAT for linguistics research.

Styler, w. (2023, november 19). using PRAAT for linguistics research.

Sutton , J., & Austin , Z. (2015). Qualitative Research; Data Collectin,Analysis and Mnagement. *The Canadian Journal of Hospital Pharmacy*, 226-231.

Thamarana, S. (2015). A Critical Overview of Communicative Language Teaching . *International Journal of English Language Literature and Humanities*, 90-101.

Thrnbury, S. (1988). *How to Teach Speaking.* (J. Harmer, Éd.) Longman.

Unknowon. (2005). *research methodology in education.* the queen university.

Ur, P. (2007). *A Course in Language Teaching Practice and Theory.* (M. Williams , & T. wright, Éds.) Edinburg: Canbridge University Press.

Vanpattan, B., & Benatti, A. G. (2015). *Key Terms in Second Language ACquisition.* LOndon New York: Blooomsburry Pubblishing.

Versteegh, k. (2001). *the Arabic Language.* Edingburg: Edinburg University Press.

Versteegh, K. (2014). *The Arabic Language 2nd Edition.* Edinburg: Edinburg bUniversity Press.

Villalobos, A. B. (2014, May 15). Content-Based instruction; ARelevant Approach of Language Teaching. *innovaciones Educativas, 75*(20), 70-85.

Vygotsky, L. S. (1997). *Interaction Between Learning and Developement.* (M. Gauvain, & M. Cole, Éds.) New York: freeman and Company.

Wallace, A. (2023, May 16). *The Difference between Receptive and Expressive Language*. Récupéré sur NAPA.

WallenN, f. J. (2019). *how to design and evaluate research in education.* Mc Graw: hill education.

Watson, J. C. (2002). *the phonology and morphology of Arabic.* Oxford : Oxford University press.

Watson, J. C. (2021). Arabic Morphology Inflectional and Derivational. Dans J. C. (eds), *Arabic Morphology Inflectional and Derivational* (pp. 405-424). London: Combridge University Press.

Widdowson, H. (1990). *Aspects of Language Teaching.* Oxford- NewYork: Oxford University Press.

Willis , D., & Willis , J. (2007). *Doing task-based Teaching.* UK: Oxford University Press.

Yildiz, Y. (2020, March). Task-Based Language Teaching; AN Approach in the Spotlight to Porpel Language Learning Forword. *International Journal of Social Sciences and Educational Studies, 7*(1), 71-79. doi:10.23918/ijsses.v7i1p72

Yin, r. k. (2002). *case stydy research design and methods.* london: thousand oaks.

Yong, W., & Kang, J. (2005, February). Soundscape and Sound preferences in Urban Squars ; ACase Study in Sheffield. *Journal of Urban Design, 10*(1), 61-80.

Yusof, S. M. (2020, September). BOttom up and Top Down Process in Cognitive Psychology. *Open University Malaisya*.

Zhu, H. (2023, october 31). Measures for Instructors to Provide Corrective Feedback in L2 Claases in Highschool. *Open Journal of Social Sciences, 11*(10).

Zitouni, A., & Bouhania , B. (2021). A Comparative Study of English and Arabic Consonants. *Dirassat Journal, 10*(2), 334-346.

محمد اسحاق العناني. (2008). مدخل الى الصوتيات. لبنان: دار وائل للطباعة و النشر .

APPENDICES

APPENDICES

Appendix One

Learners ' Questionnaire

This questionnaire is a method of investigation in the practical part of the doctoral thesis entitled Definitely Foreign..... absolutely Arabic, Difficulties Encountered by Foreigners learning Arabic as a Foreign Language (Phonological study). It aims to shed light on the issues that speakers of other languages encounter while learning Arabic, focusing more on speaking than writing, listening, and reading. We rely on your knowledge and experience in the field.

Regards.

Section One :

Sex: Are you **Male** ☐ **Female** ☐

Age: Are you **15-20** ☐ **21-30** ☐ **31-45** ☐ **46-60** ☐

More ☐

Where are you from?

……...

Where do you live?

……...

Since when?

…….

What is your mother tongue?

…….....

Diploma: Are you a holder of

Baccalaureate ☐ **License (BA)** ☐ **Master** ☐ **Doctorate** ☐

What is your job?

……..

How many languages do you speak?

2 ☐ **3** ☐ **4** ☐ **5** ☐

What are they?.....

- Section Two :

1- What motivated you to learn Arabic?

…….....

2- How do you approach learning Arabic? Self-study, classes, online sources...?

……

…….....

3- Since when have you been taking Arabic Classes?

……..

4 - How often do you have class weekly

1 ☐ **2** ☐ **3** ☐

6 - How many hours are allocated to the speaking skill?

……....

7- Do you find it difficult to understand spoken Arabic?

……
…….

8- Which sounds seem to be the most difficult to pronounce among the following sounds?

/ ظ / /d / ☐

/ د / / d/ ☐

/ ذ / /D/ ☐

Choose the most difficult word to pronounce

ظهر ☐

منظر ☐

حفظ ☐

درس ☐

9- According to you, what is the most difficult sound to produce?

/ ق / /q / ☐

/ ك / /k/ ☐

Choose the most difficult word to pronounce

قال ☐

تنقل ☐

لبق ☐

كلب ☐

10- In your opinion, what is the most challenging sound to produce

/ أ / /1/ ☐

/ ع / /À/ ☐

Both of them ☐

None of them ☐

Choose the most difficult word to produce

أكل ☐

سأل ☐

عبر ☐

بعيد ☐

اعلى ☐

11- According to you what is the most difficult sound among the following?

/ض / /□/ ☐

/ ط / /ʕ/ ☐

/ ت / /t/ ☐

Choose the most difficult word to produce

ضرس ☐

رضيع ☐

مرض ☐

طويل ☐

طويل ☐

12- In your opinion, what is the most challenging sound to pronounce?

/ ص/ /§/ ☐

/س / /s/ ☐

/ ز / /z/ ☐

Choose the most difficult word to pronounce

صياد ☐

مصر ☐

سمك ☐

مصاصة ☐

زار ☐

13- According to you what is the most difficult sound to pronounce

/خ/ / X / ☐

/ ج/ /Z/ ☐

Choose the most difficult word to pronounce.

خروف ☐

نخيل ☐

خوخ ☐

جمل ☐

بروج ☐

14- In your opinion, what is the most challenging sound among the following?

/ ح/ /ð/ ☐

/ ه/ /h/ ☐

Choose the most difficult word to pronounce.

حبر ☐

بحر ☐

بلح ☐

شهر ☐

15- Are there any other particular Arabic speech sounds or phonological features that you find hard to differentiate in conversations?

……
……
……

16- What aspect of Arabic <u>grammar</u> (?) do you struggle with the most while speaking ?

……
……

17- How do you feel about using Arabic gender and number agreement (?) in speech ?

……
……
……

18 -What are the main obstacles you encounter when forming complex Arabic sentences (?) or utterances ?

……
……..
……..

19- Do you face challenges with Arabic word order and sentence structure. If yes elaborate below.

……
……
……

- <u>Section Three:</u>

20- in your opinion, what is the best way to overcome the difficulties you are facing?

- **Minimal pairs**
- **Listen and repeat.**
- **Other.**
- ……
  ……

21- what other resources or strategies have you found most helpful in overcoming these difficulties?

……

……

……

……

……..

22- Do you think that improving your Arabic pronunciation is essential for your overall language proficiency? Why?

……
……
……

23- Have you ever received any guidance or feedback from Arabic instructors or native speakers? If yes please share your experience.

……
……
……
……
……
……

THANK YOU FOR YOUR COLLABORATION

Appendix Two

Teachers' Interview

Q 01: What degree do you hold?

Q 02: How old are you?"

Q 03: How long have you been teaching Arabic as a foreign language?

Q 04: Why did you choose to teach Arabic as a foreign language?

Q 05: From which nationalities do your students come?"

Q 06: What is the age range of the students that you teach?

Q 07: What are the levels of language proficiency that you teach at university?

Q 08: How do you assess the proficiency level of your students before starting their classes?"

Q 09: How do you evaluate the progress of your students' language proficiency?"

Q 10: How many hours per week do the foreign students study Arabic?

Q 11: How many hours are allocated for speaking skills?

Q 12: "Why do foreign learners tend to choose to learn Arabic?

Q13 How motivated are the foreign learners to learn Arabic?

Q14 What are the common errors that are noticed among your students in speaking?

Q15 What do you think are the causes behind these errors?

Q16 How do you often work on overcoming these errors?"

Appendix Three

تصريح بالموافقة

أنا الممضي أسفله السيد.....بلال سليمان الدبشة.....**أشغل**

منصب.....محاضر جامعي.....**بـ**.....جامعة 29 مايو إسطنبول.....

أصرح أنني أوافق أن يدرج إسمي كاملا في أطروحة الدكتوراه الخاصة بالأستاذة زيتوني آمنة

و المعنونة بـ:The difficulties encontred by foreigners learning – arabic as a foreign languag.

من خلال المقابلة الشفوية التي أجرتها الأستاذة معنا في شهر مارس 2023 بتركيا

توقيع المعني

تصريح بالموافقة

أنا الممضي أسفله السيد:.....أحمد الرهبان.....أشغل

منصب:...رئيس قسم اللغة العربية.....بـ:.....أكاديمية إسطنبول.....

أصرح أنني أوافق أن يدرج إسمي كاملا في أطروحة الدكتوراه الخاصة بالأستاذة زيتوني آمنة

و المعنونة بـ:**The difficulties encontred by foreigners learning – arabic as a foreign languag**.

من خلال المقابلة الشفوية التي أجرتها الأستاذة معنا في شهر مارس 2023 بتركيا

توقيع المعني





Appendix Four

Discussion of the Students' Recordings

as mentioned earlier the participants recordingds will be analysed and compared to the native speaker's so we can highlight all the mispronounced sounds

Phonetic Transcription of Student A' s Recordings

طارق. متى تحط الطائرة

مصطفئ. لا ادري انا في محطة القطار ط

/- t a: r i q mata ta utu ta:ʔ iratu/

/- mustafa la: ʔdri ana: f i: ma aţati elqita:r/

عادل: السلام عليكم. عدت من العمل مع عمتي عبلة // udtu mina l/ **amali ma/ a amati abla**/

علي: و عليكم السلام علمت ذلك عندما عايدتها. ع **ʔa**li wa / **a**leikum sala;m / **a**li;tu ða:lika i n dma a:j **a**dtuha/

حسام. كانت رحلة مفرحة الى البحر البارحة. ح / ʔ usa:m ri lat**a**n mufri ʔ **at**an ila lbari /

حبيب . حضر كل المحامين و المحاسبين. ح / ʔ**a**bi:b **ad**ˤ**ara** kulu **a**lmu a:mi:n**a** w**a** **a**lmu a:sibi:n**a**/

ظافر. ظهر ظبي عند الظهيرة. ظ

/ da:fir zahara zabj un inda zahi:ra/

مظهر. منظر ظريف . ظ

/ madhar manzar zari: f/

قمر التقيت قريبتي قرب محطة القطار ق

/**k**amar ilta**k**aj tu i: **k**urba maħaţati el**k**iţa:r/

عقيلة. كانت قريبة من القصر . ق

/ a**k**i:l**a** ka:n**at** **k**ari:b**at**an min**a** **a**l**k**asr/

خالد . اخذت الخوذة و بعض الخوخ خ

/**k**a:lid a**k**adtu **a**l**k**u:ðata w**a**b**a**t□a **a**lXu:Xi/

خولة . لا تخف . خالك خليل سيرافقك. خ

/Xawl**a** l**a**t**a**Xaf ha:luk**a** Xali:l s**a**j ura:fiquka/

صابرين . اصبر. الصيد يتطلب صبرا. ص

/**s**a:bri:n i **s**bir a**s**aj du j at**aţ**al**a**bu **s**abr**a**n/

صابر. صدقتي . اريد مصاصة . ص

/ **s**a:bir **s**adaqti uri:du ma§a:**s**a/

مهدي هذا شهر الهدايا . ه

/ma dij a:ða: ʃahru **a**l ada:j a:/

هارون . نعم اشتريت منبها اهديه ل مهند هه

/ha:ru:n n**a**À**a**m iʃ taraj tu mun**a**bi **a**n li mu .an**a**d/

ضرار. ضاع رضيع من امه

/di ra:r da**t**a : radi :**t**un min umih /

ضرغام كنت هناك اطارد ضفدعا اخضرا

/di rÄ a:m kuntu huna:ka uţa:ridu di f a**t**an a**k**zaran /

Phonetic Transcription of Student B's Recordings

طارق. متى تحط الطائرة

مصطفئ. لا ادري انا في محطة القطار ط

/- t a: r i q mata taħutu ţa:ʔ iratu/

/- mustafa la: ʔdri ana: f i: maħaţati el**q**ita:r/

عادل: السلام عليكم. عدت من العمل مع عمتي عبلة // / udtu mina l **amali ma a / amati abla**/

علي: و عليكم السلام علمت ذلك عندما عايدتها. ع / **a**li wa / **a**leikum sala;m / **a**li;tu ða:lika i n dma / a:j **a**dtuha/

حسام. كانت رحلة مفرحة الى البحر البارحة. ح /husa:m ri lat**a**n mufrih**a**t**a**n ila lba ri /

حبيب . حضر كل المحامين و المحاسبين. ح /h**a**bi:b h**a**dˁ**a**ra kulu **a**lmu a:mi:n**a** w**a** **a**lmu a:sibi:n**a**/

ظافر. ظهر ظبي عند الظهيرة. ظ

/ da:fir dahara dabj un Àinda dahi:ra/

مظهر. منظر ظريف . ظ

/ madhar manzar a:ri f/

قمر التقيت قريبتي قرب محطة القطار ق

/**k**amar ilta**k**aj tu i: **k**urba maħaţati el**k**iţa:r/

عقيلة. كانت قريبة من القصر . ق

/ a**k**i:l**a** ka:n**at** **k**ari:b**at**an min**a** **a**l**k**asr/

خالد . اخذت الخوذة و بعض الخوخ خ

/**k**a:lid a**k**adtu **a**l**k**u:ðata w**a**b**a**□a **a**lu:**k**i/

خولة . لا تخف . خالك خليل سيرافقك. خ

/awl**a** l**ataq**af ha:luk**a** **k**ali:l s**aj** ura:fi**k**uka/

صابرين . اصبر. الصيد يتطلب صبرا. ص

/**s**a:bri:n i **s**bir a**s**aj du j at**at**a**l**abu **s**abr**a**n/

صابر. صدقتي . اريد مصاصة . ص

/ **s**a:bir **s**adaqti uri:du ma§a:**s**a/

مهدي هذا شهر الهدايا . ه

/ma dij a:ða: ʃahru **a**l ada:j a:/

هارون . نعم اشتريت منبها اهديه ل مهند هه

/ha:ru:n n**a**À**a**m iʃ taraj tu mun**a**bi **a**n li mu .an**a**d/

ضرار. ضاع رضيع من امه

/di ra:r daa : razi:un min umih /

ضرغام كنت هناك اطارد ضفدعا اخضرا

/di rÄ a:m kuntu huna:ka uta:ridu □i f daan a**k**daran /-

Student Transcription of Student C Recordings

طارق. متى تحط الطائرة

مصطفئ. لا ادري انا في محطة القطار ط

/- t a: r i q mata taħutu ţa:ʔ iratu/

/- musţafa la: ʔdri ana: f i: ma aţati el**q**iţa:r/

عادل: السلام عليكم. عدت من العمل مع عمتي عبلة // / udtu mina l **amali ma/ a / amati abla**/

ع علي: و عليكم السلام علمت ذلك عندما عايدتها. / **a**li wa / **a**leikum sala;m / **a**li;tu ða:lika i n dma a:j **a**dtuha/

/husa:m ri lat**a**n mufrih**a**t**a**n ila lbaħri / حسام. كانت رحلة مفرحة الى البحر البارحة. ح

/**h**abi:b **h**ad^{ɛ}**a**ra kulu **a**lmu a:mi:n**a** w**a** **a**lmu a:sibi:n**a**/ حبيب . حضر كل المحامين و المحاسبين. ح

ظافر. ظهر ظبي عند الظهيرة. ظ

/ za:fir zahara dabj un Àinda wahi:ra/

مظهر. منظر ظريف . ظ

/ mazhar mandar za:ri f/

قمر التقيت قريبتي قرب محطة القطار ق

/**k**amar ilta**k**aj tu i: **k**urba maħaţati el**k**iţa:r/

عقيلة. كانت قريبة من القصر . ق

/t**a**ki:l**a** ka:n**a**t **k**ari:b**a**t**a**n min**a** **a**lkasr/

خالد . اخذت الخوذة و بعض الخوخ خ

/**k**a:lid a**k**adtu **a**l**k**u:ðata wab**a**t□a **a**lqu:**q**i/

خولة . لا تخف . خالك خليل سيرافقك. خ

/ awl**a** l**a**t**aq**af ha:luk**a** **q**ali:l s**a**j ura:fiquka/

صابرين . اصبر. الصيد يتطلب صبرا. ص

/**s**a:bri:n i **s**bir a**s**aj du j at**a**ţ**a**l**a**bu **s**abr**a**n/

صابر. صدقتي . اريد مصاصة . ص

/ **s**a:bir **s**adaqti uri:du ma§a:**s**a/

مهدي هذا شهر الهدايا . ه

/ma dij a:ða: ʃahru **a**l ada:j a:/

هارون . نعم اشتريت منبها اهديه ل مهند هه

/ha:ru:n n**a**Àam iʃ taraj tu mun**a**bi **a**n li mu .an**a**d/

ضرار. ضاع رضيع من امه

/zi ra:r da□a : razi :□un min umih /

ضرغام كنت هناك اطارد ضفدعا اخضرا

/zi rÄ a:m kuntu huna:ka uţa:ridu i f atan akdaran/

Phonetic Transcription Student D Transcription

طارق. متى تحط الطائرة

مصطفئ. لا ادري انا في محطة القطار ط

/- ta: r i q mata tautu ţa: iratu/

/- mustafa la: ʔdri ana: f i: maatati elqita:r/

عادل: السلام عليكم. عدت من العمل مع عمتي عبلة // / udtu mina l **amali ma/ a amati / abla**/

علي: و عليكم السلام علمت ذلك عندما عايدتها. ع /**a**li wa / **a**leikum sala;m / **a**li;tu ða:lika / i n dma / a:j **a**dtuha/

حسام. كانت رحلة مفرحة الى البحر البارحة. ح /husa:m ri lat**a**n mufri **at**an ila lbahri /

حبيب . حضر كل المحامين و المحاسبين. ح /**h**abi:b **h**a**d**a**r**a kulu **a**lmu a:mi:n**a** w**a** **a**lmu a:sibi:n**a**/

ظافر. ظهر ظبي عند الظهيرة. ظ

/ za:fir zahara zabj un inda dahi:ra/

مظهر. منظر ظريف . ظ

/ mazhar mandar za:ri f/

قمر التقيت قريبتي قرب محطة القطار ق

/**k**amar ilta**k**aj tu i: **k**urba maħaţati el**k**iţa:r/

عقيلة. كانت قريبة من القصر . ق

/ a**k**i:l**a** ka:n**at** **k**ari:b**at**an min**a** **a**l**k**asr/

خالد . اخذت الخوذة و بعض الخوخ خ

/**k**a:lid a**k**adtu **a**l**k**u:ðata w**a**b**a**ta **a**l**q**u:**q**i/

خولة . لا تخف . خالك خليل سيرافقك. خ

/ awl**a** l**at**a**q**af ha:luk**a** **q**ali:l s**aj** ura:fi**q**uka/

صابرين . اصبر. الصيد يتطلب صبرا. ص

/**s**a:bri:n i **s**bir a**s**aj du j at**aţ**al**a**bu **s**abr**a**n/

صابر. صدقتي . اريد مصاصة . ص

/ **s**a:bir **s**adaqti uri:du mas**a**:sa/

مهدي هذا شهر الهدايا . ه

/ma dij a:ða: ʃahru **a**l ada:j a:/

هارون . نعم اشتريت منبها اهديه ل مهند هه

/ a:ru:n n**a**À**a**m iʃ taraj tu mun**a**bi **a**n li mu .an**a**d/

ضرار. ضاع رضيع من امه

/di ra:r da**t**a : radi :**t**un min umih /

ضرغام كنت هناك اطارد ضفدعا اخضرا

/di rÄ a:m kuntu huna:ka uţa:ridu i f a**t**an a**k**zaran/

Phonetic Transcription of Student E Recordings

طارق. متى تحط الطائرة

مصطفئ. لا ادري انا في محطة القطار ط

/- ta: r i q mata ta utu ţa:ʔ iratu/

/- mustafa la: ʔdri ana: f i: maaţati el**q**ia:r/

عادل: السلام عليكم. عدت من العمل مع عمتي عبلة / / udtu mina l/ **amali ma/ a / amati / abla**/

علي: و عليكم السلام علمت ذلك عندما عايدتها. ع /**a**li wa / **a**leikum sala;m / **a**li;tu ða:lika i n dma / a:j **a**dtuha/

حسام. كانت رحلة مفرحة الى البحر البارحة. ح /husa:m rihlat**a**n mufri **a**t**a**n ila lba ri /

حبيب . حضر كل المحامين و المحاسبين. ح /h**a**bi:b h**a**d**a**ra kulu **a**lmu a:mi:n**a** w**a** **a**lmu a:sibi:n**a**/

ظافر. ظهر ظبي عند الظهيرة. ظ

/ za:fir dahara dabj un inda dahi:ra/

مظهر. منظر ظريف . ظ

/ madhar manzar da:ri f/

قمر التقيت قريبتي قرب محطة القطار ق

/**k**amar ilta**k**aj tu i: **k**urba maħaţati el**k**iţa:r/

عقيلة. كانت قريبة من القصر . ق

/**t**a**k**i:l**a** ka:n**a**t **k**ari:b**a**t**a**n min**a** **a**l**k**asr/

خالد . اخذت الخوذة و بعض الخوخ خ

/**k**a:lid a**k**adtu **a**l**k**u:ðata w**a**b**a**t□a **a**l u:**q**i/

خولة . لا تخف . خالك خليل سيرافقك. خ

/ awl**a** l**a**t**aq**af ħa:luk**a** **q**ali:l s**aj** ura:fi**q**uka/

صابرين . اصبر. الصيد يتطلب صبرا. ص

/**s**a:bri:n i **s**bir a**s**aj du j at**a**ţ**a**l**a**bu **s**abr**a**n/

صابر. صدقتي . اريد مصاصة . ص

/ **s**a:bir **s**ada**q**ti uri:du mas**a**:**s**a/

مهدي هذا شهر الهدايا . ه

/ma dij a:ða: ʃahru **a**l ada:j a:/

هارون . نعم اشتريت منبها اهديه ل مهند هه

/ha:ru:n n**a**À**a**m iʃ taraj tu mun**a**bi **a**n li mu .an**a**d/

ضرار. ضاع رضيع من امه

/zi ra:r da**t**a : razi :**t**un min umih /

ضرغام كنت هناك اطارد ضفدعا اخضرا

/zi rÄ a:m kuntu huna:ka uţa:ridu □i f □a**t**an a**k**zaran/

Phonetic Transcription of Student F Recordings

طارق. متى تحط الطائرة

مصطفئ. لا ادري انا في محطة القطار ط

/- ţ a: r i q mata taħuţu ţa:ʔ iratu/

/- musţafa la: ʔdri ana: f i: maħaţati el**q**iţa:r/

عادل: السلام عليكم. عدت من العمل مع عمتي عبلة / // udtu mina l/ **amali ma/ a / amati / abla/**

/Àali wa / aleikum sala;m / ali;tu ða:lika / علي: و عليكم السلام علمت ذلك عندما عايدتها. ع

i n dma / a:j adtuha/

/ħusa:m riħlatan mufriħatan ila lbaħri / حسام. كانت رحلة مفرحة الى البحر البارحة. ح

/habi:b had^{ɛ}ara kulu almu a:mi:na wa almu حبيب . حضر كل المحامين و المحاسبين. ح

a:sibi:na/

ظافر. ظهر ظبي عند الظهيرة. ظ

/ da:fir zahara dabj un Àinda dahi:ra/

مظهر. منظر ظريف. ظ

/ madhar mandar a:ri f/

قمر التقيت قريبتي قرب محطة القطار ق

/kamar iltakaj tu i: kurba maħaţati elkiţa:r/

عقيلة. كانت قريبة من القصر . ق

/takila kanat karibatan mina alkasr/

خالد . اخذت الخوذة و بعض الخوخ خ

/kalid akadtu alkuðata wabat□a alXuXi/

خولة . لا تخف . خالك خليل سيرافقك. خ

/Xawla lataXaf ha:luka Xali:l saj ura:fiquka/

صابرين . اصبر. الصيد يتطلب صبرا. ص

/sa:bri:n i sbir asaj du j ataţalabu sabran/

صابر. صدقتي . اريد مصاصة . ص

/ sa:bir sadaqti uri:du ma§a:sa/

مهدي هذا شهر الهدايا . ه

/ma dij a:ða: ʃahru al ada:j a:/

هارون . نعم اشتريت منبها اهديه ل مهند هه

/ha:ru:n naÀam iʃ taraj tu munabi an li mu .anad/ .

ضرار. ضاع رضيع من امه

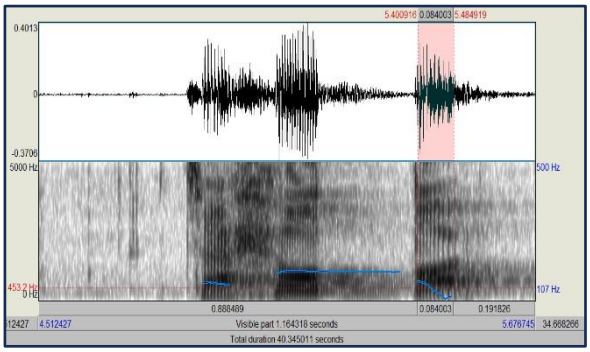
/zi ra:r data : radi :tun min umih /

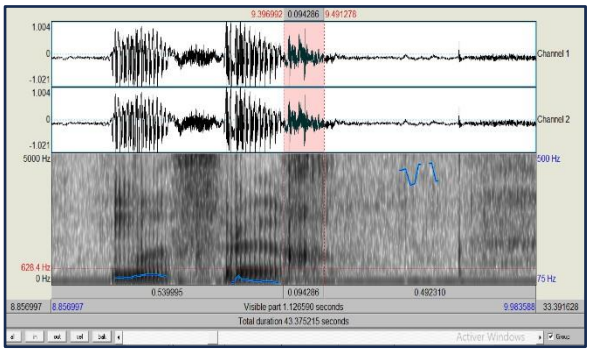
ضرغام كنت هناك اطارد ضفدعا اخضرا

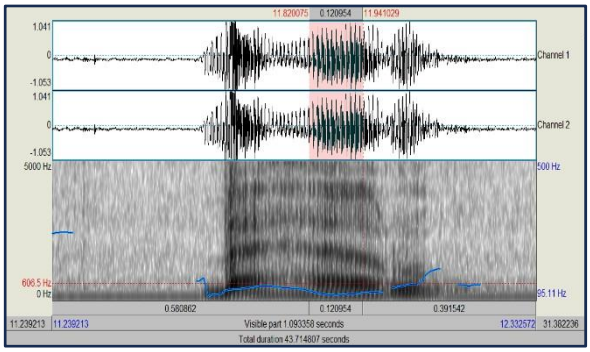
/di rÄ a:m kuntu huna:ka uţa:ridu i f aتan a**k**daran/

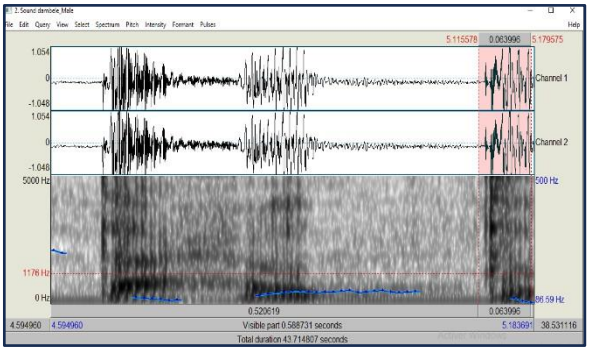
Appendix Five

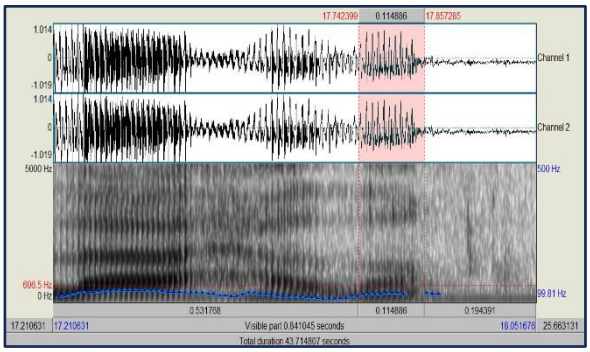
/ ð/ ح

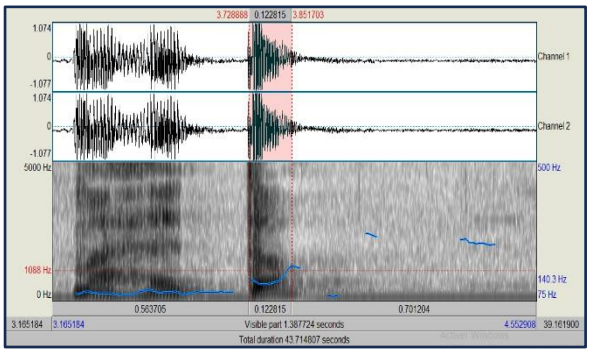


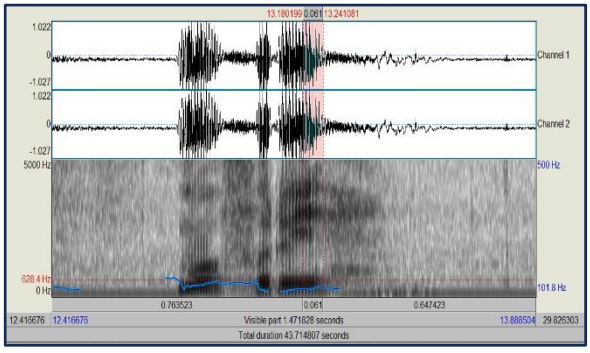


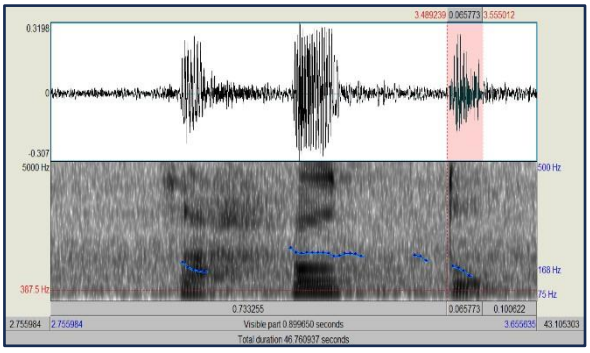




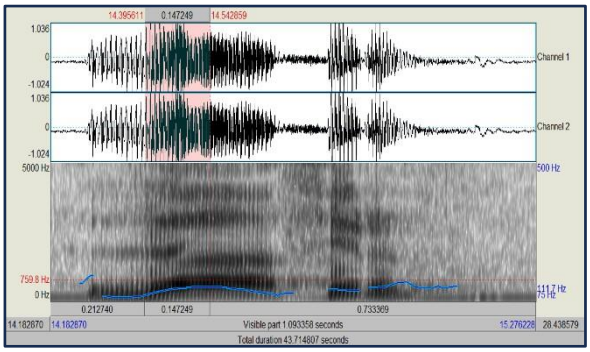


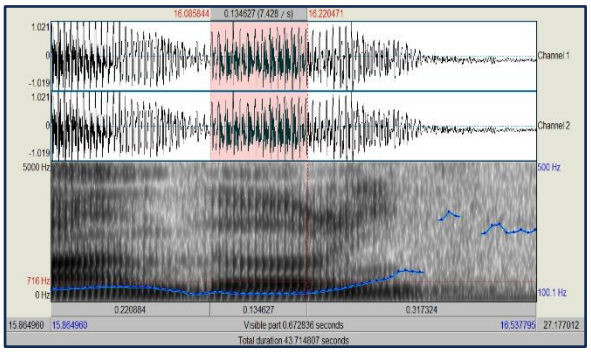


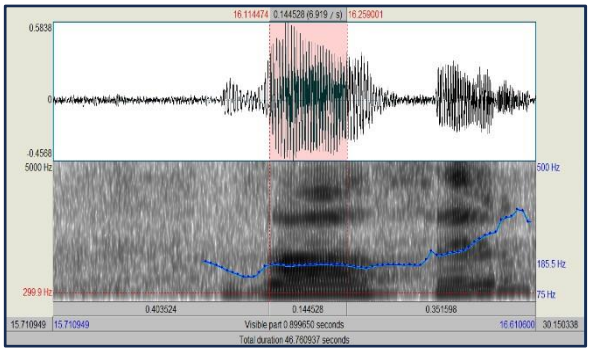


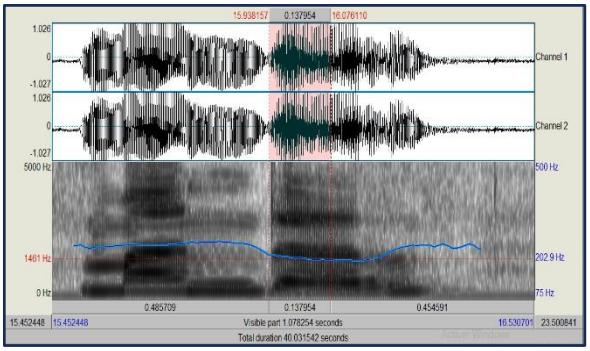


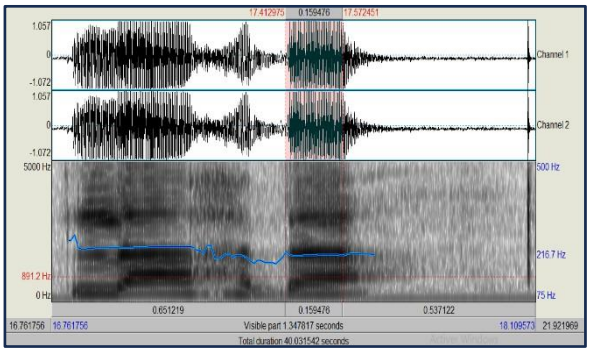
/d/ ظ

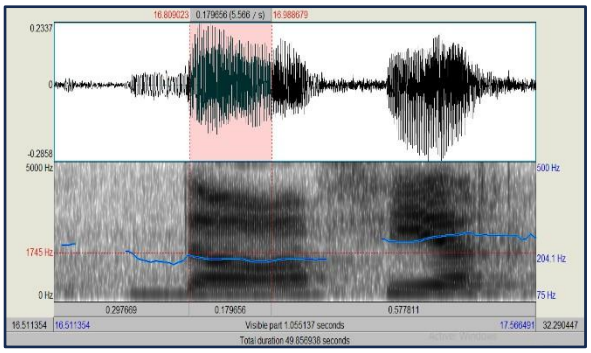

Channel 1
Channel 2
Visible part 1.093358 seconds
Total duration 43.714807 seconds

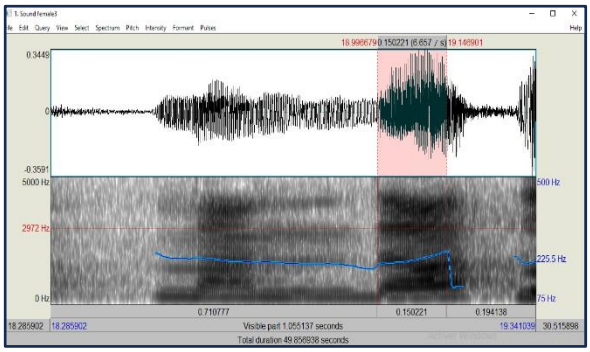

Channel 1
Channel 2
Visible part 0.672836 seconds
Total duration 43.714807 seconds

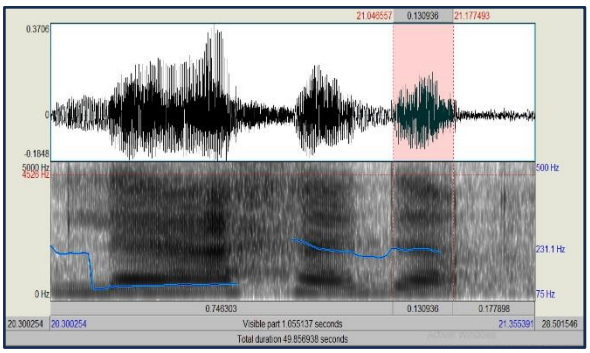

Visible part 0.899650 seconds
Total duration 46.780937 seconds


Channel 1
Channel 2
Visible part 1.078254 seconds
Total duration 40.031542 seconds

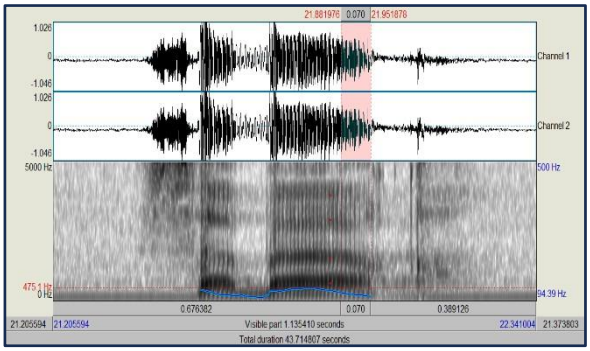

Channel 1
Channel 2
Visible part 1.347817 seconds
Total duration 40.031542 seconds

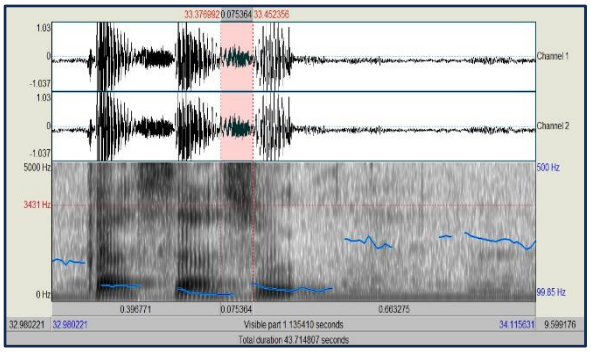

Visible part 1.055137 seconds
Total duration 49.856938 seconds

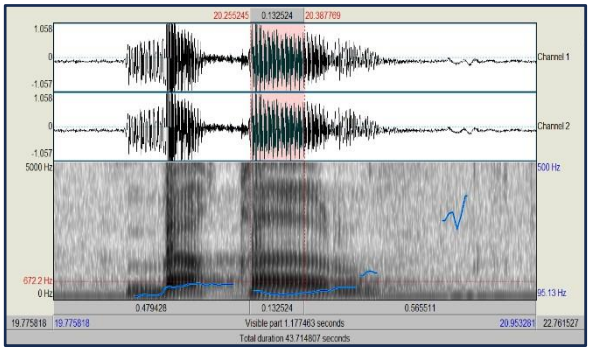

Visible part 1.055137 seconds
Total duration 49.856938 seconds

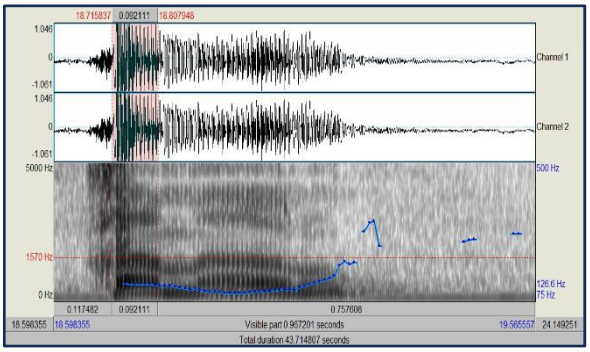

Visible part 1.055137 seconds
Total duration 49.856938 seconds

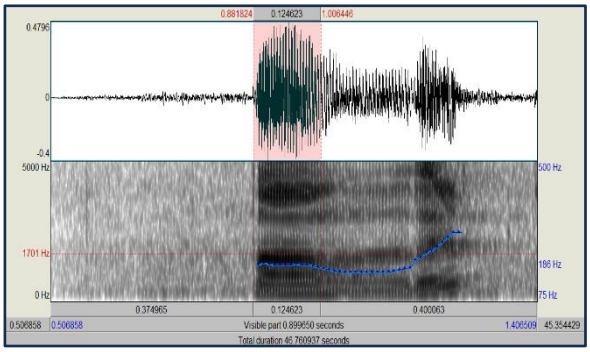
/q/ ق

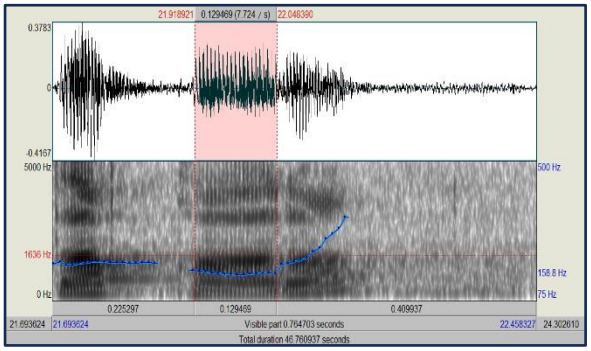

Channel 1
Channel 2
Visible part 1.135410 seconds
Total duration 43.714807 seconds

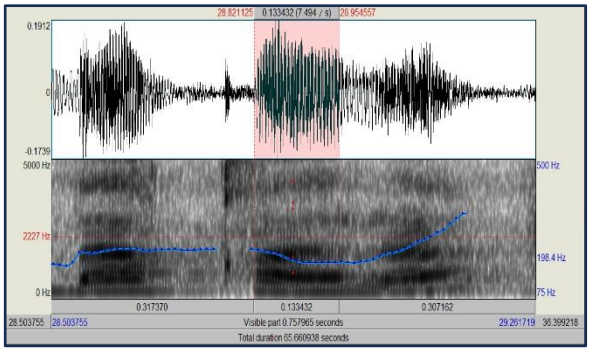

Channel 1
Channel 2
Visible part 1.135410 seconds
Total duration 43.714807 seconds

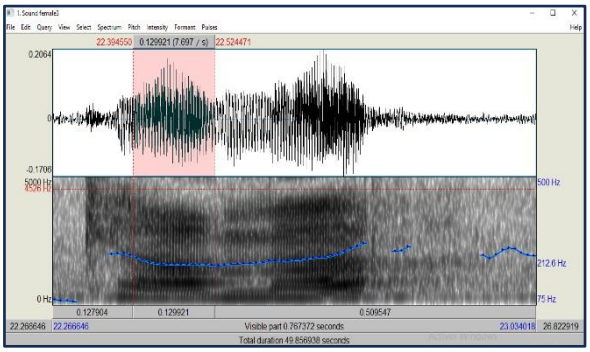

Channel 1
Channel 2
Visible part 1.177463 seconds
Total duration 43.714807 seconds


Channel 1
Channel 2
Visible part 0.967201 seconds
Total duration 43.714807 seconds

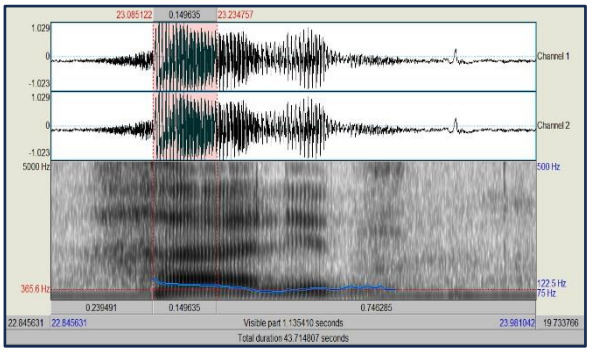

Visible part 0.899650 seconds
Total duration 46.760937 seconds

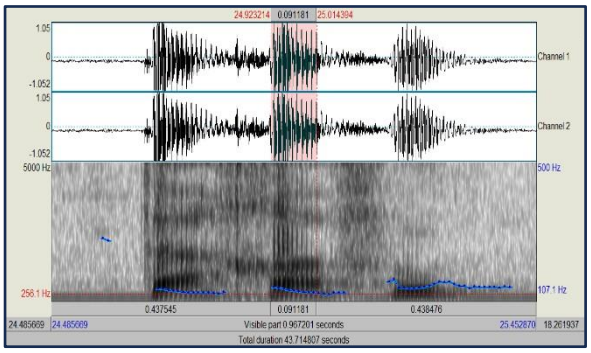

Visible part 0.764703 seconds
Total duration 46.760937 seconds

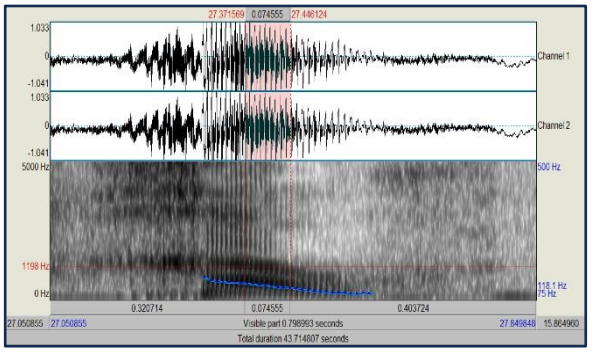

Visible part 0.757965 seconds
Total duration 65.660938 seconds

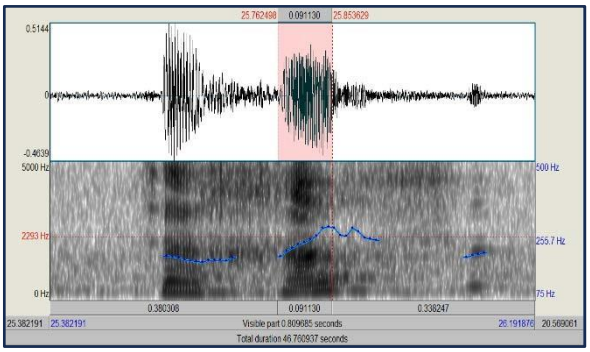

Visible part 0.767372 seconds
Total duration 49.856938 seconds

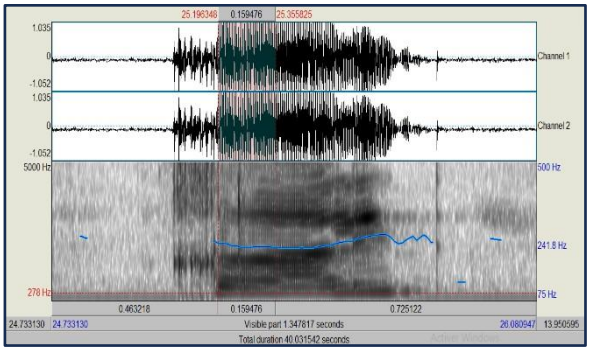
/X/ خ

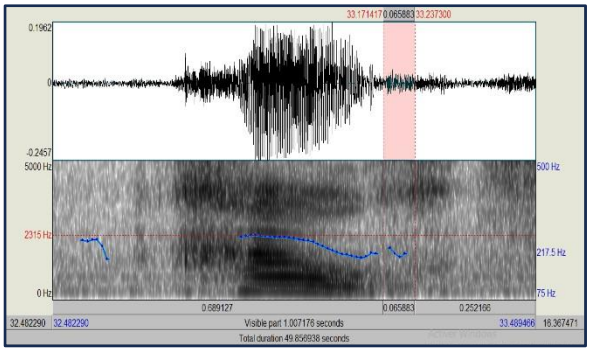

Channel 1
Channel 2
Visible part 1.135410 seconds
Total duration 43.714807 seconds

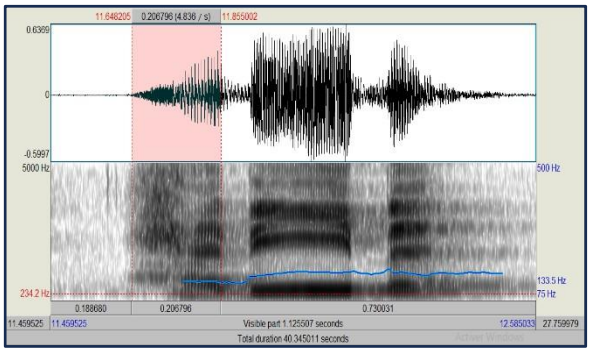

Channel 1
Channel 2
Visible part 0.967201 seconds
Total duration 43.714807 seconds

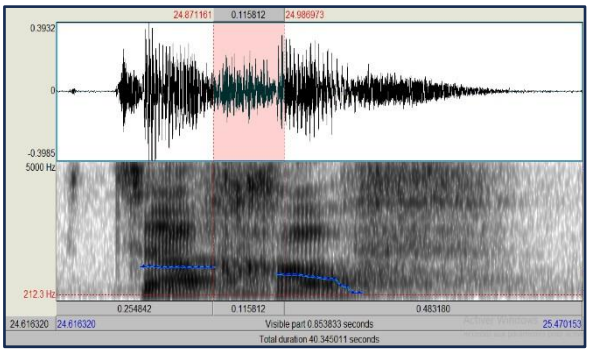

Channel 1
Channel 2
Visible part 0.798993 seconds
Total duration 43.714807 seconds


Visible part 0.809685 seconds
Total duration 46.760937 seconds

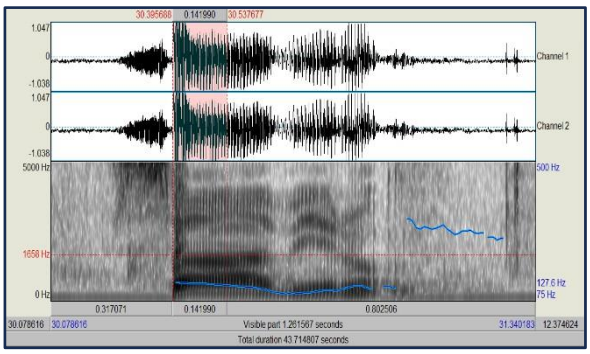

Channel 1
Channel 2
Visible part 1.347817 seconds
Total duration 40.031542 seconds

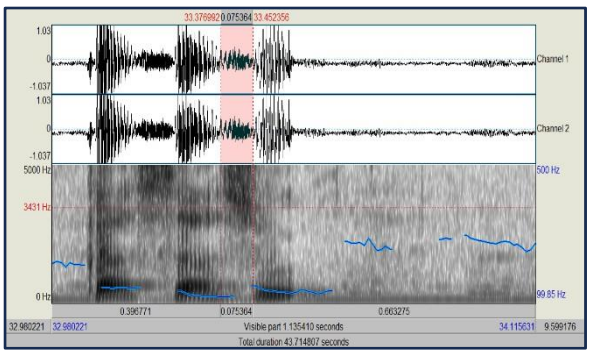

Visible part 1.007176 seconds
Total duration 49.859938 seconds

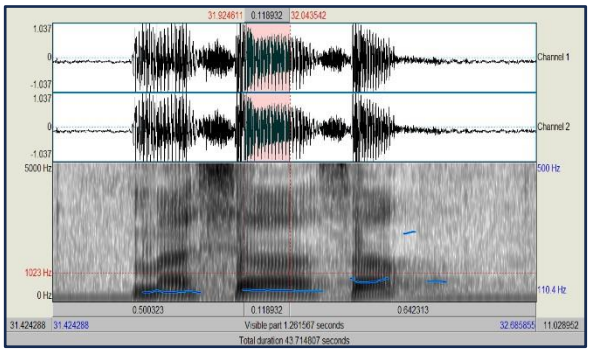

Visible part 1.125507 seconds
Total duration 40.345011 seconds

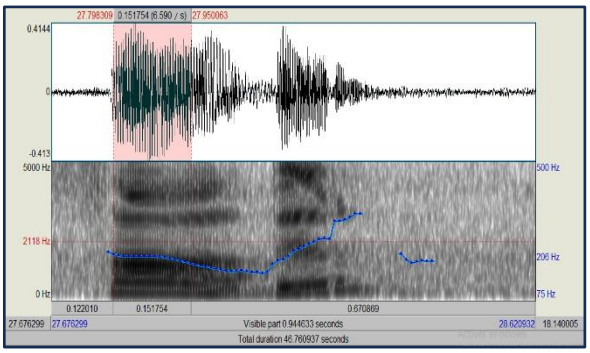

Visible part 0.853833 seconds
Total duration 40.345011 seconds

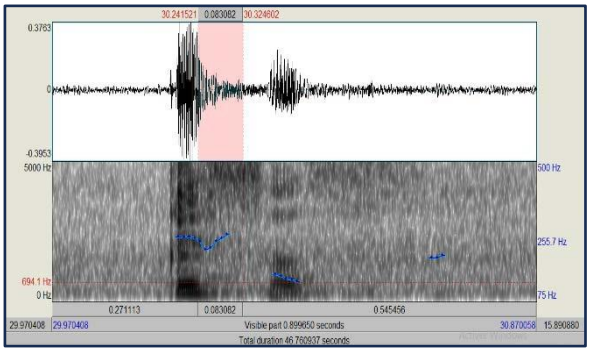
ص /§/

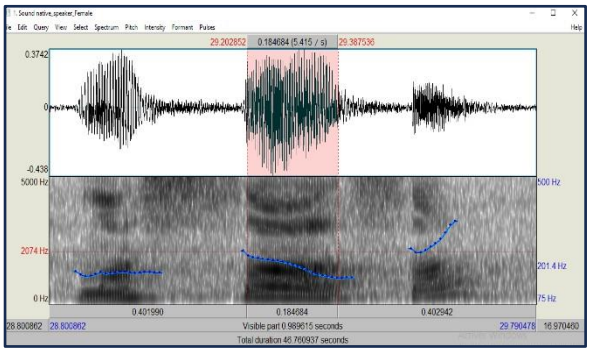

Channel 1
Channel 2
Visible part 1.261567 seconds
Total duration 43.714807 seconds

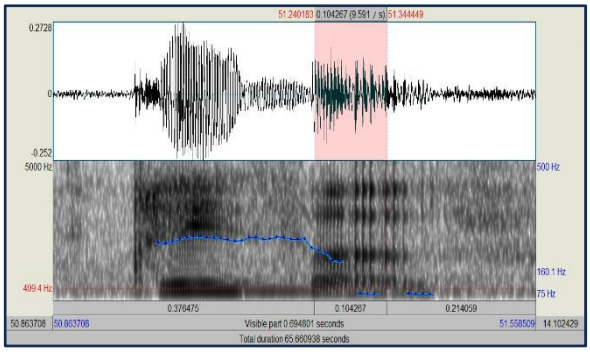

Channel 1
Channel 2
Visible part 1.135410 seconds
Total duration 43.714807 seconds

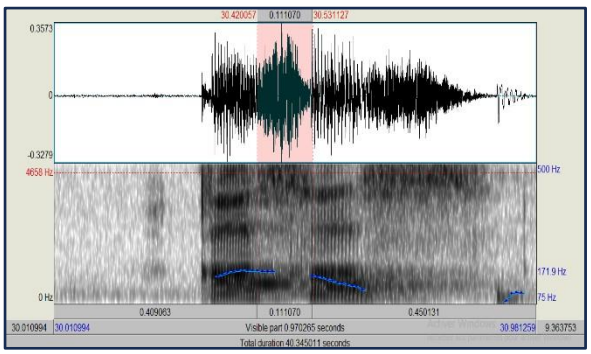

Channel 1
Channel 2
Visible part 1.261567 seconds
Total duration 43.714807 seconds


Visible part 0.944633 seconds
Total duration 46.760937 seconds

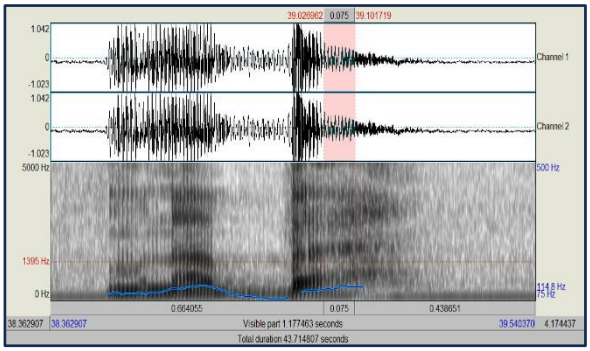

Visible part 0.899650 seconds
Total duration 46.760937 seconds

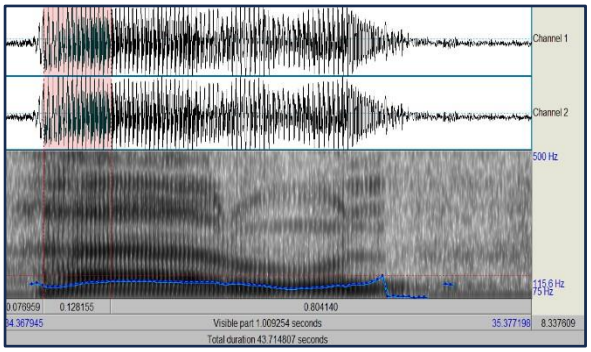

Visible part 0.989615 seconds
Total duration 46.760937 seconds

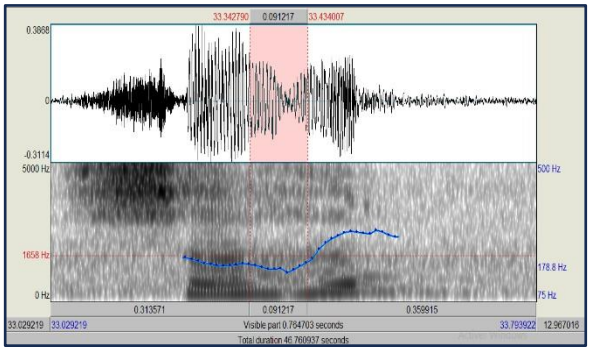

Visible part 0.694801 seconds
Total duration 65.660938 seconds

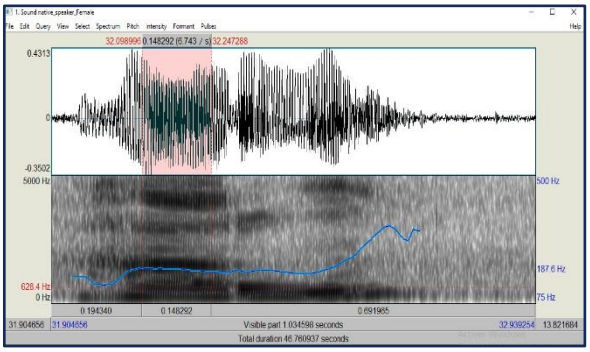

Visible part 0.970265 seconds
Total duration 40.345011 seconds

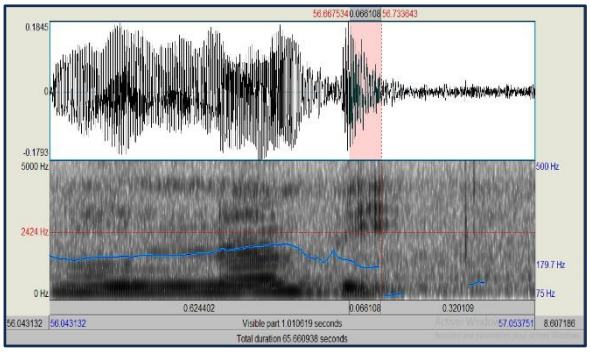
/h/ ه

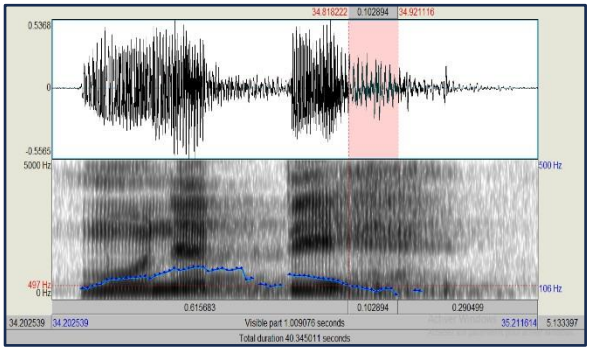

Channel 1
Channel 2
Visible part 1.177463 seconds
Total duration 43.714807 seconds

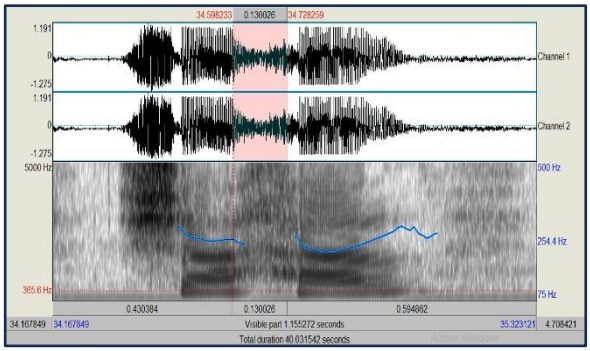

Channel 1
Channel 2
Visible part 1.009254 seconds
Total duration 43.714807 seconds

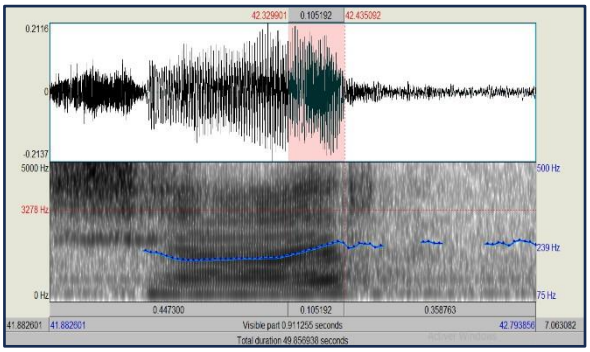

Visible part 0.764703 seconds
Total duration 46.760937 seconds


Visible part 1.034598 seconds
Total duration 46.760937 seconds

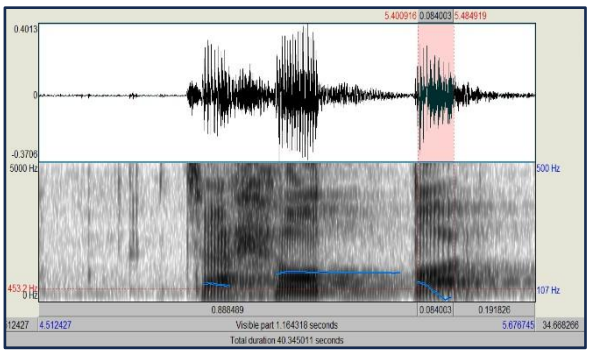

Visible part 1.010619 seconds
Total duration 65.609938 seconds

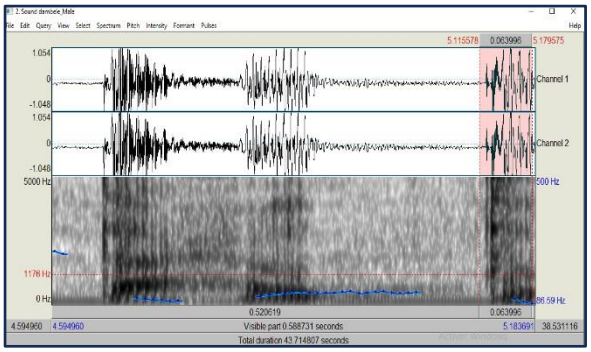

Visible part 1.009076 seconds
Total duration 40.345011 seconds

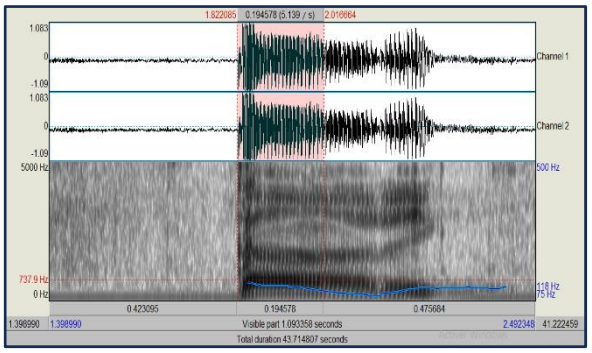

Channel 1
Channel 2
Visible part 1.155272 seconds
Total duration 40.031542 seconds

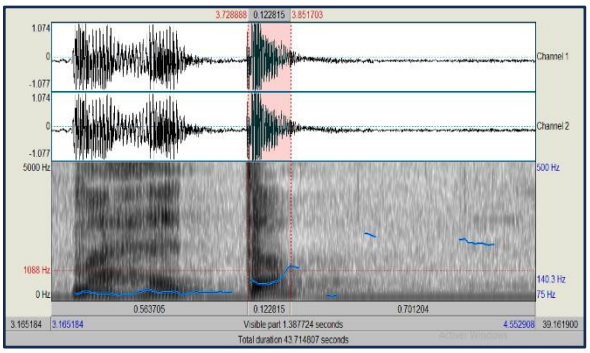

Visible part 0.911255 seconds
Total duration 49.859938 seconds

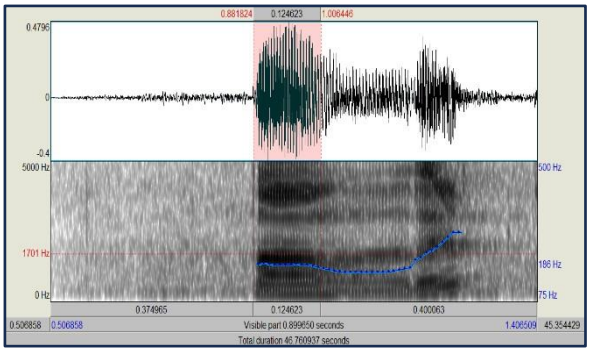
/ظ/

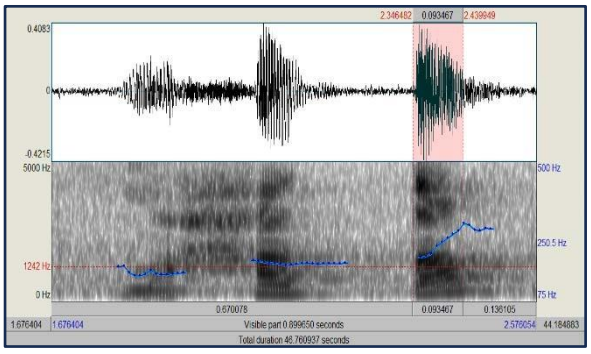

5.400916 0.084003 5.484919
0.4013
-0.3706
5000 Hz
500 Hz
453.2 Hz
107 Hz
0.888489
0.084003
0.191826
12427
4.512427
Visible part 1.164318 seconds
5.676745
34.868266
Total duration 40.345011 seconds

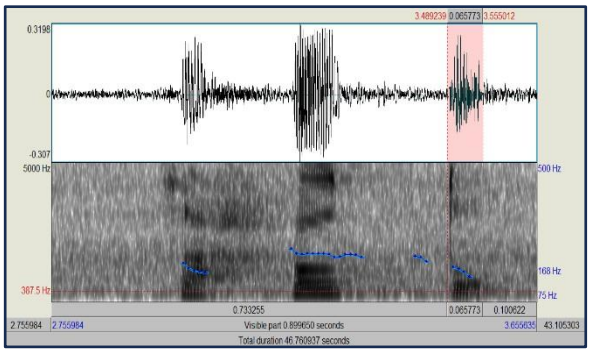

2. Sound damoee_Male
5.115578 0.063996 5.179575
1.054
-1.048
Channel 1
Channel 2
5000 Hz
500 Hz
1178 Hz
86.59 Hz
0.520619
0.063996
4.594960
4.594960
Visible part 0.588731 seconds
5.183691
38.531116
Total duration 43.714807 seconds

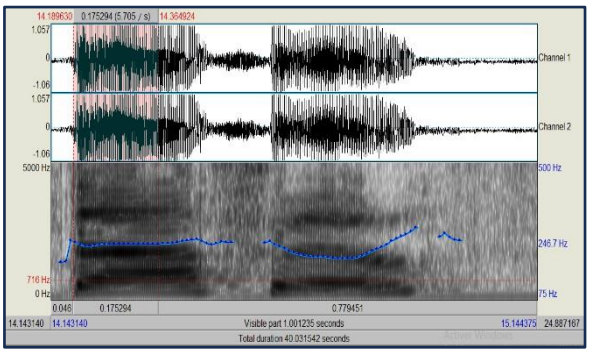

1.822085 0.194578 (5.139 / s) 2.016664
1.083
-1.09
Channel 1
Channel 2
5000 Hz
500 Hz
737.9 Hz
118 Hz
75 Hz
0.423095
0.194578
0.475684
1.398990
1.398990
Visible part 1.093358 seconds
2.492348
41.222459
Total duration 43.714807 seconds


3.728888 0.122815 3.851703
1.074
-1.077
Channel 1
Channel 2
5000 Hz
500 Hz
1088 Hz
140.3 Hz
75 Hz
0.563705
0.122815
0.701204
3.165184
3.165184
Visible part 1.387724 seconds
4.552908
39.161900
Total duration 43.714807 seconds

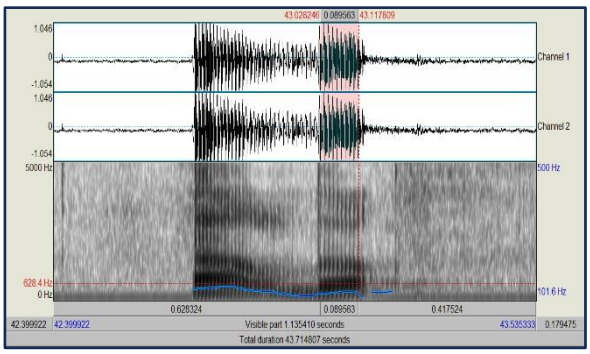

0.881824 0.124623 1.006446
0.4796
-0.4
5000 Hz
500 Hz
1701 Hz
186 Hz
75 Hz
0.374965
0.124623
0.400063
0.506858
0.506858
Visible part 0.899650 seconds
1.406509
45.354429
Total duration 46.760937 seconds

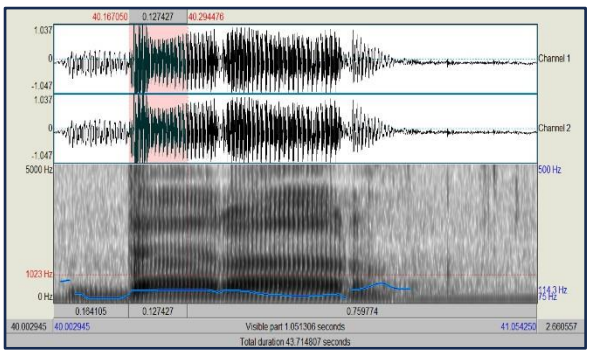

2.346482 0.093467 2.439949
0.4083
-0.4215
5000 Hz
500 Hz
1242 Hz
250.5 Hz
75 Hz
0.670078
0.093467
0.136105
1.676404
1.676404
Visible part 0.899650 seconds
2.576054
44.184683
Total duration 46.760937 seconds

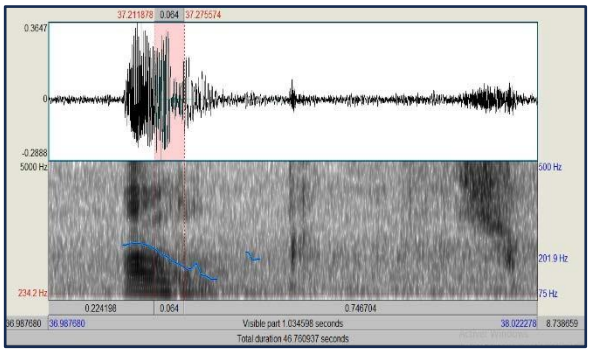

3.489239 0.065773 3.555012
0.3198
-0.307
5000 Hz
500 Hz
367.5 Hz
168 Hz
75 Hz
0.733255
0.065773
0.100622
2.755984
2.755984
Visible part 0.899650 seconds
3.655635
43.105303
Total duration 46.760937 seconds

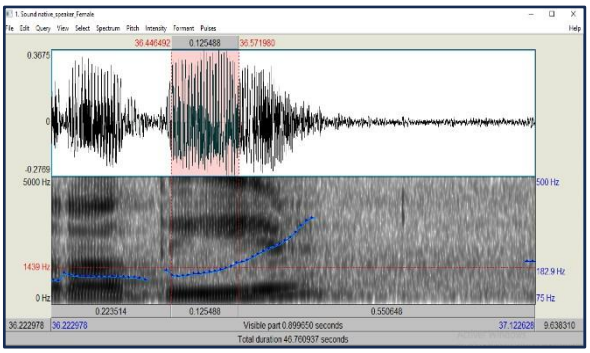

14.189630 0.175294 (5.705 / s) 14.364924
1.057
-1.06
Channel 1
Channel 2
5000 Hz
500 Hz
716 Hz
246.7 Hz
75 Hz
0.046
0.175294
0.779451
14.143140
14.143140
Visible part 1.001235 seconds
15.144375
24.887167
Total duration 40.031542 seconds

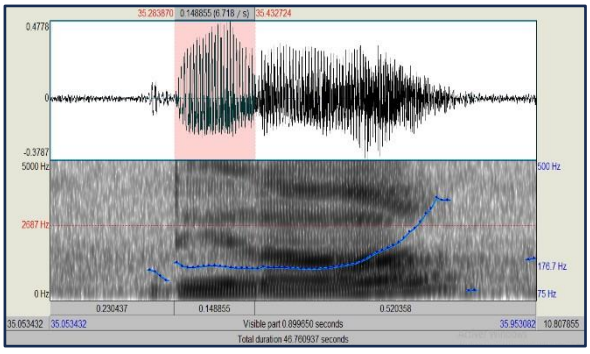
ض /ɖ/

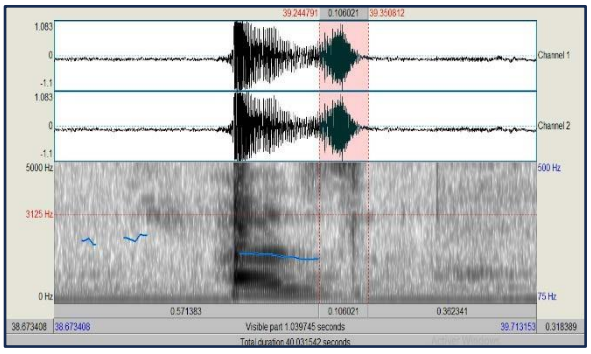

Channel 1
Channel 2
Visible part 1.135410 seconds
Total duration 43.714807 seconds

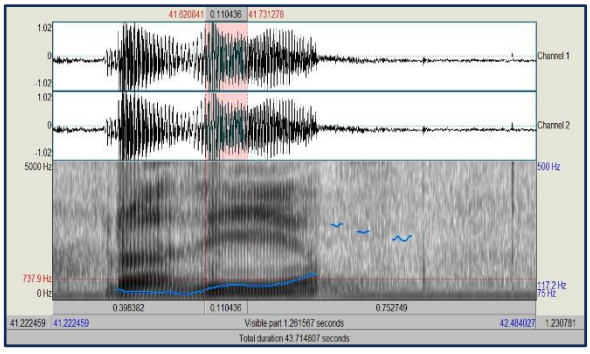

Channel 1
Channel 2
Visible part 1.051306 seconds
Total duration 43.714807 seconds

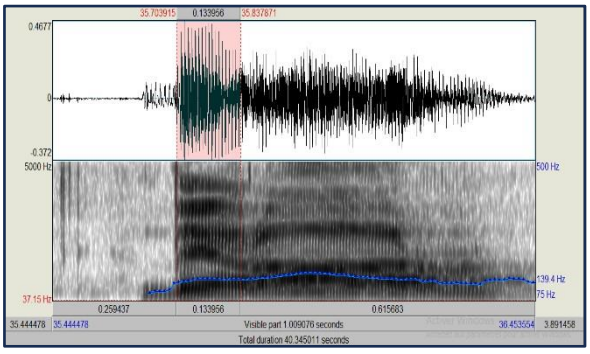

Visible part 1.034598 seconds
Total duration 46.760937 seconds


Visible part 0.899650 seconds
Total duration 46.760937 seconds

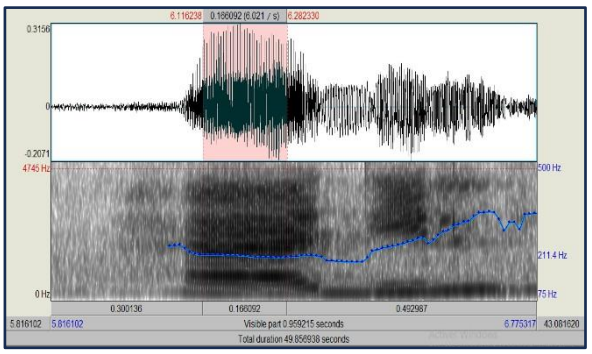

Visible part 0.899650 seconds
Total duration 46.760937 seconds

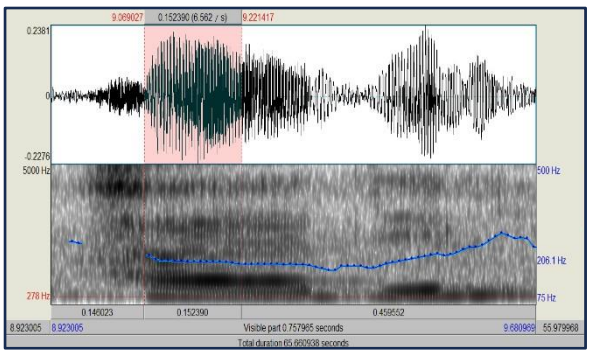

Channel 1
Channel 2
Visible part 1.039745 seconds

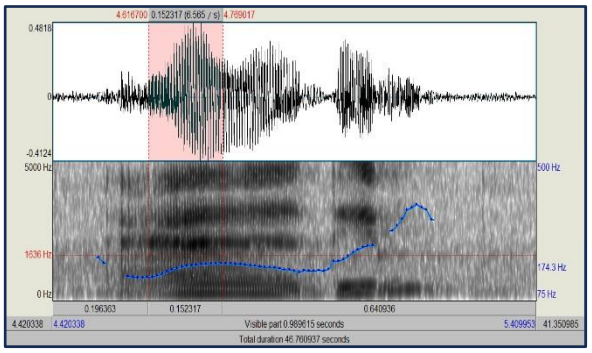

Channel 1
Channel 2
Visible part 1.261567 seconds
Total duration 43.714807 seconds

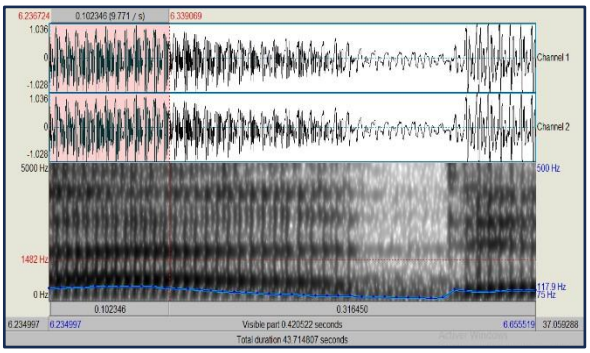

Visible part 1.009076 seconds
Total duration 40.345011 seconds

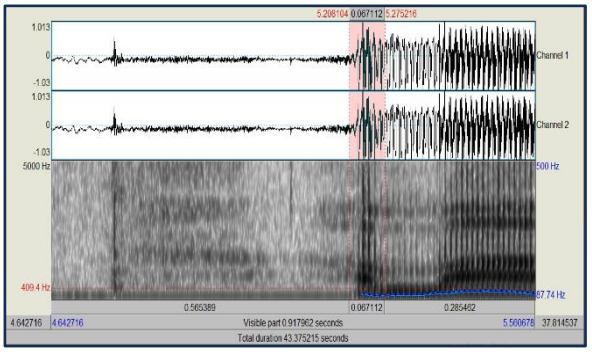
/À/ ع

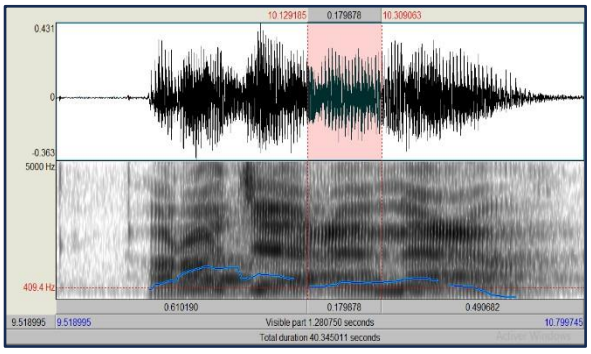


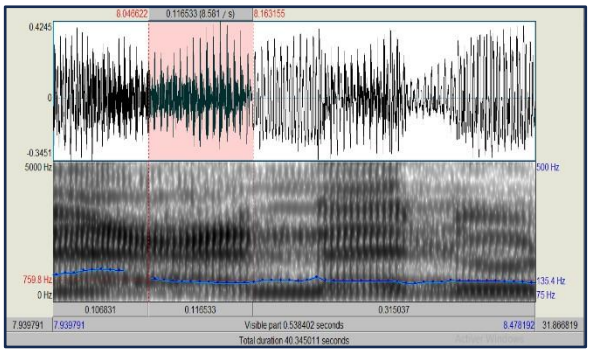


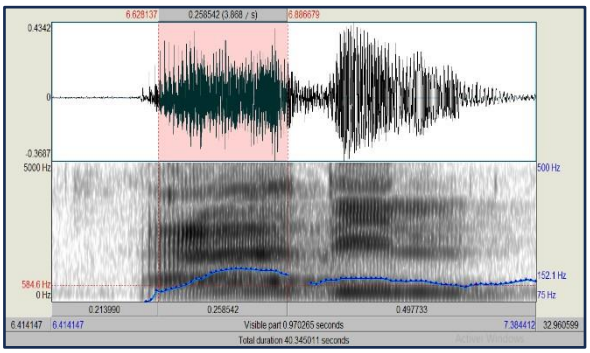












الملخص:

دراسة الفروق الفونولوجية التي يواجهها الأجانب الذين يتعلمون العربية كلغة أجنبية تعتبر ضرورية لفهم تعقيدات اكتساب اللغة في سياق ثنائي أو متعدد اللغات، العربية هي لغة سامية تتميز بنظام صوتي خاص يتسم بالأصوات التأكيدية والحنجرية و الحلقية، مما يمكن أن يؤدي الى تحديات كبيرة مثل سوء النطق و الصعوبة في التعرف على الأصوات المتشابهة، لذلك الهدف من هذه الدراسة هو التحقيق في الصعوبات الفونولوجية التي قد يواجهها المتعلمون.

كما تفحص هذه الدراسة، إدراك وإنتاج تباينات الحروف الساكنة بين الناطقين غير الأصليين بالعربية وخاصة الناطقين الأصليين بالإنجليزية و الفرنسية و من ثم تقوم هذه البحوث بإعداد منهج مناسب يمكن أن يساعد هؤلاء المتعلمين على تحسين نطقهم و إلى حد ما الوصول إلى نطق يشبه النطق الأصلي.

تعتمد منهجية البحث التطبيقي المعتمد على الطريقة الكمية لجمع البيانات من خلال ثلاث أدوات بحث أجريت كالآتي :

- تم اجراء مقابلات مع معلمي اللغة العربية للناطقين بلغات أخرى في **تركيا** و تم تحليل نتائجها باستخدام برنامج **Nvivo**;
- تم تصميم استبيان للمتعلمين للعربية كلغة أجنبية في عدة مؤسسات في **الأردن** و **مصر** و **تركيا** ;
- تصميم تجربة شبه تجريبية أقيمت بقسم اللغة الإنجليزية بجامعة طاهري محمد بشار و تم تحليل نتائجها باستخدام برنامج **PRAAT**.

كشفت النتائج أن المتعلمين للغة العربية، كلغة أجنبية يواجهون صعوبات في إنتاج الأصوات الحنجرية و التأكيدية بمستويات مختلفة من الصعوبة.

تساهم هذه البحوث في فهم التحديات الفونولوجية في تعلم العربية كلغة أجنبية، كما تقدم توصيات عملية للمعلمين و المتعلمين لتعزيز عملية التعلم و التعليم.

الكلمات المفتاحية : متعلموا العربية الأجانب، الحروف الساكنة التأكيدية الحروف الساكنة الحنجرية التحديات الفونولوجية برنامج **PRAAT**.

Résumer :

L'étude des différences phonologiques rencontrées par les étrangers apprenant l'Arabe comme langue étrangère est cruciale pour comprendre les complexités de l'acquisition linguistique dans un contexte bilingue ou multilingue. L'arabe, une langue sémitique, présente un système phonétique distinct caractérisé par des sons emphatiques, pharyngés et gutturaux, ce qui peut entrainer des défis significatifs, tels que la mauvaise prononciation et la difficulté à reconnaitre des sons similaires.

Par conséquent, l'objectif de cette étude est d'examiner les difficultés phonologiques que les apprenants peuvent rencontre. Elle examine également la perception et la production des contrastes consonantiques parmi les locuteurs non natifs de l'Arabe, principalement les locuteurs natifs d'anglais et de français. Ainsi, cette recherche met en place un programme approprié qui pourrait aider ces apprenants à améliorer leur prononciation et ce, dans une certain mesure, à atteindre une prononciation proche de celle des natifs.

La méthodologie de recherche appliquée repose sur une méthode quantitative pour collecter des données à travers trois outils de recherche à savoir :

- Des entretiens ont été menés avec des enseignants d'Arabe pour des locuteurs d'autre langue en **Turquie**, et leurs résultats ont été analysés à l'aide du logiciel **Nvivo.**
- Un questionnaire a été conçu pour les apprenants d'Arabe comme langue étrangère dans plusieurs institutions en **Jordanie**, en **Egypte** et en **Turquie**.
- Une expérience quasi expérimentale utilisant le logiciel **PRAAT** a été réalisée au département des langues étrangères de l'Université **TAHRI Mohamed** de Béchar.

Les résultats ont révélé que les apprenants d'Arabe comme langue étrangère ont rencontré des difficultés à produire des sons pharyngés et emphatiques avec différents niveaux de difficulté. Cette recherche contribue à la compréhension des défis phonologiques dans l'apprentissage de l'Arabe comme langue étrangère et elle offre des recommandations pratiques pour les enseignants et les apprenants afin d'améliorer le processus d'apprentissage et d'enseignement.

Mots-clés : apprenants étrangers de l'Arabe, consonnes emphatiques, consonnes pharyngées, défis phonologiques, logiciels **PRAAT**