

People's Democratic Republic of Algeria
Ministry of Higher Education and Scientific Research
University of Algiers 2 - Abou El Kacem Saadallah -
Faculty of Foreign Languages
Department of English



**Integrating Mobile-based Activities in Teaching Listening
and Speaking Skills to EFL Degree Students at Algiers 2
University: A Multimodal Approach**

Submitted by:

Mrs. Amina Bouzidi

Supervised by:

Prof. Souryana Yassine

Board of Examiners

Prof. Bensemmane Faiza	Chairperson	Algiers2 University
Prof. Yassine Souryana	Supervisor	Tizi Ouzou University
Prof. Nedjai Fatma.Z	External Examiner	Higher School of Fine Arts
Dr. Kaci Aliouchouche Fadhila	External Examiner	Bejaia University
Dr. Arar Samira	Internal Examiner	Algiers2 University

July 2021

Dedication

This piece of work is dedicated to my late grandmother, Rahla Boudiaf. Even though she did not have formal education, she never stopped sharing her wisdom, tutelage, support and encouragement to study.

To my father, Abdelkrim Bouzidi, who never had an ounce of doubt in me and whose simple messages “do your best,” “stay true to your heart,” and “you will laugh about all this” have never failed to be true and have kept me on track my whole academic life.

To my mother, who has been a source of motivation and strength during moments of despair and discouragement. Her motherly care and support have been shown in incredible ways.

To my dear husband, who has encouraged me all the way and whose encouragement has made sure that I give it all it takes to finish what I have started. You are the illuminating force that keeps me going.

To my brothers, my strength: Dr. Takie Eddine, Mohamed Ali, and Ahmed Amine.

To my sisters, my soulmates: Amel, Ilhem, Insaf, and Hadjer.

To my family-in-law, thank you for your understanding and encouragement in many moments of crisis.

To all my aunts and my uncles.

To my dearest nieces and nephews.

To all my teachers.

To you who will read this humble work.

To all those who love me.

May ALLAH Bless you all.

Amina BOUZIDI

Acknowledgments

I firstly express my deep indebtedness to the almighty Allah who grants me success, and shows me the way to attain my own aims.

I would like to express my deepest gratitude to my supervisor Prof. Souryana Yassine from Tizi Ouzou University, without whom this work could have never been accomplished. The guidance and advice of my supervisor served as the enlightening path on which this piece of work has been built.

My genuine appreciation goes to the members of the jury: Prof. Faiza Bensemmane, Prof. Fatma Zohra Nedjai, Dr. Fadhila Kaci-Aliouchouche, Dr. Samira Arar, who accepted the invitation to evaluate my work and provide more guidance and advice. I am truly honored.

I extend my sincere gratitude to the staff of the English department administration. I would, also, like to thank my students who have been part in this research investigation for their commitment, patience and honesty.

You are all worth praising

Abstract

The growth of educational technology in the last few decades has been rapid in introducing new digital tools which are popular among the new generation. However, the use of handheld devices usually occurs in an informal manner which affects the students' academic lives. In fact, listening and speaking skills are two major areas which are affected by the different forms of mobile-based interactions. Therefore, it has become necessary to integrate innovative ways of teaching. Mobile devices are regarded as multimodal and multimedia resources that support mobile-based instruction through multimodal representation. Due to these aspects, the present study is an attempt to investigate the effectiveness of Mobile-assisted Language Learning (MALL) in developing listening and speaking skills of first year EFL degree students at Algiers 2 University. The study focused on how the researcher orchestrated the digital resources during classes to develop EFL degree students' listening and speaking skills. Hence, we hypothesized that students who use mobile devices will show better oral/ aural performance than their peers who do not use them in their listening and speaking skills learning process. To achieve the study aims, a mixed- methods approach was adopted. The investigation was conducted with 78 students from the English Department at Algiers 2 University. The results showed that the intervention is effective not only in enhancing the students' listening and speaking abilities, but also in boosting the motivation of the students who expressed their positive attitudes towards MALL integration. Eventually, the results of the current study shed lights on the fact that when integrating multimodal forms of representation, the process of language learning takes a new perspective in which multimodal communication gains great importance.

Key words: EFL in Algerian higher education, integration, listening skill, mobile learning, multimodality, speaking skill.

Table of Contents

Dedication.....	i
Acknowledgments.....	ii
Abstract.....	iii
Table of contents.....	iv
List of tables.....	xii
List of figures.....	xv
List of Abbreviations.....	xviii
General Introduction.....	1
Statement of the Problem.....	1
Aims and Significance of the Study.....	3
Research questions and Hypotheses.....	4
Research Methodology.....	5
Data Gathering Tools.....	6
Structure of the Thesis.....	7
Part One: Literature review.....	10
Chapter 1: Mobile-based Teaching in Higher Education.....	10
Introduction	11
1.1. Mobile Learning: Definition and Perspectives.....	10
1.1.1. The “Mobility” Perspective.....	12
• The Mobility of the Device.....	13
• The Mobility of the Student.....	13
• The Mobility of the Learning Experience.....	14
1.1.2. A Techno-centric Perspective.....	14
1.1.3. M-learning as a Subset of E-learning	16
1.1.4. M-learning as a Function of its aspects	19
1.2. Mobile-assisted Language Learning (MALL).....	21
1.2. The Application of Learning Theories in Mobile Learning.....	24
1.2.1. Behaviorism	25
1.2.2. Cognitivism.....	25
1.2.3. Constructivism.....	26

1. 2.4. Collaborative Learning.....	26
1.2.5. Informal and Lifelong Learning.....	27
1.3. Essence of Mobile Learning.....	27
1.3.1. Context.....	28
1.3.2. Connectivity.....	28
1.3.3. Time.....	28
1.3.4. Personalisation.....	28
1.4. Mobile-based Activity Integration Models in Higher Education.....	29
1.4.1. Koehler and Mishra's (2006) TPACK Model.....	29
1.4.2. Puentedura's (2009) SAMR Model.....	32
1.5. Mobile-based Integration in Higher Education: Affordances and Challenges.....	36
1.5.1. Affordances of MALL.....	37
1.5.1.1. Self-regulated Learning (Control of the Learning).....	37
1.5.1.2. Student Autonomy.....	37
1.5.1.3. Motivation.....	37
1.5.1.4. Students' engagement.....	38
1.5.1.5. Collaboration.....	38
1.5.1.6. Assistive Technology.....	38
1.5.2. Challenges of Mobile-based Teaching.....	38
1.5.2.1. Technical Constraints.....	38
1.5.2.2. Ethical Constraints.....	39
1.5.2.3. Educational and Social Constraints.....	39
1.5.3. Types of Mobile-based Integration in Education.....	40
1.5.3.1. Content- related Studies.....	41
1.5.3.2. Design-related Studies.....	41
1.6. Improving the Integration of Mobile-based Teaching in Higher Education.....	41
1.6.1. Pedagogical Dimension.....	42
1.6.2. Design Dimension.....	42
1.6.3. Technical Dimension.....	42

1.7 Mobile Technology in Higher Education in Algeria.....	43
Conclusion.....	45
Chapter 2: Multimodal Approach to TEFL.....	47
Introduction	48
2.1. Multimodal Approach.....	48
2. 1.1. The Evolution of Meaning-making Research: From Sign to Semiotic Resource.....	48
2. 1.2.The Multimodal Landscape.....	58
2. 1.2.1. The Three Assumptions.....	58
2.1.3. Core Concepts within Multimodality.....	59
2.1.3.1. Semiotic Resources.....	60
2.1.3.2. Mode	60
2.1.3.3. Modal Affordance and Meaning Potential.....	61
2.1.3.4. Medium	61
2.1.3.5. Multimodal Ensembles, Intersemiotic Relationships, and Functional Load.....	62
2.1.3.6. Multimodal Composing and Multimodal (Multisemiotic) Text.....	63
2.2. Implications of Multimodal Literacy for TEFL in the Digital Age.....	64
2. 2.1. Multimodality and the Pedagogy of Multiliteracies.....	65
2.2.2. Multimodality and Multimedia Learning.....	66
2.2 1.1. Mayer’s (2001) Cognitive Theory of Multimedia Learning.....	67
2.2.2.2. Schnotzand Bannert’s (2003) Integrated Model of Text and Picture Comprehension.....	70
2.2.3. Multimodality and Mobile Literacy.....	72
2. 3. Reading Multimodal Texts.....	74
2.3.1. Linguistic Design.....	76
2.3.2. Audio Design.....	77
2.3.3. Visual Design.....	77
2.3.3.1. Visual Elements.....	78
2.3.3.2. Verbal Elements.....	78

2.3.3.3. Elements that Add Appeal.....	78
2.3.4. Spatial Design	79
2.3.4.1. Pattern.....	79
2.3.4.2. Arrangement	79
2.3.5. Gestural Design.....	80
2.3.6. Multimodal Design.....	80
Conclusion	80
Chapter3: Mobile Devices as Tools to Teach Listening and Speaking	
Skills.....	82
Introduction.....	83
3.1. Teaching Listening Skills.....	83
3.1.1. Listening as Comprehension and Listening as Acquisition.....	84
3.1.2. Listening Sub-skills.....	86
3.1.3. Types of Listening.....	87
3.1.3.1. Informative Listening.....	88
3.1.3.2. Appreciative Listening.....	88
3.1.3.3. Analytical/ Critical Listening.....	88
3.1.3.4. Discriminative Listening.....	89
3.1.4. Models of Listening Processes.....	89
3.1.4.1. The Bottom-up Model.....	89
3.1.4.2. The Top-down Model	89
3.1.4.3. The Interactive Model.....	90
3.1.5. The Stages in Listening Class.....	91
3.1.5.1. Pre-listening Stage.....	91
3.1.5.2. While-listening Stage.....	91
3.1.5.3. Post-listening Stage.....	92
3.1.6. Assessing Listening.....	92
3.2. Teaching Speaking Skills.....	93
3.2.1. Speaking Sub-skills.....	95
3.2.2. Characteristics of Speaking Performance.....	96
3.2.2.1. Fluency.....	96

3.2.2.2. Accuracy.....	96
3.2.2.3. Supra-segmental Features.....	98
3.2.3. The Stages in Speaking Class.....	100
3.2.3.1. Introduction.....	100
3.2.3.2. Presenting the Task.....	100
3.2.3.3. Observation.....	100
3.2.3.4. Feedback.....	101
3.2.3.5. Follow up Activity on the Topic.....	101
3.2.4. Assessing Speaking.....	101
3.2.4.1. Global Assessment Scales.....	101
3.2.4.2. Analytical Profiles.....	102
3.3. The Communicative Approach to Teaching Listening and Speaking Skills.....	102
3.3.1. Types of Communicative Activities.....	103
3.3.1.1. Pre-communicative Activities.....	103
3.3.1.2. Communicative Activities.....	103
3.4. Multimodal Mobile-based Teaching in Listening and Speaking Skills Class.....	104
3.4.1. Multimodal Mobile-based Resources for Teaching Listening and Speaking Skills.....	105
3.4.1.1. Audio Podcasts.....	105
3.4.1.2. Vodcasts.....	106
3.4.1.3. Digital Images.....	107
3.4.1.4. Mobile Applications.....	108
• M-dictionaries apps.....	108
• Pronunciation apps.....	109
• Automatic speech recognition apps.....	109
Conclusion.....	110
Part Two: Empirical Research.....	112
Chapter 4: Research Design and Methodology.....	112
Introduction.....	113

4.1. Rationale for Research Design and Methodology.....	113
4.2. Research Population and Sampling.....	115
4.3. Data Collection Procedures.....	117
4.3.1. Students' informational Questionnaire.....	117
4.3.1.1. Rationale for the Questionnaire	118
4.3.1.2. The Pilot Questionnaire : Description.....	119
4.3.1.3. The Pilot Questionnaire: Some Drawbacks.....	119
4.3.1.4. Description of the Final Questionnaire.....	120
4.3.2. Listening and Speaking Proficiency Test	121
4.3.3. Teaching Materials: The Intervention.....	123
4.3.3.1. Rationale for quasi-experimental design.....	123
4.3.3.2. The Description of the Intervention.....	125
4.3.3.3. The Selection Criteria of the Mobile apps.....	128
4.3.3.4. The Multimodal Mobile-based Description of the Teaching Materials.....	133
4.3.4. Teachers' interview.....	169
4.2.2.1. Rationale.....	169
4.2.2.2. Population and Sampling.....	170
4.2.2.3. Description of the Interview.....	170
4.2.2.4. Piloting the Interview.....	171
4.3.5. Students course Evaluation Form.....	171
4.3.5.1. Rationale for the students course Evaluation	171
4.3.5.2. Layout of the Evaluation Form.....	173
4.6. Data Analysis Procedure	174
4.6.1. Statistical and Descriptive Analysis of the Questionnaire.....	175
4.6.2. Quantitative Analysis of the Pretest/posttest Experiment.....	175
4.6.3. Thematic Analysis of the Interview.....	176
4.6.4. Statistical Analysis of the Interview.....	177
Conclusion	177
Chapter Five: Analysis and Presentation of Results	178
Introduction.....	179

5.1. Results of the Students Informational Questionnaire.....	179
5.1.1. Part One: General Information.....	180
5.1.2. Part Two: Students Profile with Regard to Mobile Devices.....	181
5.1.3. Part Three: Mobile Usage with Regard to Listening and Speaking Skills	186
5.1.4. Part Four: Students Readiness towards Mobile Usage with Regard to Listening and Speaking Skills.....	201
5.2. Results of the Quasi-experimental Study.....	209
5.2.1. Two Independent Samples t-test of control and experimental Groups	209
5.2.1.1. Results of the Listening and Speaking Pretest.....	209
5.2.1.2 Descriptive Statistics and Independent Samples t-test of the Pretest.....	213
5.2.1.3. Results of the Listening and Speaking Posttest.....	215
5.2.1.4. Descriptive Statistics and Independent Sample t-test of The Posttest.....	219
5.2.2. Paired t-test Statistics of Control and Experimental Groups.....	221
5.2.3. Paired t-test Statistics of control group.....	221
5.2.3.1. Paired of Statistics of experimental group.....	223
5.3. Teachers Interview Results.....	224
5.4 Students Evaluation Form Results	228
Conclusion.....	235
Chapter six: Discussion and Implication.....	237
Introduction.....	238
6.1. Students preparedness towards the Adoption of Multimodal Mobile-based Learning.....	238
6.1.1. Students' device Readiness.....	238
6.1.2. Students' skills with Mobile Devices.....	239
6.1.3. Students' receptiveness of Mobile Learning Activities in Listening and Speaking.....	240

6.2. The Impact of Multimodal Mobile-based Activities on Students Listening and Speaking Skills	243
6.3. Students' attitudes towards the use of Multimodal Mobile-based Activities.....	245
6.4. Teachers' preparedness towards the Adoption of Multimodal Mobile-based Teaching.....	249
Research Limitations.....	251
Future Research.....	251
Conclusion	252
General Conclusion, Recommendation, and Implications.....	253
General Conclusion.....	254
Recommendations and Pedagogical Implications.....	256
References.....	261
Appendices.....	285
Appendix1: Students' informational questionnaire.....	285
Appendix2: Teachers' interview.....	293
Appendix3: Course Evaluation Form.....	295
Appendix4: Listening skills Pretest.....	298
Appendix5: Speaking skills pretest.....	306
Appendix6: Listening skills Posttest.....	307
Appendix7: Speaking skills Posttest.....	316
Appendix8: IELTS Speaking Assessment Criteria.....	317
Appendix9: Teachers' interview results.....	318
Appendix10 : First year Listening and Speaking Skills Syllabus.....	324
الملخص.....	326

List of Tables

Table1.1. Terminology comparisons between e- and mlearning.....	17
Table 1.2. Comparing Traditional Learning, E-Learning, and M-learning with Various Learning Attributes	18
Table 2.3. Halliday’s functions of language and their usage.....	56
Table 2.4. Differences between reading of print-based and multimodal texts ..	75
Table 4.5. Quality criteria. From Learning Objects to educational applications.....	129
Table 4.6. The apps used in the experimental group.....	131
Table 4.7. Evaluation results (Ev.1= evaluator 1; Ev.2= evaluator 2).....	132
Table 4.8. Mobile- based and Multimodal-based description of the picture-based activities.....	135
Table4.9. Mobile- based and Multimodal-based description of the video-based activities.....	139
Table4.10. Mobile- based and Multimodal-based description of the audio-based activities.....	156
Table4.11. Multimodal mobile-based description of the mobile apps.....	161
Table. 5.12. Students’ Gender.....	180
Table 5.13. frequency of having trouble understanding lectures.....	191
Table 5.14. frequency of having trouble taking effective notes.....	192
Table 5.15. frequency of asking questions for clarification.....	192
Table 5.16. frequency of having trouble understanding lengthy descriptions...	192
Table 5.17. frequency of having trouble understanding spoken instructions....	193
Table 5.18. frequency of having trouble understanding informal language....	193
Table 5.19. frequency of having trouble understanding the subject.....	193
Table 5.20. Frequency of having difficulty giving oral presentations.....	195
Table 5.21. Frequency of having trouble wording quickly	195
Table 5.22. Frequency of worrying about making mistakes.....	195
Table 5.23. Frequency of not knowing how to say something in English.....	196

Table 5.24. Frequency of not knowing the best way to say something in English.....	196
Table 5.25. Frequency of having difficulty with pronunciation of words.....	196
Table 5.26. Frequency of having difficulty entering a discussion.....	197
Table 5.27. Factor of speakers talking very fast factor.....	198
Table 5.28. Frequency of the factor of different pronunciations.....	198
Table 5.29. Frequency of group discussion factor.....	199
Table 5.30. Frequency of lack of vocabulary factor.....	199
Table 5.31. The factor of hesitation and fear of making mistakes.....	200
Table 5.32. Frequency of the factor of uncomfortable atmosphere	200
Table 5.33. Frequency of the factor of lack of motivation.....	200
Table 5.34. Student's opinions about motivation of mobile devices.....	206
Table 5.35. Students' opinions about engagement in authentic communication.....	206
Table 5.36. Students' opinions about autonomous learning.....	207
Table 5.37. Students' opinions about learning style.....	207
Table 5.38. Students opinions about the modalities of mobile devices.....	208
Table5.39. Pretest scores of the Control group.....	210
Table 5.40. Pretest scores of the experimental group.....	211
Table 5.41. The Pretest Means of Scores.....	213
Table 5.42. Descriptive statistics and Independent samples t-test of both groups in the Listening and Speaking pre-test.....	214
Table 5.43. Students' speaking sub-skills in the pretest.....	215
Table 5.44. Posttest scores of the Control group.....	215
Table 5.45. Posttest scores of the experimental group.....	215
Table 5.46. The Posttest Means of Scores.....	218
Table5.47. Descriptive statistics and Independent samples t-test of both groups in the Listening and Speaking posttest.....	219
Table 5.48. Students' speaking sub-skills in the posttest.....	220
Table 5.49. Groups statistics comparison.....	220
Table 5.50. Paired t-test statistics of the control group.....	222

Table 5.51. Paired t-test statistics of the Experimental group.....	219
Table 5.52. Teachers' gender distribution.....	224
Table 5.53. Students' evaluation of the instructor.....	223
Table 5.54. Students' evaluation of learning materials.....	229
Table 5.55. Students' evaluation of lessons and activities.....	231
Table 5.56. Students' evaluation of the course objectives.....	232
Table 5.57. Students' attitudes towards mobile devices usage.....	233
Table 5.58. Students' evaluation of the challenges.....	234

List of Figures

Figure 1.1. Classification of Mobile Technologies.....	15
Figure 1.2. The subset of flexible learning	19
Figure 1.3. Mediated learning through mobile technologies (M2 learning).....	21
Figure 1.4. The relationship between CALL, MALL, and mlearning.....	22
Figure 1.5. The Pedagogical Content Knowledge (PCK) Model	30
Figure 1.6. the TPACK framework and its knowledge components	32
Figure 1.7. Puentedura’s (2006) Substitution, Augmentation, Modification, and Redefinition (SAMR) model.....	33
Figure 1.8. Visual model of the Substitution, Augmentation, Modification, Redefinition (SAMR) model and Bloom’s Taxonomy.	35
Figure 2.9. The Sausurean Dyadic Model of the Sign.....	51
Figure 2.10. A representation of meaning through the conceptual procedure of sign	52
Figure. 2.11. Elements in multimodal ensembles.....	63
Figure 2.12. Design elements: audio, spatial, gestural, visual, linguistic, and multimodal design.....	66
Figure 2.13. Mayer’s cognitive theory of multimedia learning.....	68
Figure 2.14. Schematic illustration of an integrative model of text and picture comprehension.....	71
Figure 3.15. A single continuum which links pre-communicative activities and communicative activities	104
Figure 4.16. Screenshot of the Real Listening and Speaking 4.....	126
Figure 4.17. Screenshot of <i>ShareIt</i> app.....	128
Figure 4.18. screenshot of a Facebook group post.....	128
Figure 4.19. A screenshot of a picture-based idiom.....	134
Figure 4.20. A screenshot of a video-based activity.....	137
Figure 4.21: A screenshot of an audio-based activity.....	154

Figure 4.22.Screenshot of the different modes in the Mobile Dictionary-Offline-app.....	158
Figure 5.23. Students' Age Distribution.....	180
Figure 5.24.Students' ownership of mobile devices.....	181
Figure 5.25. Type of Student's mobile device operating system.....	182
Figure 5.26. Students Internet Access.....	183
Figure 5.27. Type of Internet Access.....	183
Figure 5.28. Frequency of Students Internet Activation.....	184
Figure 5.29. Students 'technological level.....	185
Figure 5.30. Students' use of mobile technology.....	186
Figure 5.31. Students' use of mobile devices to learn English.....	187
Figure 5.32. Frequency of using Mobile-assisted Language Learning.....	187
Figure 5.33. Times of Mobile-assisted Language Learning.....	188
Figure 5.34. Places of Mobile-assisted Language Learning.....	189
Figure 5.35. Mobile-based activities inside the classroom.....	189
Figure 5.36. Type of mobile content.....	190
Figure 5.37. Language aspects improved through mobile devices.....	191
Figure 5.38. Mobile activities used to practice listening and speaking.....	201
Figure 5.39. Interest in using mobile device inside the classroom.....	202
Figure5.40. Students' opinions towards using technology at the university.....	203
Figure 5.41. Students' opinion about duration of audio/ video recordings....	204
Figure 5.42. Students' preferred class work.....	204
Figure 5.43. Student's preferred learning style.....	205
Figure 5.44. Students' preferred assessment techniques.....	205
Graph 5.45. Histogram Representing Students' scores of the listening Pretest.....	212
Graph 4.46. Histogram Representing Students' scores of the Speaking Pretest.....	212
Graph 4.47. The Pretest Means Compared.....	213

Graph 5.47. Histogram Representing Students' scores of the Listening Posttest.....	217
Graph 5.48. Histogram Representing Students' scores of the Speaking Posttest.....	218
Graph 5.49. The Posttest Means Compared.....	218
Figure 5.50. Teachers' years of teaching Listening and Speaking skills.....	225

List of Abbreviations

e-learning: Electronic learning

ICT: Information and Communications Technology

IELTS: International English Language Testing System

M-learning: Mobile learning

MALL: Mobile-assisted Language Learning

SAMR: Substitution, Augmentation, Modification, Redefinition Model

TPACK: Technology, Pedagogy, Content Model

GENERAL INTRODUCTION

1. Statement of the Problem

Today's students are living in a world that is extremely fast-paced, technologically driven and constantly changing. However, many universities continue to deliver 20th century models of education. Therefore, this shift requires a fresh set of responses from education. As far as technology is concerned, mobile devices become parts of everyone's daily life. When talking about mobile devices, all sorts of mobile technologies are included, ranging from mobile phones (Smartphones), iPods, PDAs, MP3/ MP4 players to laptops and tablet computers. Nowadays, individuals interact with each other through instant messaging, electronic mails, social networks and texts. They tend to "chat" in different virtual rooms, online groups, commenting in different news websites and writing in "wikis"(websites where visitors can modify the content using a web browser) and blogs (websites where people can express their personal opinions, pictures, videos, experiences, and the like). These modern practices construct trendy ways of "discourse, authorship, identity and language" (Kern, 2006, p. 183).

The polarized debate on the effects of internet, especially mobile learning on students' academic listening and speaking skills leaves us uncertain on how to react to such a phenomenon. In fact, whilst the focus has been on Computer-assisted Language learning (CALL), in the mid 2000s, an emerging interest raises to tackle Mobile-assisted Language Learning (MALL). The former refers to the use of computer technology to support language learning, while the latter describes an approach to language learning that is assisted through the use of handheld or palmtop technologies (Valarmathi, 2011). It can be argued that mobile learning involves the use of any portable learning materials, including audiobooks, audio-cassettes, audio-CDs, and any portable radios and DVD players. Trifanova et al. (2004) define mobile devices as "... any device that is small, autonomous and unobtrusive enough to accompany us in every moment"(p. 3).

In this new technological atmosphere, it is noticed that different mobile devices are increasingly used in different contexts and for various purposes. However, their use as educational tools has not been very apparent compared to their non-educational uses. As far as EFL is concerned, research suggests that listening and speaking are core elements of interaction (Ghoneim, 2013). Teaching these two skills requires not only a well-designed syllabus but also a selective choice of the appropriate semiotic resources. With the wide spreading of multimedia technology in educational sectors, more and more teachers have come to realize the importance of applying multimodal theory to the teaching of English.

It is worth noting that teaching listening and speaking at the university level in the Algerian context in general, and Algiers 2 University in specific, suffers in terms of the availability of the appropriate means such as the language laboratories. Hence, by using traditional methods based on insufficient resources to teach these two skills, teachers can only follow the textbook, sometimes using along audio CDs. It has been noticed that students tend to show low motivation when the course follows certain routine. Actually, in the department of English language at Algiers 2 University, there is no regular use of the technological tools in EFL classrooms due to inadequate language labs, and the little access to ICT facilities.

Mobile devices are considered as semiotic resources that facilitate and enrich the processes of collaboration, creation and resource sharing. In other words, these handheld gadgets suggest the alternative as already-existing semiotic resources that can bridge the gap of the appropriate means to teach listening and speaking skills. Indeed, it is necessary that teachers make full use of the means of videos, pictures, audio files, gesture and language to mobilize students' visual, auditory, tactile and many other senses to engage in the teaching activities actively, which not only can improve students' learning enthusiasm, active the classroom atmosphere, but also can convert the boring and one-sided traditional teaching mode into a more interesting and efficient one.

2. Aims and Significance of the Study

The adoption of the various mobile devices has potentially far-reaching consequences for students, learning design and how learning is supported by teachers and advisors. In fact, multimodal courses that involve the use of multimedia and ICT to develop dynamic course resources appeal to different sensory modes and a variety of learning styles. Hence, regarding the gap in the appropriate means of teaching listening and speaking skills, this study has as a major aim the exploitation of the various mobile devices as existing semiotic resources in teaching listening and speaking. It also aims to examine the extent to which mobile devices can support listening and speaking activities in situations where students may wish to collaborate and interact with. Indeed, mobile devices such as smartphones and tablets have shown to have positive impact on listening and speaking skills (Derakhshan, & Kaivanpanah, 2011). To put it briefly, a great deal of researches show that mobile devices can bring new opportunities to education and there is a need to implement them in real learning environments. Though, a review of the available literature reveals that there is a shortage of studies that evaluated the effectiveness of using mobile technology in the Algerian EFL context. The integration of M-learning in a university environment needs to involve some aspects in terms of the readiness of users and institutions, users' acceptance and engagement, and the sustainability of the system. Therefore, this study attempts to provide a pedagogical framework that fits our context in order to implement mobile-based activities within a listening and speaking lesson plan.

Through the present research, we attempt to shed light on the effect of using mobile devices in the teaching of listening and speaking skills to first year students of English language. Thus, the aims are as follows:

- To explore the students' readiness towards the incorporation of mobile technologies in listening and speaking skills course.

- To investigate the possible impact of the integration of mobile technologies on EFL students' aural/ oral performance.
- To recognize the potential of mobile devices as supporting semiotic resources in boosting students' motivation.
- To investigate the EFL teachers different perceptions towards the integration of multimodal mobile-based teaching in a listening and speaking course.

In addition, the research has other objectives:

1. To suggest alternative resources to teaching listening and speaking skills, through the exploitation and integration of mobile technologies.
2. To raise the interest among teachers and students on how this new wave of educational technology can be beneficial in the teaching/ learning processes through the lenses of multimodality.

3. Research Questions and Hypotheses

Given the importance of listening and speaking skills and the opportunities the various mobile devices provide, the present study aims at answering the following questions:

- How prepared are 1st year EFL degree students at Algiers 2 University to accept and use multimodal mobile-based activities as part of their listening and speaking skills course?
- How prepared are EFL teachers of listening and speaking skills to use multimodal mobile-based activities as part of their listening and speaking skills course?

The following sub-questions are raised:

- To what extent does the integration of multimodal mobile-based activities impact students' listening and speaking skills level?

- How do 1st year EFL degree students at Algiers2 University assess the integration of multimodal mobile-based activities in teaching listening and speaking skills course?

The present research is based on the following hypotheses:

- EFL students who use multimodal mobile-based activities will show better listening and speaking skills performance than their peers who do not use them in their learning.
- 1st year EFL degree students will show positive attitudes towards the integration of multimodal mobile-based activities in teaching listening and speaking skills module.

4. Research Methodology

The current study investigates the impact of integrating the mobile-based activities in listening and speaking course on EFL students' aural/ oral achievement. To do so, we would opt for the triangulation method that entails multi research methods of data gathering so that the topic will be diversely treated. It prevents the single sided perspectives of research that eventually head to limitations and bias. This study particularly settles on "between-method triangulation" (Denzin 1970) that encompasses three contrasting research methods; Students' questionnaire, teachers' interview, Quasi-experimental study, and Students' evaluation checklist form.

Therefore, the triangulation method is applied to combine quantitative and qualitative research tools in order to decrease the risks of results' incredibility and invalidity. These multiple research instruments back up each other to provide a full set of findings that sound convenient to the research questions.

4.2. Population and Sampling

Reaching all members of an ideal population (all EFL degree students at Algiers 2 University) is by no means doable and realistic, as stated by Ladico, Spaulding

&Voegtle (2006), for it is time and effort consuming. Therefore, the standards of large population were forgone and “realistic population” is selected to allow applicable generalizations of results obtained from the sample. The study population is purposefully selected because it is an available representative of similar research case that consists of “key informants” about the subject being investigated.

The sample would be two groups of first year EFL degree students from Algiers 2 University. Students are freshmen who share common characteristics that make them a homogenous sample to a great extent.

4.3. Data Gathering Tools

As triangulation method requires the use of more than one method of data gathering tools, the present study uses four which are: Students’ questionnaire, Quasi-experiment, Teachers’ interview, and evaluation checklists.

Students’ informational Questionnaire

The questionnaire is designed in order to specify the profile of individuals such as students’ personal information, students’ use of mobile devices, students’ use of mobile devices with regard to EFL in general, and listening and speaking skills in specific, and students’ perspectives and attitudes towards mobile learning. In other words, it aims at collecting data about students’ present situation and target situation needs for the sake of determining objectives, content and materials. The questionnaire provides the researcher with the necessary data to carry out the experimental treatment.

The Intervention

Quasi-experimental study is conducted with participants to gauge the success of the introduced mobile-based instructional programme in changing and/or improving students’ aural/ oral performance. This experiment attempts to explore the strength of relationship between two variables; the Independent (the

multimodal mobile-based activities) and the Dependent ((listening and speaking performance on the achievement tests). The researcher, therefore, expects one variable to influence the other. It is usually used to guarantee the maximum of validity and reliability of research (Nunan 1999). Hence, conducting a pre-test and post-test experimental design will put the researcher in a better position to claim that the differences in tests' scores values are due to the experimental treatment.

A set of multimodal mobile-based activities would be implemented within the lesson plan, with the intention of improving the students' listening and speaking proficiency. The teacher would set a classroom routine in implementing the mobile-based activities. For instance, instead of relying only on audio tracks in the listening session, the researcher will opt for podcasts (video tracks) as a multimodal activity.

Teachers' Interview

It aims to gather information about teachers' use and implementation of mobile devices as teaching tools, and teachers' perceptions and attitudes towards integrating mobile devices.

Students' evaluation Form

Students' evaluation checklist forms are used as research instruments to rate the effectiveness of the web-based course and the extent of the instructor's success in bridging the objectives of the course to the needs of Students. Moreover, the evaluation checklist forms provide responses to certain questions related mainly to the course effectiveness, the attainment of objectives and the well application of teaching materials.

5. Structure of the Thesis

The study is divided into two main parts; theoretical part and empirical research part. The theoretical part which overviews the related literature consists of three

chapters; while, the practical part which describes the fieldwork is composed of three chapters.

The first chapter addresses the major issues (theories, approaches) related to mobile learning with regard to language teaching/ learning. It also probes the advantages and disadvantages of using mobile-based activities in teaching EFL besides its designs and structures. A special focus will be on the integration of mobile learning in the Algerian context. The second chapter presents an overview of multimodality as a newly emerging theory. It highlights concepts and notions related to this field. It tackles the relationship between digital tools and multimodal research. Moreover, the chapter explores how multimodality is associated to teaching and learning through relating it to three main fields; multiliteracies, multimedia, and mobile learning. The third chapter is concerned with reviewing the literature related to listening and speaking skills teaching. It discusses issues such as the different approaches, strategies, and difficulties in teaching and learning the two skills.

The empirical work part, which is untitled *Research Design and Methodology* details the research strategy that will be used in order to explore the integration of multimodal mobile-based activities in teaching the module of listening and speaking skills. It begins with the fourth chapter which includes a detailed description of the different research instruments that will be used for data collection. These instruments include the students' questionnaire, the quasi-experimental study, the teachers' interview, and the course evaluation form. The next chapter untitled *Empirical Findings and Analysis* reports the empirical findings retrieved from the data collection instruments. The findings are quantitatively and qualitatively analyzed.

The sixth chapter untitled *Discussions and Implications* first discusses the findings, then recommends a number of procedures that should be taken to better listening and speaking teaching via mobile-based platform, especially the role of the teacher in the mobile learning experience as a guide. Finally, the part gives

instructional tips to design mobile-based courses that entail both pedagogy and technology to promote the teaching and learning of listening and speaking skills.

PART ONE:
THEORETICAL BACKGROUND
CHAPTER ONE:
MOBILE-BASED INSTRUCTION IN HIGHER
EDUCATION

Introduction

Mobile learning (m-learning) is regarded as a new stage in the development of educational technology. The latter can be described as a field of study that investigates the process of analyzing, designing, developing, implementing, and evaluating the instructional environment and learning materials in order to improve teaching and learning. M-learning is a new learning paradigm which is supported by the various mobile devices and wireless networks which support education at all levels including schools, colleges and universities. This chapter reviews existing literature relevant to m-learning. Firstly, it defines m-learning from different perspectives and describes the relationship between E-learning and m-learning, with definitions and comparison. Secondly, the chapter sheds light on the underlying approaches, theories and paradigms for m-learning. In response to this newly emerging field, a number of technology integration models have been developed by scholars to facilitate the integration of technology. The chapter also discusses the main themes that are strongly tied to the integration of m-learning. Therefore, this chapter examines and compares two theoretical models relating to m-learning implementation in the teaching process; the TPACK model the SAMR model. In addition, the researcher provides a discussion of the affordances of m-learning in higher education, and its limitations and challenges. Moreover, some practical considerations that are viewed to be essential in developing successful mobile-based activities are discussed. Finally, the chapter ends up by providing a review of some empirical research, especially in the Algerian context.

1.1. Mobile Learning: Definition and Perspectives

With the remarkable growth of educational technologies, mobile learning has aroused increased interest across various sectors of education. This new concept has become one of the dominating trends of educational applications for new technologies. In fact, m-learning is a new instructional approach used in the process of teaching and learning at various educational levels around the world. However, researchers in the field of mobile learning still struggle to provide a

systematic and fixed definition to the concept of mobile learning. Eteokleous and Laouris (2005) claimed that many authors use the terms mobile learning and mobile phone interchangeably, which leads to a misconception to the whole concept. According to Winters (2006), mobile learning can be defined from different perspectives varying from particular experiences, uses, and backgrounds; seeming to be all thing to all people. Mehdipour and Zerehkafi (2013) claimed that mobile learning is also known as U-Learning, personalized learning, learning while mobile, ubiquitous learning, anytime / anywhere learning, and handheld learning. In other words, the concept of mobile learning is defined from different angles, depending on its interrelated aspects.

John Traxler, one of the pioneers in the field of m-learning, argues that the latter is “certainly not merely the conjunction of ‘mobile’ and ‘learning’.”(2009, p.1). He also adds that m-learning continues to gain identity and definition rather than lose them, as the former is becoming part of a new mobile conception of society (as cited in Smith, Carter, & Adolphs, 2012). This newly emerging concept has been provided multi-dimensional definitions due to the various interrelated aspects that m-learning embraces. Current perspectives of mobile learning generally fall into the following broad categories: firstly, some scholars focus on the aspect of mobility of the student, the mobile device, and the learning experience itself. Secondly, other scholars provide a techno-centric view to m-learning, emphasizing on the mobile devices themselves. In addition, m-learning is viewed as a descendent of electronic learning (e-learning). Finally, as most definitions focus on a specific aspect over another, the most elaborated ones seem to find a convergence of the interrelated aspects of m-learning in order to provide an elaborated and systematic definition that embrace most (if not all) the aspects.

1.1.1. The “Mobility” Perspective

Mobility is one aspect that has been taken into consideration and has been prioritized to define m-learning. The emphasis on the mobility aspect of m-learning appears in many definitions such as the one provided by

MOBilearn(2003), which states that m-learning is "any sort of learning that happens when the Student is not at a fixed, predetermined location, or learning that happens when the Student takes advantage of the learning opportunities offered by mobile technologies" (Mehdipour&Zerehkafi, 2013, p. 93). Hockly (2013) describes the concept of mobility as being problematic within any definition of mobile learning. She questioned whether this concept refers to the mobility of the Student, the mobility of the device, or the mobility of the learning experience itself. As far as the *mobility* perspective is concerned, we shall review a definition provided by Pegrum (in press) who suggested a helpful conceptualization of m-learning. The researcher emphasizes o, the mobility of the three interrelated aspect of m-learning which are: the devices, the Students, and the context.

- **The Mobility of the Device**

This first category stresses the major affordance of mobile technologies: the *mobility*. We are, with no doubt, in a mobile age of personal and technical mobility, where mobile devices, including phones, MP3/ MP4 players and tablets, are carried everywhere. Pegrum coined the expression "connected classrooms" (Hockly, 2013, p. 2) in order to describe how students can take advantage of the mobility of their own devices in order to create and share content. The connected classroom involves a complete change of mind about traditional education. Teachers need to create a synergy between the online and offline world. The concept of the connected classroom allows teachers to create a more dynamic classroom experience and make the most of their scarce time.

- **The Mobility of the Student**

Pegrum's second category describes mobile learning situations where the Student may have the ability to move around the classroom or the school while learning. This category allows the student to have access to information via their mobile devices anywhere and anytime, in a way to reinforce their self-study mode. Pegrum provided the example of mobile-based vocabulary learning. Students in this case can learn and review vocabulary while on the move or waiting in the

bus (Hockley, 2013). This implies that the students are mobile while the learning experience remains the same.

- **The Mobility of the Learning Experience**

The last category in Pegrum's classification is described as being the most disruptive as it relies on the specific affordances of mobile devices such as network, connectivity, and geolocation. For example, the students' learning experience would be limited to places where Students have Internet access.

To conclude, mobility is one aspect of mobile learning that Pegrum(Hockley, 2013) has shed light on. Three categories of mobility have been described earlier: whether the devices, Students or learning experience are mobile.

1.1.2. A Techno-centric Perspective

It is the perspective that dominated the early literature and which viewed m-learning as learning that is assisted by the various mobile devices. Trifanova et al. (2004) defined mobile devices as "... any device that is small, autonomous and unobtrusive enough to accompany us in every moment" (as cited in Kukulska-Hulme & Shield, 2008a p. 273). Kukulska-Hulme and Traxler (2005) claim that m-learning relates to the possibilities opened up by portable, lightweight devices that are small enough to fit in a pocket or the palm of one's hand. They added that typical examples are mobile phones smartphones, palmtops and PDAs; Tablet PCs, laptop computers and personal media players. In line with this definition, many authors also emphasized the technological aspect while identifying m-learning as they consider this new trend of technology as a "pervasive medium that may assist us in combining work, study, and leisure time in meaningful ways" (as cited in Eteokleous& Laouris, 2005, "Introduction," para. 2). For instance, as observed by Georgieva, Smrikarov and Georgiev (2005), Naismith et al. (2004), and Keegan (2005), m-learning is a new educational wave that depends on the variety of the available mobile technologies such as Smartphone, PDA, iPod, palmtop, laptop, and other handheld devices (as cited in Abu-Al-Aish, 2014).

Such portable devices -referred to in popular and scholarly literature as “mobile, wireless, handheld or nomadic- are now social staples” (Chinnery, 2006, p. 9) are considered as powerful mediums in the classroom, enabling students to gather information, study, work, and communicate with both their teachers and classmates effectively. Naismith et al. (2004) provided a classification of mobile technologies in terms of their personalization, shareability, portability, and staticity (as illustrated in Figure 1.1)

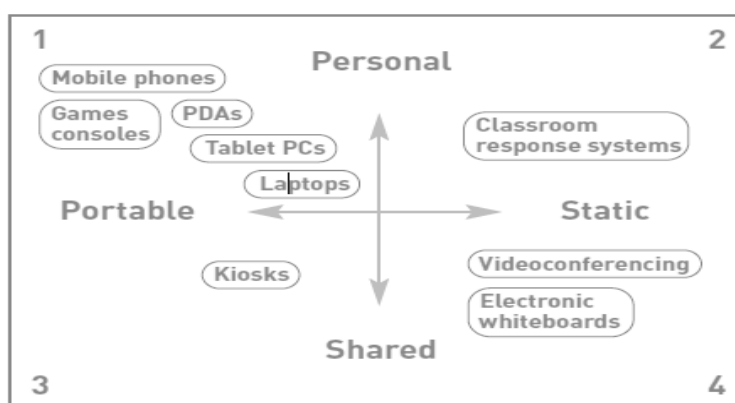


Figure 1.1. Classification of Mobile Technologies (Naismith et al., 2004, p. 7.)

The focus on technology in defining m-learning emphasizes the functionality and affordances of the devices themselves. Another techno-centric definition provided by O'Malley et al. (2003) saying that m-learning is any sort of learning that takes place when the Student is not at a fixed, predetermined location, or learning happening when the Student exploits learning opportunities offered by mobile technologies (as cited in Traxler, 2013). This definition focuses on the *anytime-anywhere* affordance offered by the different handheld technologies, or what Vanska (2004) assumed to call “the opportunity to ‘learn on the go’ ” (as cited in Tomei, 2008, p. 581). Likewise, Traxler (2009) reported that m-learning is exploiting the ubiquity of handheld hardware, wireless networking and mobile telephony to enhance and extend the reach of teaching and learning processes. As far as the portability of the devices is concerned, Desmond (2005) took a similar position by asserting that, when defining mobile learning, the focus should be on

mobility. He stated, “Mobile learning should be restricted to learning on devices which a lady can carry in her handbag or a gentleman can carry in his pocket” (as cited in Traxler, 2009, p. 2).

Commonly, m-learning is defined from a techno-centric perspective as “any educational provision where the sole or dominant technologies are handheld or palmtop devices” (Traxler, 2005) (as cited in Traxler, 2009, p. 2). This implies that m-learning is the provision of education and training on mobile devices. Nowadays, mobile devices make mobile learning possible through various learning materials and content to Students. Therefore, m-learning offers new ways of learning due to the various digital devices used and the technological affordances they provide.

1.1.3. M-learning as a Subset of E-learning

Mobile learning is a new approach to educational technology which is sometimes considered as a mere extension of e-learning. Winters (2006) reports that formal definitions from European and Government agencies view that the emergence of wireless and mobile devices helped e-learning extend to m-learning. Likewise, most researchers and educators consider mobile learning as an immediate descendent of e-learning. Pikwart et al. (2003) believed that e-learning is learning assisted by electronic tools and media, following this, mlearning is e-learning that uses mobile technology and wireless transmission (cited in Eteokleous& Laouris, 2005). Similarly, Pinkwart et al. (2003) and Doneva, Nikolaj and Totkov (2006) considered m-learning to be the next step of e-learning through the use of wireless mobile devices and communication technologies for teaching and learning (as cited in Abu-Al-Aish, 2014). It is to say that mobile learning has always led to e-learning, as Traxler (2009) pointed out that m-learning therefore should be understood as both “a continuation of ‘conventional’ e-learning and a reaction to this ‘conventional’ e-learning and to its perceived inadequacies and limitations” (p. 1).

This evolution in educational technology from e-learning to m-learning has been widely explored by researchers and a number of similarities and differences

have been raised so that to eliminate the ambiguity. A review of literature (Attewell, 2005; Laouris and Eteokleous, 2005; Traxler, 2007) identifies a number of differences related to terminology (as cited in Abu-Al-Aish, 2014). Table 1.1. summarizes some key terms that identifies both concepts.

Feature	E-learning	M-learning
Network	Wired	Wireless
Devices	Computer, Laptop	Mobile phone, smart phone, PDA and Tablet PC
Accessibility	Anytime	Anywhere
Connectivity	Internet and intranet Networks	Mobile Networks
Learning	Collaborative	Networked-personal and private
	Distance Learning	Situated Learning
	Formal	Informal
	Multimedia	Objects
Instructor-Student Communication	Time delayed-Asynchronous	Instant delivery-Synchronous
	Late Communication	Immediate communication
	Scheduled	Unprompted
Student-Student Communication	Face-to-face	Flexible
	Limit by location and time	Anytime, anywhere
	Late Communication	Immediate communication
	Poor due to group consciousness	Rich due to one-to-one communication

Table 1.1. Terminology comparisons between e- and m-learning (Abu-Al-Aish, 2014,p. 25)

To provide a clear understanding of the pedagogical differences between traditional learning, e-learning, and m-learning, Table 1.2. displays examples of how the three teaching and learning methods diverge or/and converge in terms of some specific characteristics.

	Traditional learning	Conventional tethered e-learning	M-learning
Time	Often constrained by formal school hours	Constrained to time sat in front of a computer, but can occur at anytime of the day	No time constraints. Learning can take place anywhere you can carry and use a mobile device at any time of the day
Personalized	Limited in all aspects of differentiation and concepts taught	Some personalization, with a choice of programs and concepts to be taught, but computers are typically share and non-personalized.	Personalization through applications, concepts, and often the ownership of devices modified for the user
Private learning	Not private	Typically private	Private
Context	Highly limited to a set location and framework	Various locations, although till tied to specific locations and milieu	Learning can take place in numerous environmental and social settings, where wireless access can be obtained
Formal/informal	Formal	Formal and informal	Informal and can also be informal
Socio-connectivity	Connections made to those in direct environment	Virtual connectivity to the networked world	Connections made to those in the direct environment and those networked
Spontaneity	Not spontaneous	Partially spontaneous	Highly spontaneous

Table 1.2. Comparing Traditional Learning, E-Learning, and M-learning with Various Learning Attributes (Crompton, 2013, p. 50)

However, a contradicted view suggests that m-learning is a subset of e-learning, claiming that m-learning might be part of other models. On one hand, Peter (2007) claimed that there is a model that encompasses both e-learning and m-learning. He suggested the “just enough, just in time, just for me” model of flexible learning (as cited in Abu-Al-Aish, 2014, p. 24). On the other hand, Brown (2003) proposed a diagram (as shown in Figure 1.2.) for flexible learning showing the relationship between m-learning, online learning and e-learning within the wide context of distance learning and flexible learning.

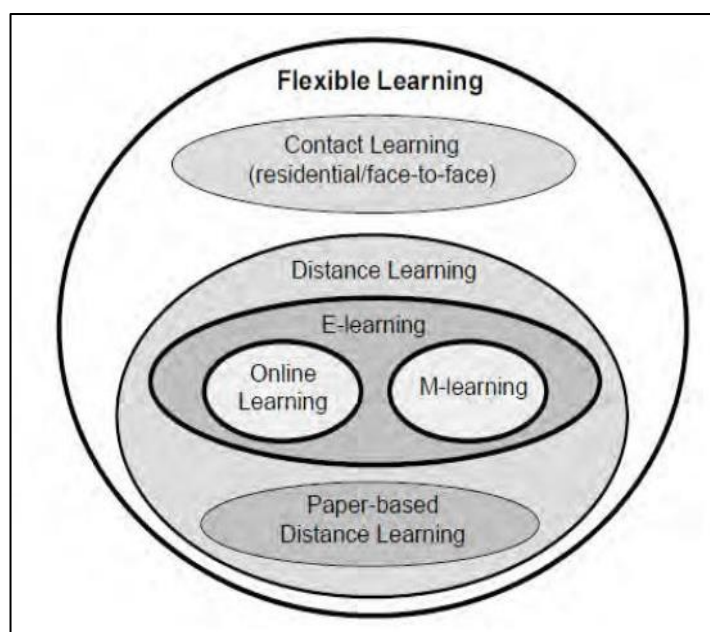


Figure 1.2. The subset of flexible learning (Abu-Al-Aish, 2014, p. 24).

1.1.4. M-learning as a Function of its Aspects

Although most definitions of m-learning prioritize one aspect over another, a definition of mobile learning must be broad enough to encompass the various interrelated aspects and facets of mobile learning. Hence, Koole’s FRAME (Framework for the Rational Analysis of Mobile Education) model considers mobile learning as the process of converging each of the three mobile

components; mobile technologies, human capacities, and social interaction (as cited in Smith et al., 2012). Similarly, Sharples, Taylor, and Vavoulva (2007) identified m-learning as the process of acquiring through conversations, across multiple contexts amongst people and personal interactive technologies (as cited in Tomei, 2008).

To provide a systematic and helpful definition of m-learning, Laouris and Eteokleous (2005), conducted a Google search in 2005 by using the formula {+ “mobile learning” + definition}. The researchers claim that the different parameters and ways which may interact and influence each other should be taken into account. Thus, an abstract function that connected the various interrelated aspects of m-learning has been proposed as follows:

$$\text{MLearn} = f \{t, s, \text{LE}, c, \text{IT}, \text{MM}, m\}$$

Where;

t= time;

s = space;

LE = learning environment;

c = content;

IT = technology;

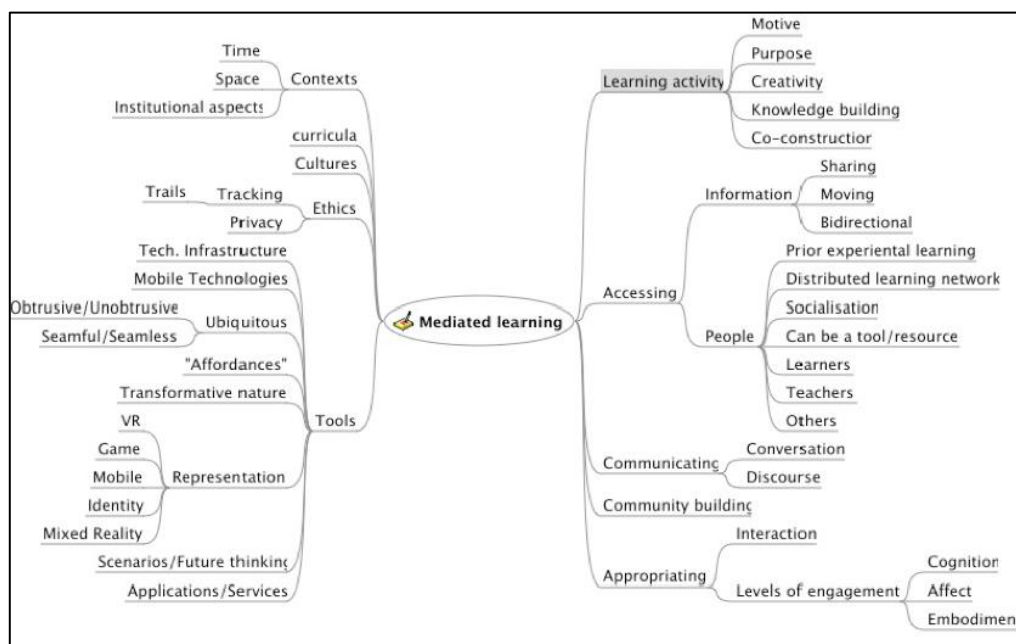
MM = mental;

m = method

(See Eteokleous & Laouris, 2005, “Mobile Learning as a function of its Facets”, para. 1).

Similarly, participants in a workshop held by the Kaleidoscope Network of Excellence: Mobile Learning Initiative, aimed at providing a re-conceptualisation of the precise nature of mobile learning (Winters, 2006). After sketching out key concepts, a final concept map of key characteristics has been provided. An interesting characteristic of this map is that it does not prioritize technology over other aspects. It emphasizes the appropriateness of the tools, social factors, and learning activities. Figure 1.3. Shows how the various mobile learning aspects interrelate centre upon *mediated*, reflecting the participants’ view that m-learning is mediated by a number of factors that include: contexts, curricula, cultures,

ethics, tools, learning activity, access to information and people, communication, community building, and appropriation.



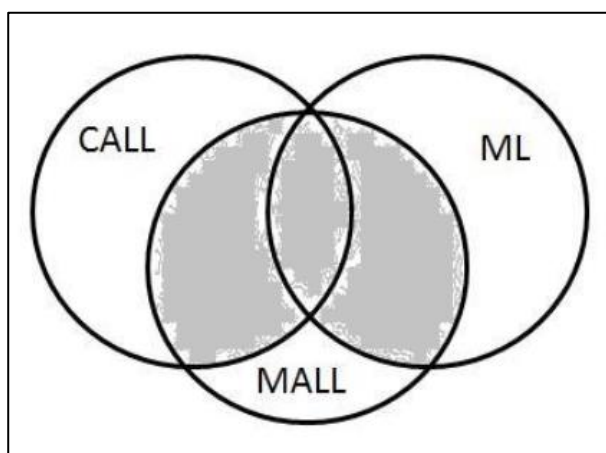
**Figure 1.3. Mediated learning through mobile technologies (M2 learning)
(Winters, 2006, p. 7.)**

To conclude, it is to say that “learning is learning” (Winters, 2006, p. 7), as one participant in the workshop claimed. He also added that mobile technologies are learning tools, through which learning is mediated, which is the case as any other educational tool. In other words, it is important before undertaking a mobile-based learning experience to clarify the concepts that serve the researcher’s objectives. That is to say that on one hand, a research may focus on the functionalities and affordances of mobile devices so that to design lessons effectively and exploit the functionalities appropriately. On the other hand, other researches might emphasize the learning experience itself over the technological aspect.

1.2. Mobile-assisted Language Learning (MALL)

The development in educational technology has given birth to a new generation of students whom Prensky (2001) calls “digital natives” (as cited in Abimbola, 2013, p. 1149). With the remarkable growth of mobile technologies,

emerging mobile-based language learning approaches have been proposed in order to provide a more accurate reflection of how mobile devices can be used for teaching and learning. Mobile-assisted language learning (MALL) is a language learning approach that has started to make its presence felt in the field of language education, emerging from the field of mobile learning. According to Valarmathi (2011), mobile-assisted language learning describes an approach to language learning that is assisted through the use of handheld or palmtop technologies. Still, claim Kukulska-Hulme, Norris, and Donohue (2015), mobile-assisted language learning is not simply the transfer of current teaching and learning materials and practices to a mobile device, but a complete reconceptualisation of these. It is necessary to mention that MALL is considered as a field that derives its roots from the already-existing field computer-assisted language learning (CALL), in addition to its obvious relation to second language acquisition (SLA). Stockwell and Hubbard (2013) claimed that MALL depends on two major bodies which are mobile learning and computer-assisted language learning. Figure 1.4. demonstrates the intersection between m-learning, CALL, and MALL. It represents the interrelation between the three fields; in which the shaded area represents the overlap.



**Figure 1.4. The relationship between CALL, MALL, and mlearning
(Hubbard & Stockwell, 2013, p. 5.)**

On the other hand, Kukulska-Hulme and Shield (2008b) explicate that unlike CALL, MALL opts for a variety of handheld technologies, often with internet connection, ranging from ultra-portable laptops and handhelds to smartphones, mobile phones, MP3 and MP4 players, digital voice recorders and cameras. Thus, MALL exploits the advantages of the wide range of mobile devices in different forms of education including face-to-face, distant or on-line. In fact, MALL can be viewed as an ideal solution to language learning barriers in terms of time and place (Miangah & Nezarat, 2012). Due to the large number of affordances provided by mobile technologies; such as flexibility, ubiquity, and personalization, this combination can facilitate language learning through the access of authentic, contextualized resources.

Another key point in MALL is that it brings significant benefits to students; they can use different types of apps on mobile devices to watch videos, read materials, and listen to records. MALL allows students to decide their own learning pace and process as they can stop or fast forward through materials as their desired, giving them the independent control. Likewise, according to Kukulska and Shield (2008a), MALL encourages collaboration and co-construction of knowledge. It also provides students the opportunity to connect to previously learned knowledge, acquire new knowledge and further develop problem-solving skills.

Generally speaking, MALL, therefore, gives EFL students the opportunity to learn languages not only in a classroom setting but also outside the classroom walls; whenever they desire and wherever they are. As it has been previously stated, and since MALL have become normalized as a part of the educational process, states Bax (2012) (as cited in Forsythe III, 2017), learning theories and approaches have been associated with mobile technologies implementation in the

teaching and learning processes. A review of major theories, approaches, and paradigms will be discussed in the following sub-chapter.

1.2. The Application of Learning Theories in Mobile Learning

Mobile learning is considered as a new dimension in the educational process. Consequently, the shift has continued and the changing approaches and theories have increasingly proliferated. It is to say that the theories and approaches applied in MALL often originate from various theories of learning, including behaviorism and constructivism. However, Traxler (2009) argues that developing or specifying a theory associated with mobile learning can be problematic (Traxler, 2009). In this case, he adds, in looking for a theory, the mobile learning community may be over-simplifying mobile learning and will be faced with three different options:

- a) Import theory from 'conventional' e-learning and worry about transferability
- b) Develop theory ab initio locally and worry about validity
- c) Subscribe to some much more general and abstract theory and worry about specificity and granularity (p.6)

Researchers like Keskin and Metcalf (2011) and Naismith et al. (2004) attempted at providing a systematic review of MALL research within the specific field of SLA theories. On one hand, Keskin and Metcalf (2011) reviewed nine current mobile theories which are: behaviorism, cognitivism, constructivism, situated learning, problem-based learning, context awareness learning, socio-cultural theory, collaborative learning, conversational learning, lifelong learning, informal learning as well as activity theory, connectivism, navigationism, and location-based learning. On the other hand, Naismith et al. (2004) took an activity-centered perspective in order to consider new practices against existing theories. Their review revealed six broad theory-based categories of activity including behaviorist, constructivist, situated, collaborative, informal/lifelong, and support/coordination. In this research, the following theories will be

discussed since the researcher will rely on them in designing the mobile-based activities:

1.2.1. Behaviorism

Within the behaviorist paradigm, stated Naismith et al. (2004), learning is thought to be best facilitated through the reinforcement of an association between a particular stimulus and a response. In other words, behaviorist-activities Applying this to educational technology, namely mlearning, the latter provides the ideal opportunity to present learning content (stimulus), gather Students' responses (response), and provide appropriate feedback (reinforcement) (Naismith et al., 2004). To illustrate, text messaging is one of the learning applications that relies on behaviorist theory. Many researchers (Alemi, Sarab &Lari, 2012; Derakhshan &Kaivanpanah, 2011; Kim, 2011; Stockwell, 2010) conducted their studies relying on behaviorist theory through content delivery by text messaging to mobile phones (Thornton & Houser, 2004). Other examples of behaviorist learning with mobile technologies are English learning applications, MMS, Voice recorder softwares, drill and feedback, Mobile Response System such as clickers, and so many other materials used to facilitate learning through mobile devices (Keskin & Metcalf, 2011).

1.2.2. Cognitivism

From a cognitivist paradigm, learning is believed to be the acquisition or reorganization of the cognitive structures through which humans process and store information (Good and Brophy, 1990) (as cited in Keskin & Metcalf, 2011). Cognitivist-activities focus on the use of multimedia learning which is based upon the integration of images, audio, video, text, animations. In other words, cognitivism seeks to exploit the main two channels of information: auditory and visual (Mayer, 2001) (as cited in Pollara, 2011). Technology allows teachers to take advantage of both channels- visual data on the screens and auditory information through the speakers or headphones- when sharing information with their students both inside and outside the classroom. Teachers can take full

advantage of mobile devices such as the images, videos, texts, etc. Other examples of cognitivist learning with mobile technologies are: SMS, MMS, email, and podcasting.

1.2.3. Constructivism

In the constructivist theory, Students create inner mental models to acquire knowledge about the world. In other words, constructivism views learning as an active process in which Students build new ideas upon both their current and past knowledge. It is worth noting that there are two branches of constructivism; social constructivism and cognitive constructivism (Zhang, 2010). In order to transform Students from passive recipients of information to active constructors of knowledge, both appropriate learning environment and tools should be provided. Mobile devices offer a unique opportunity for Students to be active constructors of knowledge by embedding them in a realistic context and offering access to supporting tools (Naismith et al., 2004). Handheld games, interactive podcasting, emails, participatory simulations, and multimedia are among many examples of constructivist activities using mobile technologies (Keskin & Metcalf, 2011).

1.2.4. Collaborative Learning

According to Naismith et al. (2004), collaborative activities are those that promote learning through social interaction. Collaborative learning is an extraordinary help, asserts Tomei (2004), especially for the online learning as it improves interaction and peer-communication where the biggest voice will be from the Students. Applying this to mobile learning, Students are enabled to learn a language in collaboration with others by sharing files, data, and providing means of coordination without attempting to replace human-to-human interactions. Mobile devices can be used collaboratively in real time through different MALL applications. For instance, EFL Students can exploit their digital devices to learn in a collaborative way through sending SMSs, sharing songs, data, and videos via Bluetooth, and speaking in group through Facebook.

1.2.5. Informal and Lifelong Learning

Learning occurs not only inside the classroom, but also outside the classroom. According to Naismith et al. (2004), informal and lifelong activities support learning outside a dedicated learning environment and formal curriculum. It is learning all the time, influenced by one's environment and particular situations. Informal and lifelong learning intersects with "Just-In-Time-and-Place (JITP) Learning" (p. 274) in which Students acquire, conceptualize, and understand information while facing particular situations (Tomei, 2008). Informal and lifelong learning may be intentional, through deliberate learning activities, or it may be accidental, stated Naismith et al., (2004), by acquiring information through reading newspapers, watching television, or even observing the world, or even experiencing an accident. Social networks, such as Wikipedia, Facebook, Twitter, Youtube, and so on and so forth, illustrated Keskin and Metcalf (2011) are some of various types of informal and lifelong activities that can be with mobile technologies due to their reduced size and ease of use.

In summary, theory can inform us of the potential of learning approaches and the tools we use to achieve particular teaching and learning goals, and it follows that this is also relevant to the use of mobile technologies. It is important, however, to bear in mind not only the aspects associated with language learning, but also to step back and consider the potential impact of using mobile devices in order to achieve these goals, and understand that learning outcomes and even learning objectives may alter when such tools are used. It is also worth noting that a blended approach is required in order to enable students to well exploit the advantages of mobile technologies and engage effectively in the activities.

1.3. The Essence of Mobile Learning

When discussing the nature of m-learning, the themes emerging from the m-learning literature are revealed to state that context, connectivity, time, and personalization are the underpinning components of m-learning. Crompton (2015) reviewed these four major aspects which are discussed as follows:

1.3.1. Context

Context is viewed as the cornerstone of m-learning. According to Traxler (2007), “Mobile learning is a noisy phenomenon where context is everything” (p. 5). Generally speaking, context refers to the surroundings, circumstances, environment, background or settings that determine, specify, or clarify the meaning of an event or other occurrence. In fact, Crompton (2015) cites that what makes m-learning unique are the different milieus that are created with the changeable sociocultural and technological structures (Cook, Pachler, & Bachmair, 2011).

1.3.2. Connectivity

Connectivity has been emphasized as an important aspect of m-learning which makes it different from other types of learning, especially e-learning. Crompton (2015) claims that connectivity describes two types of interactions which can be either the social connections (face-to-face or virtual), or connections with content made available through the various networks. Likewise, Sharples et al. (2009) in particular emphasized the importance of connectivity, stating, “It is not the Students, nor their technology, but the communicative interaction between these to advance knowing” (p. 4) (as cited in Crompton, 2015).

1.3.3. Time

The mobile technologies provide learning at the time we want, and in the place we want. That is, mobile learning lies for Just-in-Time-and-Place learning where web browsing and applications can provide instantaneous information to a Student’s fingertips in moments. Sharples et al. (2009) described m-learning as “learning dispersed in time” (p. 3) as learning can be distributed across different points in time (as cited in Crompton, 2015).

1.3.4. Personalization

The last aspect represents the umbrella that encompasses the previous elements of m-learning. Personalization affords students the choice of what, where, when, and how they learn. Mobile devices provide personalization

features that cover an extensive range of possibilities, from simple customization, to software agents.

All in all, the four themes (context, connectivity, time, and personalization) overlap and interconnect whenever discussing m-learning-related issues. To illustrate this interconnectivity, consider a student who listens to a text being read aloud by text-to-speech app (personalization) in the classroom (context), in the afternoon session (time). The text has been sent by the teacher via a mobile application (connectivity).

1.4. Mobile-based Activity Integration Models in Higher Education

The growing availability of new technology has created a shift in classroom pedagogy and challenged traditional understandings of teaching and learning English. Indeed, mobile learning requires a change in the teacher's philosophical approach to teaching, and it is not simply the application of e-learning design requirements to the mobile learning environment (Parsons & Ryu, 2006) (as cited in Kadar & Zoraini, 2015). Therefore, a number of technology integration models have been developed in response to this educational shift. Cobcroft et al. (2006) indicated that a successful conceptual framework for m-learning needs to consider the Students' creativity, collaboration, communication, and critical engagement (as cited in Abu-Al-Aish, 2014, p. 45). Hence, this section examines two major models which are: the Technological Pedagogical Content Knowledge (TPACK) model, and the Substitution, Augmentation, Modification, Redefinition (SAMR) model.

1.4.1. Koehler's and Mishra's (2006) TPACK Model

The technological pedagogical and content knowledge (TPACK) framework appeared in the work of Mishra and Koehler (2006). It was originally based on the work of Lee Shulman (1986) who emphasized on the fact that successful teachers need extensive knowledge in the areas of content knowledge (CK) and pedagogical knowledge (PK) (as cited in Koehler & Mishra, 2009). According to Shulman (1986), teachers must have a strong content knowledge to effectively teach their subject. Pedagogical knowledge is teachers' theory of practice or how to take the theories, facts, and concepts and create easily digestible lesson (as

cited in Savignano, 2017). Figure 1.5. demonstrates the intersection of these concepts.

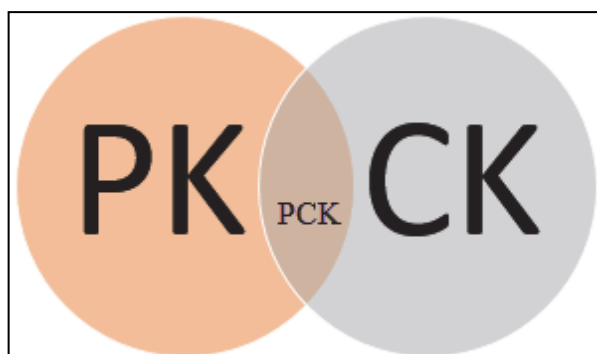


Figure 1.5. The Pedagogical Content Knowledge (PCK) Model (Shulman, 1986) (as cited in Savignano, 2017, p. 22)

As far as technology is concerned, Mishra and Koehler (2006) added an additional component to the PCK in order to address the changes technology has brought to the educational context. Technological knowledge (TK) is the additional paradigm which refers to “all tools, materials, and technical skills to be used in teaching and learning”, state Pamuk, Ergun, Cakir, Yilmaz, and Ayas (2015, p. 245) (as cited in Savignano, 2017, p.23). This new framework is an understanding that emerges from interaction among the three components: content, pedagogy, and technology. Koehler and Mishra (2009) defined TPACK as:

The basis of effective teaching with technology, requiring an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face; knowledge of students’ prior knowledge and theories of epistemology; and knowledge of how technologies can be used to build on existing knowledge to develop new epistemologies or strengthen old ones. (p. 66)

According to Koehler and Mishra (2009), and as depicted from Figure 1.6., the TPACK model explores the connection between:

- **Teachers' technology Knowledge (TK):** knowledge of how technologies should be used in the content domain;
- **Pedagogical Knowledge (PK):** knowledge of how contents are learned and taught; and
- **Content Knowledge (CK):** which entails an instructor's knowledge of the subject matter to be taught and learned.

Three other knowledge forms emerge from the interrelationship between the previously mentioned forms (TK, PK, and CK):

- **Technological Content Knowledge (TCK):** refers to the impact of technology on the practices and knowledge of a given discipline and the manner in which technology and content influence and constrain one another.
- **Technological Pedagogical Knowledge (TPK):** refers to the understanding of how teaching and learning can change when particular technologies are used in particular ways.
- **Pedagogical Content Knowledge (PCK):** it is the transformation of the subject matter for teaching, which occurs as the teacher interprets the subject matter, finds multiple ways to represent it, and adapts and tailors the instructional materials to alternative conceptions and students' prior knowledge.

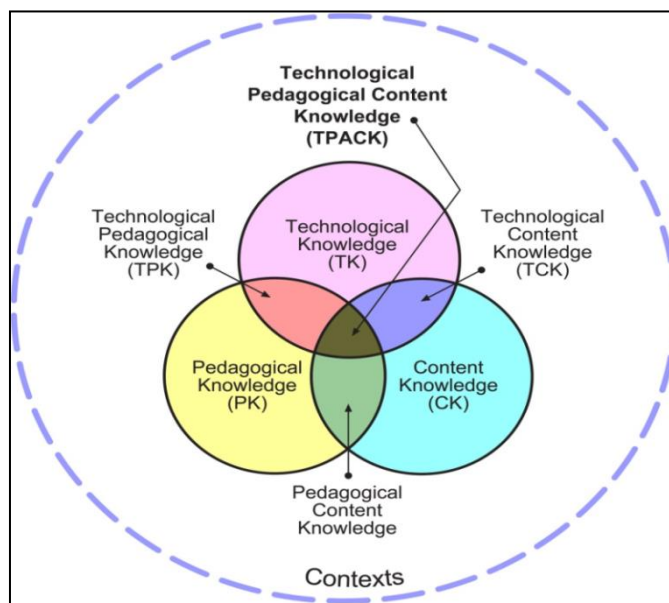


Figure 1.6. the TPACK framework and its knowledge components (Koehler & Mishra, 2009, p. 63)

To sum, even though, TPACK is regarded as a framework that best fits MALL integration, Brantley-Dias and Ertmer (2013) criticized the suggested framework by claiming that TPACK is not an integration model and is not appropriate for the selection and evaluation of technology tools or mobile apps. Instead, it should be used to model professional development for teachers and assess how effective the training was in developing areas of teacher technological pedagogical content knowledge. In addition, Jawarneh (2017), in his PhD thesis, reports a review conducted by Voogt et al. (2013) to instigate the academic foundation and the realistic utilization of TPACK. Researchers have argued when the three components of the TPACK framework are separated their relationships might be difficult in practice.

1.4.2. Puentedura's (2009) SAMR Model

The Substitution, Augmentation, Modification, and Redefinition (SAMR) model is a four-level, taxonomy-based approach for selecting, using, and evaluating m-learning activities (Puentedura 2006). As m-learning activities are developed, "there is a need for a framework within which gleaming activities can be evaluated" (p. 1). The SAMR Model provides such a framework (Puentedura, 2013). This framework was developed by Dr. Ruben R. Puentedura(2006), which

consists of four levels of technology integration. Figure 1.7. presents a visual representation of the SAMR model.

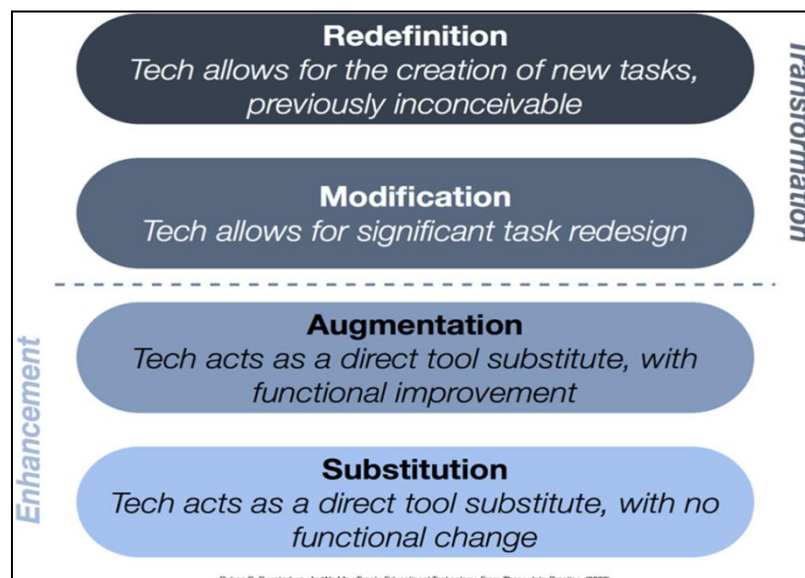


Figure 1.7. Puentedura’s (2006) Substitution, Augmentation, Modification, and Redefinition (SAMR) model (retrieved from <http://www.hippasus.com/rrpweblog/>)

As can be depicted from Figure 1.7., the SAMR model has four key levels:

- **Substitution:** The technology provides a substitute for other learning activities without functional change. For example, a teacher can substitute hard copy handouts for digital versions.
- **Augmentation:** The technology provides a substitute for other learning activities but with functional improvements. To illustrate, students can combine written texts with audio recordings.
- **Modification:** The technology allows the learning activity to be redesigned. In other words, technology integration becomes transformative, requiring a redesign of the lesson around the digital tool. To exemplify, students might be required to read an online article in a forum like Edmodo, then respond to the article and discuss it with classmates in a private, online forum (Savignano, 2017).

- **Redefinition:** The technology allows for the creation of tasks that could not have been done without the use of the technology. In this case, students might explore a historical site using Google Street View, then share and discuss what they found on social media (Savignano, 2017).

The model encourages teachers to move from lower to higher levels of teaching with technology, which according to Puentedura, leads to higher levels of teaching and learning. According to Puentedura's SAMR model, the first two levels (Substitution and Augmentation) are categorized as the enhancement level. While the last two levels (Modification and Redefinition) refer to the transformation level. Therefore, the SAMR model provides a framework to understand how educators progress in their use of a technology for teaching and learning purposes. In other words, it can assist in decision making when evaluating potential instructional designs that use mobile technologies.

One of the most important clarifications is that SAMR is not a ranking or qualitative of teaching or technology. Rather, it is a progression. This is to say that it shows how technology can move learning tasks beyond what is possible without technology. Relatedly, Hockly (2013b) suggested using the SAMR Model specifically for m-learning within the context of English language teaching (ELT). This model provides a framework for instructional designers to evaluate m-learning activities in order to determine how well they meet the goal of transforming learning through the use of a mobile device.

Another significant point that Savignano (2017) highlighted in his thesis is that Puentedura's (2006) SAMR model was designed around the cognitive domain of Blooms Taxonomy 2.0 learning framework. As far as Blooms Taxonomy is concerned, Krathwohl (2002) points out that the main objective of Bloom's Taxonomy 2.0 is to give educators a common language when discussing: educational learning goals; curricular goals, activities, and lesson progression; and educational possibilities (as cited in Savignano, 2017). He mentioned that the revised taxonomy ranked the learning activities from simple ones to complex ones, which corresponds to Puentedura's four levels model. The first two levels (Enhancement) in the SAMR model require less cognitive

requirements as far as Bloom's taxonomy is concerned, whereas the transformative properties make greater cognitive requirements. Figure 1.8. demonstrates the relationship of Bloom's revised taxonomy to the SAMR model.

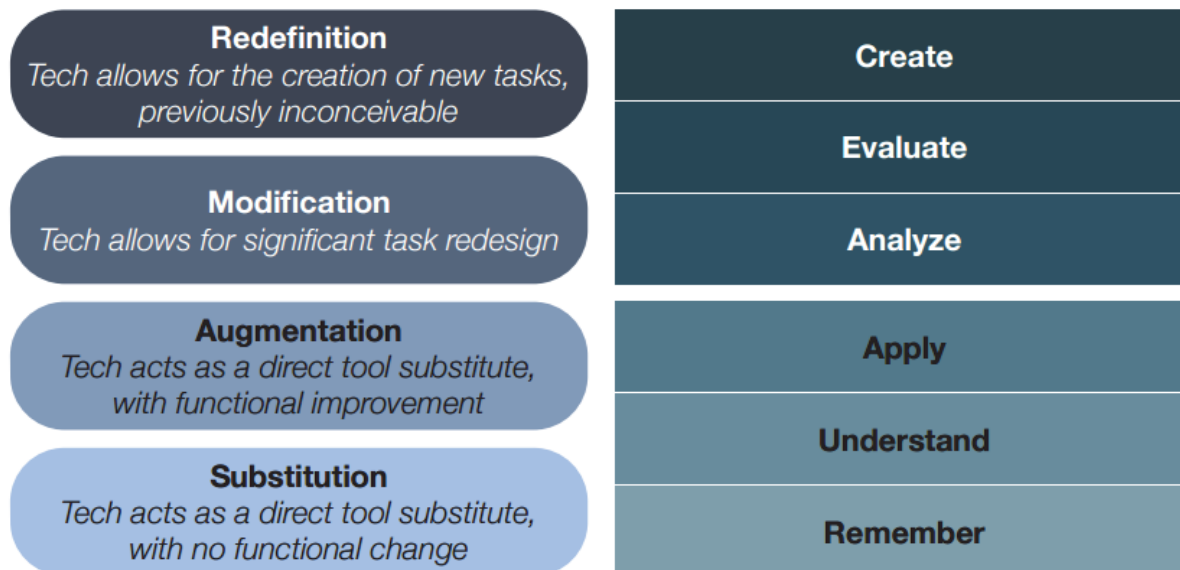


Figure 1.8. Visual model of the Substitution, Augmentation, Modification, Redefinition (SAMR) model and Bloom's Taxonomy (as cited in Savignano, 2017, p. 16)

Despite its increasing popularity, there are some challenges to the SAMR model. Hamilton, Rosenberg, and Akcaoglu (2016) provided a useful critical review of Puentedura's model in which they discussed three major challenges summed as follows:

- **The absence of context:** important contextual components, such as technology infrastructure and resources (Ertmer 1999), community buy-in and support (Zhao and Frank 2003), individual and collective student needs (Lei et al. 2008; Mishra and Koehler 2006), and teacher knowledge and support for using technology (Ertmer et al. 2012; Morsink et al. 2011) are not recognized.
- **Rigid structure:** The hierarchical nature of the SAMR model in which categories are arranged in a graduated order dismisses the complexity of teaching with technology by defining and organizing teachers' uses of technology in predefined ways.

- **Emphasis on products over processes:** within the SAMR model, the technology integration process is simplified because the goal centers on changing an instructional activity (the product) rather than learning processes.

After all, as it has been previously stated, one of the most significant clarifications is that the Puentedura's model is considered as a progression. In other words, the SAMR model guides teachers implement technology in the classroom. Savignano (2017) pointed out that further research should define the effect technology has on different learning outcomes.

To sum up this section, both models guide teachers to integrate technology within the educational process. They help teachers make decisions when using technology in the classroom to enhance learning. These frameworks can mean the difference between simply using technology in the classroom and deliberate, purposeful, and successful technology integration. They also provide unique ways of viewing the role of technology in education.

As far as this research is concerned, the m-learning activities are to be measured against the SAMR framework to determine if they were designed at either the substitution/ augmentation levels or the modification/redefinition levels. That is to say that Puentedura's model will be used as a guide to measure the level of technology integration in the classroom. Jude et al. (2014) assumed that the use of the SAMR model (Puentedura, 2006) in the public-school system would create a common language among teachers and administrators (as cited in Savignano, 2017).

1.5. Mobile-based Integration in Higher Education: Affordances and Challenges

Since its emergence, MALL has been intensively investigated in many studies. Most of these studies have either supported or disclaimed the use of MALL as a learning material in educational settings. In fact, there are various criteria that should be taken into account in order to use mobile learning specifically for educational purposes. To successfully adopt mobile learning, attention must be

given to these influential factors that are going to be discussed in the following sub-points.

1.5.1. Affordances of MALL

Mobile technologies offer a wide range of practical uses in language learning. Several studies have been conducted in different contexts to investigate the various affordances that MALL, as a new language learning approach, can bring. In addition to the commonplace features such as portability, mobility, ubiquity, and personalization, mobile devices offer other significant features that can redefine traditional learning tasks and make m-learning unique.

1.5.1.1. Self-regulated Learning (Control of the Learning)

Researchers stress the importance of allowing students to exercise more control over their own learning. Students are more likely to engage in their learning process if they are encouraged to take part of it (Watts, 1997; Selfe, 1999) (as cited in Bidin, & Abu Ziden, 2013). As far as mobile devices are concerned, students are offered opportunities in which they can play an active role in the learning process. In addition, students can have more flexibility in managing their own learning pace. To illustrate, in a listening task, students can listen to the material in the pace that suits them best which makes them take control of their pace of learning.

1.5.1.2. Student Autonomy

According to Holec (1981), Student autonomy is considered as being both the means and end to instructional activity. He claims that the goal of education is to produce autonomous Students within the formal educational context (as cited in Hamm, Saltsman, Jones, Baldrige, & Perkins, 2013). The sense of personal ownership, not only of the device but also of the learning task, allows the student to feel more autonomous.

1.5.1.3. Motivation

The easy and fast access to current and authentic materials in the language being studied is considered as motivating for the students. In his study, Jawarneh (2017) revealed that the responses of students showed that their motivation enhanced towards learning as they employed mobile phones for learning

purposes and also showed preferences to the usage of the mobile phone in the learning environment.

1.5.1.4. Students' engagement

It is with no doubt that effective learning takes place through active engagement of students in the learning tasks. Similarly, mobile device function as the interactive agents that allow varying levels of interactivity and engagement with the mobile learning activities. MALL also enhances students' engagement because it fits different learning styles and enables Students to partake in learning activities (Beckmann, & Martin, 2013).

1.5.1.5. Collaboration

Due to the communication features of mobile devices, Students can work on collaboration among each other. For instance, several Students at different locations may perform the same activity. They can share files, multimedia, apps, and so many learning materials (Mehdipour & Zerehkafi, 2013)

1.5.1.6. Assistive Technologies

Mobile technologies may assist Students with disabilities. The different innovative technologies can be integrated in special educational needs. Though, mobile learning activities may vary depending on the Student disability and its degree (Mehdipour & Zerehkafi, 2013).

1.5.2. Challenges of Mobile-based Teaching

Despite the fact that this new wave provides a wide range of affordances, mobile learning still faces some educational challenges. A number of constraints have been raised by researchers who investigated in the field of m-learning. Studies have revealed challenges related to various levels of m-learning integration.

1.5.2.1. Technical Constraints

M-learning poses a number of technical challenges. Jawarneh (2017) stated a number of mobile-related barriers that might have an impact on the teaching and learning process. First of all, battery life of mobile devices and connectivity are at the top of challenges. In addition, screen size, keyboard size, and limited audiovisual quality may cause visual problems to Students while performing

activities delivered in small chunks. Moreover, memory and storage capacity are also limited. As far as internet access is concerned, different network technologies can impact the download and upload capabilities of the mobile device.

1.5.2.5. Ethical Constraints

New technologies can bring positive changes, as well as bringing with them new ethical challenges, and mobile technology is no exception. Dyson, Andrews, Smyth, and Wallace (2013) have discussed some of the ethical issues and concerns that can arise as a consequence of adopting m-learning. Problems of privacy, data security, and the unauthorized use of images, cyber bullying, and distraction are considered as being at the top of the ethical challenges. Thus, the researchers suggested a holistic framework to minimize the ethical considerations. They suggest that the framework is based on an ethic of responsible mobile-technology use that can contribute to informed decision-making by all stakeholders and promote a feeling that educators are able to manage the learning environment in a way that fits with their professional beliefs.

1.5.2.6. Educational and Social Constraints

Technology has not only influenced the students but also possesses an impact on teachers or instructors as well. In fact, m-learning faces some educational and social challenges that decelerate its integration within teaching and learning process. Firstly, funding and affordability still are one of the obstacles faced in using mobile devices in education. For instance, some educational applications require paying a sum of money. Few Students may pay, while others are not able to take in charge the high costs. In addition, developing the appropriate theory for m-learning activities may be a challenge for practitioners. Moreover, poor IT infrastructure is one of the key hurdles in the way of effective mobile learning. Another key issue regarding the social and education aspect is about competency. Jawarneh (2017) reviewed a study conducted by Sarrab et al. (2012) who claimed that most teachers are unfamiliar with new technologies. Likewise, other researches revealed that, unlike teachers, students can be familiar with mobile

technology but are completely unaware of the learning tools (Jawarneh, 2017). Socially speaking, psychologists observed that the excessive use of mobile devices not only affects the social life of an individual but also reveals a negative impact on the health of the user (Jawarneh, 2017).

To conclude, mobile learning is emerging as one of the solutions to the challenges faced by education. On one hand, this language teaching and learning approach presents a great opportunity and offers a timely challenge to redefine and transform our educational paradigms. The various affordances of mobile devices such as flexibility, ubiquity, personalization, self-directed learning, and so many other advantages provide teachers and students with plenty of opportunities for formal and informal learning, both inside and outside the classroom. On the other hand, the future of mobile learning depends largely on how to deal with the challenges it poses. The constraints vary from technical challenges, to educational and social ones.

1.5.3. Types of Mobile-based Integration in Education

The efforts towards implementing mobile devices into the classroom are increasing. Researchers and practitioners seek to exploit the various advantages of mobile devices. For that reason, studies have been conducted to investigate the utility of mobile language learning within the classroom atmosphere. Some researchers assure the positive effect of MALL on language learning process and some others indicate that using MALL does not aid language learning.

AL-Qudaimi (2013) examined some studies which revealed different results related to the adoption of mobile-based teaching. A study conducted by Thornton and Houser (2003) utilized both voice and email in mobile phones in order to encompass vocabulary practice, word and phrase translations, quizzes and access to live talking tutors. The results showed that, despite the fact that mobile devices were effective in automated vocabulary lessons, quizzes if delivered in small chunks and the live talking tutoring, small screen size and poor audio quality had affected the comprehension. Another study conducted by Stockwell (2008) indicated that students preferred using their PCs to their mobile phone to avoid the high the cost of internet access.

In their review of MALL literature, Kukulska-Hulme and Shield (2008a) claim that studies appear to be divided between those that are content-based (i.e. the development of activities and learning materials) and those that concentrate on design issues related to developing learning materials and activities for mobile devices.

1.5.3.1. Content-related Studies

Content-based or content-related studies address an approach that concentrate on the development of activity types and learning materials. This type of study often focuses on more formal language learning contexts and considers mobile technologies as a means of delivering content to Students (Kukulska-Hulme & Shield, 2008a). These approaches support teacher-Student communication and rely on mobile devices to deliver content rather than supporting Students to communicate. Divitini and Petersen (2004) explained that little or no emphasis is given to providing learning support where the Student is able to interact with other Students or parties that can support the learning process (as cited in Kukulska-Hulme & Shield, 2008a). In other words, content-related activities may support teacher-centered approach.

1.5.3.2. Design-related Studies

Kukulska-Hulme and Shield (2008a) consider design-related approaches as those that focus on design issues and Students' needs. Studies in this area are related to developing learning materials and activities for mobile devices as well as text-based content. Design-related approaches tend to refer to the informal nature of mlearning. Kukulska-Hulme and Shield also added that design-related differ from content-related approaches in that their emphasis is less on a traditional educational paradigm, in which the teacher provides materials to Students (2008a). Hence, design-related activities can support Students' autonomy.

1.6. Improving the Integration of Mobile-based Teaching in Higher Education

The previously discussed points revealed the importance of working on improving the integration of mobile technologies within the classroom setting.

Ge, Huang, Zhang, and Bowers (2013) suggested three considerations that should be taken into account in designing successful m-learning environment:

1.6.1. Pedagogical Dimension

Considered as being the most essential dimension, the pedagogical dimension refers to the “Instructional approaches, specific to designing for a Web-based learning environment, which are grounded in learning theories and based on the outcomes of the needs analysis (including Student, task, and context analyses)” (p. 332). In other words, much attention should be given to the underlying language teaching and learning theories and philosophical underpinnings. Choosing the approach, methods, and techniques before implementing m-learning activities in the lesson generates learning, and satisfies goals.

1.6.2. Design Dimension

As Ge, Huang, Zhang, and Bowers (2013) defined it, the design dimension refers “to the specific instructional strategies and activities that operationalize the identified instructional approaches, including instructional events, learning activities, sequencing and branching techniques, and screen and message design” (p. 332). It is in this phase that the pedagogical considerations are contextualized and translated into: *a*) design of strategies and activities, *b*) activity sequencing and branching, and *c*) screen design.

1.6.3. Technical Dimension

The implementation of any technology-driven innovation requires deep understanding of the fullest potentials that these technologies provide. Thus, Ge, Huang, Zhang, and Bowers (2013) claimed that the technical dimension is the “examination of the features of a technological system, including the pros and cons of designing for a given learning environment, and addresses issues such as interface design and platform implementation” (p. 332). User-interface design, platform selection, and implementation are among the issues that arise whenever while considering underpinning mobile technology.

In addition to the three mentioned dimensions, Stockwell (2016) emphasized the dimension of context in which the language learning tools will be used. The researcher reviewed a useful review by Sampson and Zervas (2013) on how to

consider context. They provided some valuable guidelines to consider before implementing m-learning technology. The following statements should be taken into consideration:

- Student temporal information (current state of mind and how this impacts the Student's willingness to participate in the learning process);
- people (how other people influence the learning process);
- place (including the current location, private and public spaces, cultural background and learning setting);
- technological artefacts (the mobile device itself) and non technological artefacts (books and other tools that can be used to help learning);
- time (duration of a task, scheduled time of a task, time availability of the Student, a peer or an expert);
- physical conditions (illumination level, noise level and weather conditions). (p. 304).

As can be seen, even though, mobile-assisted language learning is viewed as an effective add to the teaching and learning process, the implementation of the mobile technologies within teaching is not as simple as it may seem. In fact, the implementation of mobile language learning requires the consideration of interrelated elements that cannot be separated from one another. Successful design of m-learning environment requires alignment between the language teaching and learning theories and approaches to be adopted, the activities to be integrated, and the technological affordances and constraints to be faced during the implementation. It is worth noting that the design of mobile-based activities will be dependent upon the context in which they are to be used.

1.7. Mobile Technology in Higher Education in Algeria

With the remarkable widespread of mobile devices, MALL is becoming part of the 21st Century educational trend that fits the classroom atmosphere and satisfies the students' needs. However, according to Jawarneh (2017), "the trends associated with mobile learning adaptation are quite different in developed countries compared to developing countries" (p. 53) (Khan et al., 2015). He also claims that very few studies have investigated the importance of m-learning and

the perception of people in the context of developing countries. This is may be due to various concerns and restrictions of using and adopting mobile technologies for learning in developing countries. Challenges may include the limited technological advancement, inadequate access to the appropriate hardware and networks.

With reference to Algeria, the Algerian education system is encouraging and promoting the use of ICT to improve the development process in general and the educational system in particular. However, it is worth noting that research in the field of mobile learning in the Algerian context is still in its infancy. As far as ICT policies, it is the responsibility of the ministry of Post and Information Technology of implementing and managing the national ICT policy. Correspondingly, the Algerian government has lunched some important initiatives with a number of worldwide agencies to develop the domain of ICT in the country. Equipping all schools with computers, lunched the distance education programme, and the virtual university initiative are one of the early lunched programmes.

Under those circumstances, a number of studies and researches at the university level have been conducted in order to investigate m-learning adoption in the Algerian universities from different perspectives. Firstly, some studies have focused on understanding teachers and students' practices and perspectives towards mobile learning. For instance, an exploratory study conducted by Bouzidi (2015) highlighted the usage of mobile devices among both EFL students and EFL teachers at Biskra University. The focus was on how EFL students exploit their mobile devices to acquire vocabulary, and how EFL teachers use their mobile devices to teach vocabulary as well. The findings revealed positive attitudes towards the importance and use of mobile devices from both sides; teachers and students. In addition, MALL has been proved to be effective in enhancing EFL students' vocabulary acquisition.

Secondly, motivation is a key aspect to m-learning that has been investigated by some Algerian researchers. Saidouni and Bahloul (2018) adopted a descriptive method of research in which a student's questionnaire was bracketed with a

structured interview held with four teachers of English at Batna-2 University. The study confirmed that the integration of mobile devices in EFL setting fosters the students' motivation, and increases eagerness toward learning. Another study conducted by Ghrieb (2015) supported the previous findings. He also found that listening, speaking, reading, and vocabulary were identified as the most appropriate language skills that can be taught using mobile devices. His respondents showed readiness to adopt mobile devices as teaching and learning tools. Another significant suggestion in this study is that more time, pedagogical infrastructure, and training are required.

On the whole, what can be noticed is that research in the field of m-learning in the Algerian context is still limited in the descriptive level. That is to say that little experimental research has been done to investigate the concrete usage of mobile devices in English language teaching in higher education. This can be due to different factors such as the dimensions discussed in the previous point.

Conclusion

This chapter aimed at analyzing the mobile learning-related literature in order to provide the backdrop of the research. Hence, it was necessary to start by providing a multi-dimensional definition to mobile-learning. This helps the researcher, and the reader as well, identify the various perspectives upon which m-learning is based upon. The chapter also spots light on MALL, as a language learning approach related to the use of mobile technologies. When referring to the teaching and learning process, it was necessary to review theories and approaches that have been associated with mobile technology implementation. The efforts towards integrating mobile devices in language teaching requires from educators to evaluate the best models and frameworks to help them integrate mobile technology. Furthermore, four major themes were discussed as being the essence of m-learning. The chapter reviewed two methods of evaluating technology integration; the TPACK model and the SAMR model. In addition, MALL offers a variety of advantages that students can exploit. Yet, there are some issues that teacher should take into account and try to improve in

order to meet their educational needs and requirements. The chapter reviewed the concern and focus of mobile-related research. For a better implementation of mobile learning in the classroom, a number of considerations should be taken into account. Finally, as far as Algeria is concerned, it has been remarked that research in the field of m-learning is proliferating.

CHAPTER TWO:

MULTIMODAL APPROACH TO TEFL

Introduction

The chapter aims at providing an overview of multimodality as a new emerging field and stressing its importance as a new approach to language teaching and learning. First, the chapter attempts to trace the development and origins of the field of multimodality and to shed light on the various schools that have paved the way to establish this new approach. The chapter examines the literature related to the evolution of meaning-making research and how the study of the sign evolved from signs to modes of representation. It, then, describes the influence systematic functional linguistics on the establishment of multimodality and explores the main assumptions and concepts related to this new field. Next, the chapter reviews a selection of key concepts that are tightly related to the current research. This serves to clarify the related-terminology that will be used in the next chapters. Moreover, the chapter explores how multimodality is associated to teaching and learning through relating it to three main fields; multiliteracies, multimedia, and mobile learning. Finally, the chapter concludes by demonstrating how multimodality provides a toolkit for the analysis of multimodal texts.

2.1. Multimodality: The Establishment of a Newly Emerging Approach

2.1.1. The Evolution of Meaning-making Research: From Sign to Semiotic Resource

Signs are the core elements upon which the semiotic theory is built. It is through the creation and interpretation of signs that communication takes place. Yassine (2012) states that systems of signs are constituted by the complex meaning relations that can exist between one sign and another. “Semiotics, then, is not concerned with the study of a particular kind of objects, but with ordinary objects insofar (and only insofar) as they participate in semiosis, [i.e., the process of meaning making]”, according to Morris (1938) (as cited in Eco, 1976, p. 16). In fact, a variety of definitions of the sign have been suggested by scholars. According to Morris (1938), “something is a sign only because it is interpreted as

a sign of something by some interpreter” (as cited in Eco, 1976, p. 16), and people are interpreters of signs. This definition is supported by Eco (1976), who suggested defining a sign as, “*everything* that, on the grounds of a previously established social convention, can be taken as *something standing for something else*” (p. 16). However, Eco commented on Morris’s idea of the interpreter. He emphasizes that the interpretation by an interpreter, which would seem to characterize a sign, must be understood as the possible interpretation by a possible interpreter (1976). It is worth noting that the interpretation of signs is largely based on our familiarity with systems of conventions.

The Swiss linguist Ferdinand de Saussure and the American philosopher Charles Sanders Peirce are regarded as pioneers in the field of semiotics, and the study of signs. Both scholars were concerned with the definition of the sign, what constitutes it, and the process of meaning making. The two scholars were later on joined by many other scholars and schools that strived to provide a full account of human semiosis.

Semiotics is regarded as a theory that studies the process of meaning making and meaning interpretation. Yassine (2010) claims that the concept of semiotics is still ill-defined because of the difficulty in characterizing its unique nature and what it really involves. Consequently, the literature has witnessed a debate among scholars on the nature of semiotics; whether it should be considered as a theory, a method, or even a science. In fact, in his book, *Signs: An Introduction to Semiotics*, Sebeok (2002) claims, “Semiotics is both a *science*, with its own corpus of findings and its theories, and a *technique* for studying anything that produces signs” (p. 5). Similarly, both philosophers the British John Locke and the American Charles Sanders Peirce defined semiotics as “the doctrine of signs” (Sebeok, 2002, p. 5). The term *doctrine* referred to the set of principles.

While a variety of definitions have been provided, two primary traditions upon which semiotics have been established and scientifically studied are represented in the works of the Swiss linguist Ferdinand de Saussure (1857–1913) and the American philosopher Charles Sanders Peirce (1839–1914).

To conclude, it is necessary to provide a brief history of the sign as the core element of semiotics from the perspectives of various scholars. Saussure's dyadic model of the sign, Peirce's triadic model, and Halliday's semiotic resource will be discussed in order to provide a diachronic account of how the sign evolved to reach today's multimodality.

- **Saussure's Dyadic Model of the Sign**

Ferdinand de Saussure is regarded as the co-founder of the science of signs. He used the term "sémiologie" to refer to this new discipline of the study of sign as part of the social life. Also referred to as 'structural semiotics', this new approach views language as a system of signs. In fact, the main focus of study for Saussure was the linguistic sign. He claimed that:

A linguistic sign is not a link between a thing and a name, but between a concept [signified] and a sound pattern [signifier]. The sound pattern is not actually a sound; for a sound is something physical. A sound pattern is the hearer's psychological impression of a sound, as given to him by the evidence of his senses. This sound pattern may be called a 'material' element only in that it is the representation of our sensory impressions. The sound pattern may thus be distinguished from the other element associated with it in a linguistic sign. This other element is generally of a more abstract kind: the concept (Chandler, 2002, p. 14).

For Saussure, a sound pattern refers not to the physical sound but to the hearer's psychological impression of a sound, while the concept is generally more abstract (Chandler, 2002).

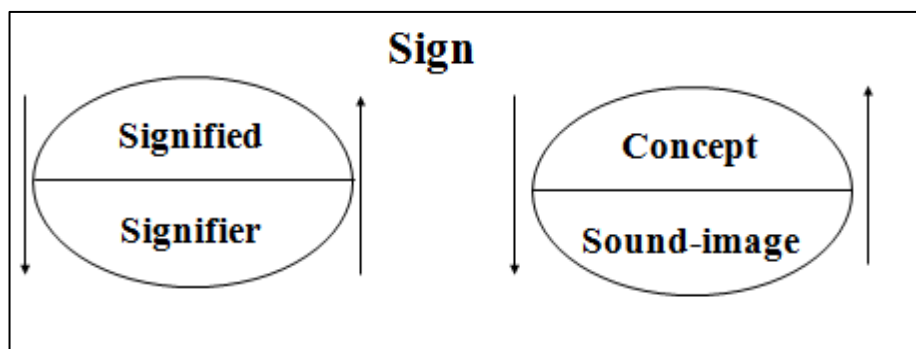


Figure 2.9. The Saussurean Dyadic Model of the Sign

To exemplify, if someone encounters the word *open* (which is the signifier) on a shop doorway, he/she will understand that the shop is open for business (which is the signified) (Chandler, 2002). In fact, according to Saussure, the linguistic sign has two key characteristics; the linguistic signs are arbitrary, and their signifiers are linear.

- **Peirce’s Triadic Model of the Sign**

In contrast to Saussure’s model of the sign which was dyadic, Peirce suggested a triadic (three-part) model composed of the representamen (i.e., the form which the sign takes), the interpretant (i.e., the sense made of the sign), and the object (i.e., the referent) which are known as the ‘semiotic triad’ for making meaning. The process of interaction between these three elements is called ‘semiosis’: the process of meaning-making.

As can be depicted from Figure 2.10. , the difference between the Saussurean and Peircean model is that in Peirce’s model there is a third component called object -which is an external referent for physical things in the real world (materiality),but which can also include abstract representations as with the signified in the Saussurean model. The representamen in Peirce’s model is similar to Saussure’s signifier while the interpretant has an attribute unlike that of the signified –being it a sign itself in the interpreter’s mind (Chandler 2002).

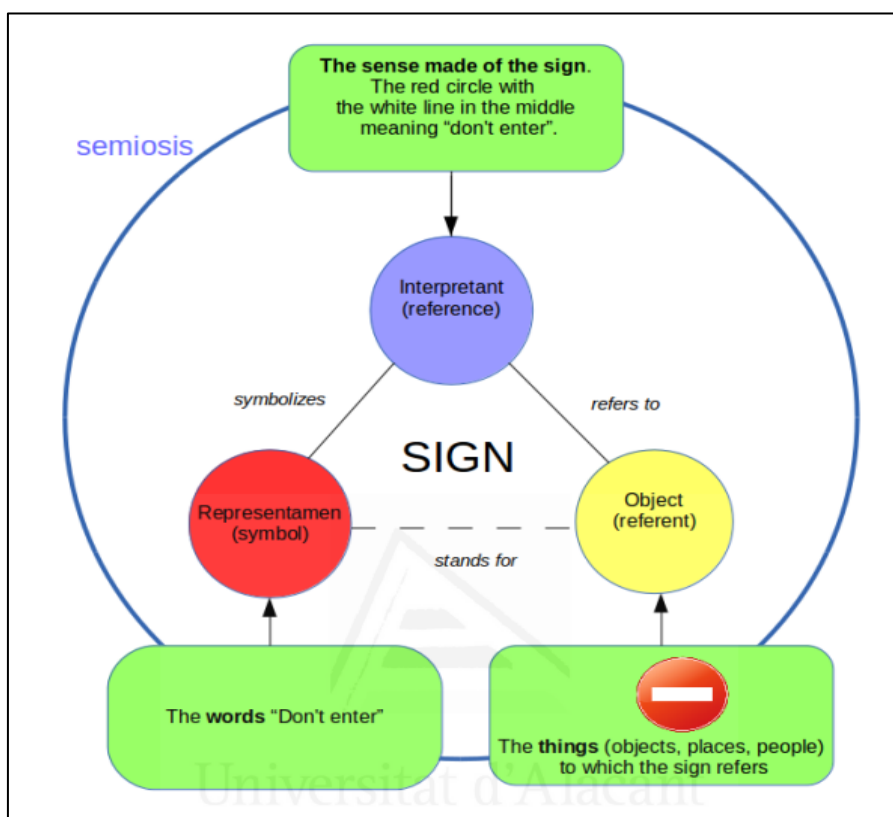


Figure 2.10. A representation of meaning through the conceptual procedure of sign (adapted from Ogden & Richards, 1923, p. 11; in Nöth, 1995, p. 89) (as cited in Fernandez-Pacheco, 2016, p. 15).

Moreover, Based on the indirect relationship between the representamen and the object, Peirce established a threefold taxonomy of signs. As cited in Chandler (2002), Peirce classified signs as iconic, indexical, and symbolic:

- An **icon** is a sign in which the relationship between the representamen and the object is signified by resemblance or similarity; the iconic representamen has some qualities similar to the real object.
- An **index** is a sign in which the relationship between the representamen and the object is causal, actual or physical. An index is connected to its object in terms of time and space. For instance, a knock on the door is an index of arrival.

- A **symbol** is a sign in which the representamen is arbitrarily or conventionally connected to the object, so the relationship must be learnt. E.g. languages, numbers, traffic lights.

As mentioned earlier, Saussure had previously observed that language is a social fact and that signs are studied as part of social life. Peirce also integrated culture as a third element in his triadic model of the sign. Later, semioticians such as Roland Barthes (1957-1972), influenced by the two perspectives in relation to the characteristics of signs, developed the theory of denotation and connotation.

- **Chandler's Classification of Codes**

During the 1960s and 1970s, semioticians started to recognize the influence of culture and ideology on signs and codes. As far as code is concerned, Umberto Eco defined, "a system of rules given by a culture" (Eco, 1968, p. 130, in Nöth, 1995, p. 211) (as cited in Fernandez-Pacheco, 2016, p. 20). Codes, then, are considered as structures within signs that create meaning because the meaning of a sign is directly influenced by situational, cultural and social codes, points out Chandler (2002).

Chandler advanced a threefold classification of codes:

- **Social codes:** which includes: *Verbal language* (phonological, syntactical, lexical, prosodic, paralinguistic codes); *Bodily codes* (bodily contact, proximity physical orientation, appearance, facial expression, gaze, head-nods, gestures and posture); *Commodity codes* (fashion, clothing, cars); *Behavioural codes* (protocols, rituals, role-playing, and games).
- **Textual codes:** which encompasses: *scientific codes* (including mathematics); *Aesthetic codes* (within the various expressive arts (poetry, drama, painting, sculpture, music, etc.) including classicism, romanticism, realism); *Genre, Rhetorical and Stylistic codes* (exposition, argument, description and narration and so on); *Mass Media codes* (including

photographic, televisual, filmic, radio, newspaper and magazine codes, both technical and conventional (including format)).

- **Interpretive codes:** this category encompasses both *Perceptual codes*; and *Ideological codes*.

Nevertheless, it is worth noting that all codes must be considered in a social sense, claims Fernandez-Pacheco (2016). Therefore, the interpretation of signs must take into account the association of semiotic codes and contexts.

- **Halliday's Social Semiotics**

As mentioned so far, meaning, through whatever means it is made, cannot be dissociated from its social and cultural aspects. This fact leads us to the next stage in the study of signs; the sign in society. The term social semiotics first emerged in a book entitled "*Language as Social Semiotic: The Social Interpretation of Language and Meaning*", published by the theorist Michael Halliday (1978). Social semiotics assumes that social, cultural, economic, and technological developments affect practices, resources, and interests of members of a social group. It, therefore, becomes loaded with meaning potentials that are determined according to specific situations and needs; this is why Halliday prefers to call it resource instead of sign. The semiotic resource stands for:

The actions and artefacts we use to communicate, whether they are produced physiologically – with our vocal apparatus; with the muscles we use to create facial expressions and gestures, etc. – or by means of technologies – with pen, ink and paper; with computer hardware and software; with fabrics, scissors and sewing machines, etc. Traditionally they were called 'signs' (van Leeuwen, 2005, p. 3).

As far as language is concerned, Halliday approached the study of language as a product of a social process. He used the term social semiotics to outline the fact that people in everyday life act out the social structure, affirm their own statuses and roles, and establish and transmit the shared systems of value and of

knowledge (Halliday, 1978). He adds that language is a semiotic system as it is a resource for making meaning and not a set of rules. Therefore, social semiotics takes into account different signifying systems and language is but one.

In order to study this signifying system (semiotic system) and understand how it makes meaning, Halliday relates it to context. He made the distinction between two notions that he called *context of situation* and *context of culture*. To start with, context of situation refers to the non-verbal environment in which a word is used. It includes three features which interconnect in the interpretation of texts:

- **The Field of Discourse:** it refers to the nature of the social action that is taking place.
- **The Mode of Discourse:** What the participants expect language do for them in that situation.
- **The Tenor of Discourse:** it has to do with who are taking part in the situation and the nature of the participants, their status and roles.

As for the second element of context, the context of culture is as important as the former. Halliday and Hasan (1985) claimed that, “people do these things on these occasions and attach these meanings and values to them; this is what culture is” (p. 46) (as cited in Yassine, 2012, p. 37).

According to Halliday (1985), “language has evolved to satisfy human needs, and the way it is organized is functional with respect to those needs” (p. xiii) (as cited in Fernandez-Pacheco, 2016, p. 55). So, within this framework, Halliday advanced seven functions of language which are represented in Table 2.1.

Functions	Usage
Instrumental	To express the necessity or desire of material things
Regulatory	To give orders, instructions, suggestions.
Interactional	To address to other people: greeting, thanking, excusing.
Personal	To talk about oneself and his or her feelings.
Heuristic	To ask for information.
Imaginative	To imagine, suppose and create a world of one's own.
Informative	To perform statements to communicate.

Table 2.3. Halliday's functions of language and their usage (Fernandez-Pacheco, 2016, p. 56).

Moreover, Halliday notes that language, being a system of meaning potentials and a set of resources, serves three meta-functions: ideational, interpersonal, and textual.

- **Ideational (Experiential) Meta-function:** The ideational function is the content function of language that allows us to conceptualize the world for our own benefit and that of others. In other words, it is the representation of the external world.
- **Interpersonal Meta-function:** it refers to the use of language to create and maintain social relations between people (interaction among people).
- **Textual Meta-function:** it embraces all the grammatical systems responsible for managing the flow of discourse (the overall organization of a text).

To conclude, the literature reviewed so far has focused on how the concept of the sign has changed, how it has been addressed by different scholars from different perspectives. There has been a shift from a structuralist point of view of

semiotics to a systematic functional view of semiotics that sees the language used as the result of choices. These choices influence and are influenced by the context. In fact, Halliday's social semiotics whetted the appetite of many scholars who, later, expanded it to investigate different signifying systems, other than language, within semiotics.

2.1.2. The Multimodal Landscape

Michael Halliday's Systemic-Functional linguistics "offers a powerful and flexible model for the study of other semiotic codes besides natural language and its universality may be of particular value in evolving new discoveries about art" (O'Toole, 1990, p. 1) (as cited in Riley, 2004, p. 295). Gunther Kress and Teo van Leeuwen, two of Halliday's influential readers, were influenced by Halliday's meta-functions and have extended attention from language to other semiotic modes (extralinguistic modes). In order for them to analyze the non-linguistic modes, Kress and van Leeuwen (2006) have adopted Halliday's meta-functions by distinguishing three levels of analysis:

- ***The patterns of representation:*** these are comparable to the ideational meta-function of Halliday; they deal with the representation of the external world. In other words, the resources people choose to represent the world and their experience of it.
- ***The patterns of interaction:*** these are comparable to the interpersonal meta-function. This concerns the relationship between the designers and the interpreters of the representation (the relationship between makers and viewers of the image).
- ***The principles of composition:*** these are comparable to the textual meta-function. They are concerned with the way the representation is organized (The visual organization of an image); that is, the framing, the layout, and other organizational patterns.

As stated above, these three levels of analysis deal with the non-linguistic resources (visual, auditory...etc) which will be combined with the linguistic

resources to make meaning. Various modes are used at the same time in an interaction to convey the intended message. This is referred to as multimodality. Thus, Halliday's social semiotics was rapidly developed into Multimodality which can be defined as a set of "approaches that understand communication and representation to be more than about language, and which attend to the full range of communicational forms people use -image, gesture, gaze, posture and so on- and the relationships between them" (Jewitt, 2009a, p. 14).

The arrival and rapid dissemination of technology led to the emergence of new forms of communicative discourses which are highly multimodal. Yassine (2012) insists on the fact that this new approach is a significant step towards the understanding of contemporary ways of communication which integrates language, visual images, and other semiotic resources to construct texts, objects and events. The multimodal approach emphasizes the combination of several modes "(...) in the design of a semiotic product or event, together with the particular way in which these modes are combined" (Kress & van Leeuwen, 2001, p. 20). Thus, the main purpose of this approach is to demonstrate how a variety of semiotic resources can be combined and employed in the process of meaning making and meaning interpretation.

2.1.2.1. The Three Assumptions

Even though, multimodality is a recent field, it provides assumptions, frameworks, and concepts to help in the analysis of multimodal texts. For this reason, Jewitt (2009b) describes multimodality as being "a field of application" (p. 2) rather than a theory. According to Bezemer and Jewitt (2010), central to the social semiotic approach to multimodality, the latter is based upon three main assumptions.

The first premise assumes that representation and communication are produced due to the multiplicity of modes that contribute to the process of meaning. This assumption opposes the view which considered language as being the only resource for meaning making. Therefore, the main focus is on analyzing the different modes (auditory, visual, tactile, and other modes) used by people in

different context to produce in multimodal ensemble. It also focuses on the meaning potentials produced by these resources.

The second assumption takes into consideration the influence of culture, context and society on the use of modes to create and interpret meaning. With this in mind, multimodal approach assumes that each mode (be it linguistic, visual, auditory) in the multimodal ensemble has been shaped its cultural, historical and social uses to realize communicative function. The researchers explain that, for instance, the spatial extent of a gesture, the intonational range of voice, and the direction and length of a gaze are all part of the resources for making meaning. Consequently, the use of modes can differ from one culture another.

The last assumption highlights the fact that meaning is orchestrated through the selection, configuration, and combination of different modes. This premise pays attention to how these modes, when combined, can be influential in the meaning-making and interpretation process. Multimodality, therefore, focuses on how and why people select one modal resource (meaning potential) over another in their process of meaning making. This last premise is reinforced by the technological development with the integration of internet and the various technological tools (such as PCs, smartphones, etc.). Hence, multimodality explores how modes are selected and combined within the various mobile devices, for instance, in the creation of meaning.

2.1.3. Core Concepts within Multimodality

Due to this new field of application, a variety of terms and concepts have emerged. Hence, before moving forward, it is necessary to tackle some key concepts that constitute multimodality. Special attention will be given to core concepts that are related to the thesis; that is, concepts related to multimodality in the field of mobile learning.

2.1.3.1. Semiotic Resource

A semiotic resource is an essential notion in social semiotics and multimodality. This key concept emerged from Halliday's work who defined grammar as a "resource for making meanings" (Halliday, 1978, p. 192) instead of being a set of rules. As it has been previously defined, semiotic resources are "...actions, materials and artefacts we use for communicative purposes... [they] have a meaning potential... and a set of affordances... and these will be actualized in concrete social contexts" (van Leeuwen, 2005, p. 285). In other words, a means of meaning making that is simultaneously a material, social and cultural resource. In other words a semiotic resource can be thought of as the connection between representational resources and what people do with them, claims Jewitt (2013).

2.1.3.2. Mode

Mode is the concept that marks the extension of the field of social semiotics to multimodal approach. According to Kress and van Leeuwen (2001), a mode refers to a set of socially and culturally shaped resources for making meaning: a 'channel' of representation or communication. As can be understood from the definition, modes are influenced by society and culture, hence, influencing the process of meaning making. Jewitt (2013) adds that one definition of a mode is that it has to comprise a set of elements/resources and organizing principles/norms that realize well-acknowledged regularities within any one community. That is something which can only be recognized as a mode when it is a known/usable system of communication within a community. Put differently, one mode encompasses a set of semiotic resources.

Jewitt (2013) explains that for a set of resources to be recognized as a mode is its ability to function within the social and cultural context in which it is performed. She also proposed that in order to identify a mode we need to analyse if the latter fulfill Halliday's meta-functions (ideational, interpersonal and textual meaning).

As explained previously, the main focus of scholars was language as the only semiotic system in the process of meaning making. The emergence of multimodality gave birth to other semiotic systems, apart from language, to be used to create meaning. The semiotic modes are not fixed; they are flexible and subject to change comprising speech, writing, image, sound, gesture, gaze, and other modes.

2.1.3.3. Modal Affordance and Meaning Potential

Special attention must be given to the various affordances and constraints of modes. *Affordance*, as a term, first emerged in the work of Gibson (1977), who believed that affordances are the potential uses of a given object, which stem directly from its observable properties, as Yassine (2012) states. In multimodal research, two terms appeared in the multimodal landscape. On one hand, van Leeuwen referred to affordances as *meaning potentials*. He makes reference to the material and cultural aspects of modes. On the other hand, Kress (1993) coined the term *modal affordance* to refer to what is possible to express and represent easily with a mode, taking into consideration the connection between affordance and material, cultural and social historical uses of a mode. In other words, both researchers agree upon the fact that modal affordance, in Kress's term, or meaning potential in van Leeuwen's term, is tightly related to its social uses (in the past or the repeated uses) and the social conventions that govern its uses (Jewitt, 2014). Thus, the convergence between *modal affordance* and *meaning potential* is that both stand for the potentialities and constraints of different semiotic modes.

2.1.3.4. Medium

While a mode is a means for making meaning material, a medium is a means for disseminating meanings as messages. Print, book, screen, and other technological devices are examples of the medium. Kress and van Leeuwen (2001) claim that the material medium (paper, stone, ink, etc) is traditionally neglected in linguistics and semiotics, but that it makes an important contribution

to the meaning. In fact, the choice of medium to carry meaning plays a role in meaning making and interpretation. For instance, a written message on a paper is different from the same message presented in a website or a mobile phone screen.

As cited in the website of *Glossary of Multimodal Terms*, Jenkins (2006) suggests a twofold model of media. The first level considers medium as a technology that enables communication. The second level views medium as a set of associated protocols or social and cultural practices that have grown up around that technology (as cited in MODE, 2012).

2.1.3.5. Multimodal Ensembles, Intersemiotic Relationships and Functional Load

As previously stated, the main concern of multimodal research is the investigation of how each mode interacts with others and how they are orchestrated in specific contexts to produce meaning. Here, multimodal orchestration of modes refers to “the actions of teachers and students -as sign-makers- as much as to the work of designer(s) of a textbook or other teaching and learning materials, engaged in the making of complex semiotic entities, *texts*” (Kree & van Leeuwen, 2010, p. 344). As for multimodal ensemble, this refers to the representations of different modes working at the same time to produce meaning in particular setting. The term *ensemble* is used when more than one mode is used deliberately by the sign maker (a teacher for instance) in order to create meaning. In these multimodal ensembles “each mode is *partial* in relation to the whole meaning” (Jewitt & Kress, 2003, p. In Maier, 2011) (as cited in Fernandez-Pacheco, 2016, p. 39). In order to make the difference between the two terms, Kress (2010) asserts that orchestration is “the process of *assembling, organizing and designing* a plurality of signs in different modes into a particular configuration to form a coherent arrangement” (p. 162), whereas ensemble refers to “the result of these processes of design and orchestration” (p. 162). As can be depicted from Figure 2.11, multimodal ensembles can therefore be seen as a material outcome of some elements such as the social context, available modes

and modal affordances, the technology available and the agency of an individual (Jewitt, 2013).

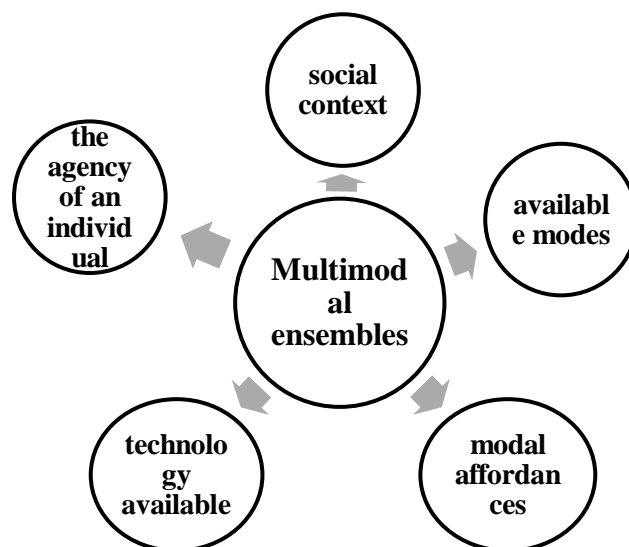


Figure 2.11. Elements in multimodal ensembles (based on Jewitt, 2013)

Another central concern of multimodality is the study of the relationship among the different modes in multimodal texts. This is referred to as intersemiotic relationships. The study of the intersemiotic relationships helps to understand the modal resources in use and how the integration of different semiotic resources help in realizing (or not) multimodal cohesion in multimodal texts (MODE, 2012). It also helps in identifying which elements carry the greatest proportion of the meaning which is known as *functional load* (Kress & van Leeuwen, 2001).

2.1.3.6. Multimodal Composing and Multimodal (Multisemiotic) Text

Multimodal composing refers to the construction of Multisemiotic texts (texts that may contain different semiotic modes. These multimodal compositions can be delivered in the form of print or “documents we now see in digital environments that use multiple modalities to convey meaning – moving and still images, sounds, music, color, words, and animations – and that are distributed primarily, albeit not exclusively, via digital media” (Selfe & Takayoshi, 2007, p. 1) (as cited in Wang, 2018, p. 22).

In fact, Jewitt (2013) draws our attention to the fact that these different concepts can be applied across any kind of representation which can be a printed or digital text, and across different contexts- be it a classroom with or without technology. These concepts serve also as a toolkit to investigate the modal meaning potentials of a resource.

2.2. Implications of Multimodal Literacy for TEFL in the Digital Age

New demands from multicultural societies and diverse technological advances have called for new reconsiderations of the actual pedagogical matters. In fact, a variety of channels and language teaching and learning methods, including the internet, pictures, and videos are integrated in the teaching process. For example, Hu Zhuanglin (2007) holds that traditional reading and writing are not enough in this era of multimedia, and with more and more multimedia facilities appearing in classrooms, the whole education is being multimodalized (as cited in Jiang, 2016).

It is worth mentioning that the concept of multimodal teaching first appeared in the work of a group of researchers who expanded the definitions of literacy and literacy pedagogy. The New London Group (1996) introduced the notion of *multiliteracies* to show that modes of representation are far broader than language. Moreover, researchers like Mayer (2001) explored ways of going beyond the verbal by combining words and pictures for effective teaching, which is referred to as *multimedia learning*.

Hence, we here shall make the distinction between two concepts, multiliteracies and multimedia, which need to be operationally defined as they are central to comprehend the principles underpinning the models of multimodal texts interpretation and reading. With the rapid growth of educational technologies, a new type of literacy has emerged, which is the mobile literacy. The latter is another literacy-related issue that should be addressed when tackling multimodal literacy.

2.2.1. Multimodality and the Pedagogy of Multiliteracies

In the 21st century, multiple and multimodal literacies, using the internet and digital technology, are challenging the traditional form of literacy and making us reconsider the definitions of text and of writing pedagogy. Consequently, the New London Group (1996, p. 61) claimed that:

... literacy pedagogy now must account for the burgeoning variety of text forms associated with information and multimedia technologies. This includes understanding and competent control of representational forms that are becoming increasingly significant in the overall communications environment, such as visual images and their relationship to the written word.

This group of researchers expanded the definition of literacy and introduced the notion of the *pedagogy of multiliteracies*. In their article '*Multiliteracies*': *New Literacies, New Learning*, Cope and Kalantzis (2009) asserts that the pedagogy of multiliteracies helps us how to read and write multimodal texts which integrated the other modes with language. They also claim that all forms of representation, including language, should be regarded as dynamic processes of transformation rather than processes of reproduction.

Because literacy is a practice that can be linguistically, technologically, and socially situated, teachers and students as active agents of social change need to learn that multiliteracies can be regarded as a response to the remaking of literacy by attending to multimodal texts and practices (Jewitt, 2008). Along with multimodality; one important concept in multiliteracies is the term of *Pedagogy of Design*. The New London Group (1996) conceptualizes Design as encompassing three major elements:

- **Available Designs:** i.e. the grammars of various semiotic systems, orders of discourse, and the intertextual context;

- **Designing:** i.e. the semiotic activity of production, the work performed on/ with Available Designs;
- **The Redesigned:** the transformed meaning-making resources, or a new Available Design.

Based upon the already mentioned elements, the New London Group identified six major areas which constitute the design elements. As Figure 2.12., illustrates, meaning is represented in Linguistic Design, Visual Design, Audio Design, Gestural Design, Spatial Design and Multimodal Design. According to Cope and Kalantzis (2009), the vast majority of our representations are mainly multimodal. They claim that in the process of meaning-making, we tend to combine gestures with sounds, images with linguistic mode, among others. However, they also highlight the existence of modes that are linked to each other. Consequently, the pedagogy of multiliteracies call for a need for a metalanguage of each mode of representation. This metalanguage “... needs to be quite flexible and open ended. It should be seen as tool kit for working on semiotic activities...” (New London Group, 1996, p. 77).

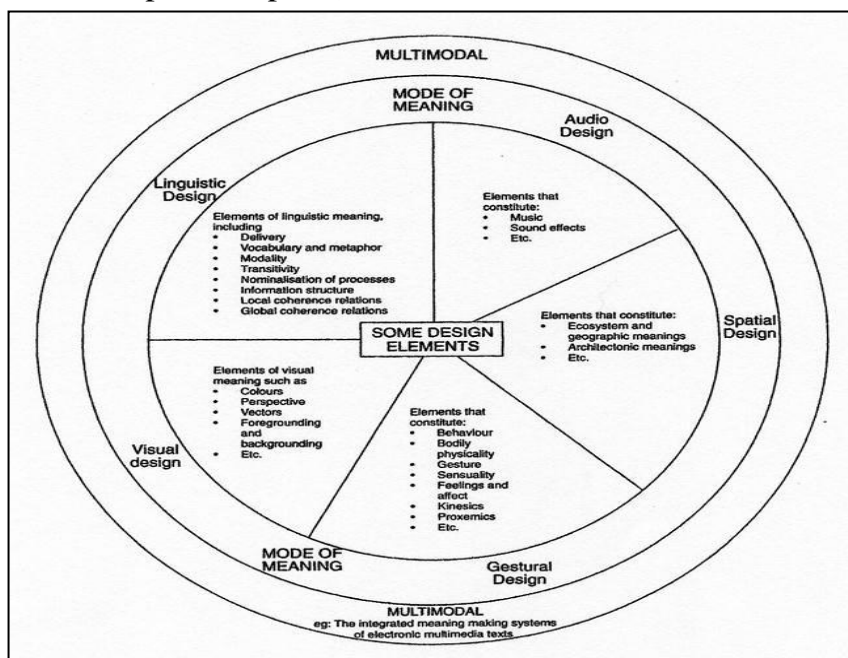


Figure 2.12. design elements: audio, spatial, gestural, visual, linguistic, and multimodal design (the New London Group, 1996, p. 83).

2.2.2. Multimodality and Multimedia Learning

The new literacies are not confined to communication through reading and writing using only print texts. Rather, literacy now includes multimedia and multimodal compositions. The development of multimedia technologies for learning offers new ways in which learning can take place. Multimedia refers to the idea that the instructor uses more than one presentation medium, whereas multimodality refers to the idea that the Student uses more than one sense modality (Mayer and Sims 1994). Despite such distinction, there is no agreement in the literature as both terms are often used interchangeably. Mayer and Sims (1994) apply the concept of multimedia to the teacher's presentation of information through more than one medium and the concept of multimodality to the Student's use of more than one sense. Therefore, they state that:

Multimedia learning occurs when students use information presented in two or more formats -such as a visually presented animation and verbally presented narration- to construct knowledge. In a strict sense, our definition applies to the term "multimodal" (which refers to the idea that the Student uses more than one sense modality) rather than "multimedia" (which refers to the idea that the instructor uses more than one presentation medium) (pp.389, 390).

To better understand the application of multimedia learning in education, we shall review two major multimedia models: Mayer's (2001) Cognitive Theory of Multimedia Learning and Schnotz and Bannert's (2005) Integrated Model of Text and Picture Comprehension. The researchers have worked on two complementary models in an attempt to study the integration and the effects that multimedia representation on the language learning process.

2.2.2.1. Mayer's (2001) Cognitive Theory of Multimedia Learning

Mayer's model discusses multimedia from three views: as delivery media (combining two or more delivery devices), presentation modes (representations that include pictorial and verbal channel) and sensory modalities (visual and auditory modes). In fact, Mayer's model of multimedia learning is based on the

assumption that Students can comprehend better when content material is presented and delivered through words and pictures. As can be seen from Figure 2.13., Mayer's multimedia learning theory combines multimedia presentation modes (in the form of words and pictures) that are integrated in working memory (where the theory's central work takes place) together with the student's prior knowledge from long term memory.

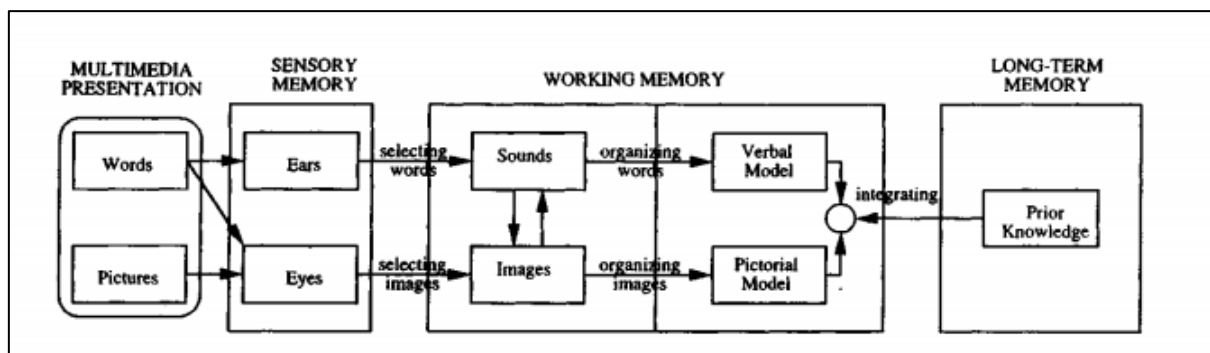


Figure 2.13. Mayer's cognitive theory of multimedia learning (Mayer, 2001, p. 44).

From a cognitive multimedia learning tradition, Mayer (2001) claims that:

... according to the knowledge construction view, the Student's job is to make sense of the presented material; thus the Student is an active sense maker who experiences a multimedia presentation and tries to organize and integrate the presented material into a coherent mental representation (p. 13)

Put simply, students build their learning by interacting with multimedia learning materials. Mayer (2001) also adds that well-designed multimedia instructional messages can promote active cognitive processing in Students, even when Students seem to be behaviorally inactive. As far as teachers are concerned, they play the role of cognitive guiders provides support to the students' cognitive processing in the sense-making process.

a) Principles of Multimedia Design

In an attempt to support his multimedia cognitive theory, Mayer (2001) advanced seven multimedia principles that address the issue of multimedia design. They are summarized as follows:

- ***Multimedia Principle:*** Mayer (2001) claims that words and pictures are better than words alone. Students learn better from learning materials that include both words (written and spoken texts) and pictures (static graphic images, animation and video).
- ***Spatial Contiguity Principle:*** Mayer asserts that students learn better when corresponding words and pictures are presented near rather than far from each other on the page or screen (2001). In other words, when multimedia content is visually far apart on the screen the student's attention is split.
- ***Temporal Contiguity Principle:*** multimedia learning is more effective when the student's attention is focused, not split (i.e., when related content is not presented simultaneously rather than successively).
- ***Coherence Principle:*** multimedia learning is most effective when the learning material includes only content that is relevant and aligned to the instructional objectives.
- ***Modality Principle:*** students will learn better when multimedia learning content is presented by audio narration (i.e., narration of text) that on-screen text (visual on-screen text).
- ***Redundancy Principle:*** Mayer (2001) suggests that students learn better from animation and narration than from animation, narration, and on-screen text. That is to say that any redundant material interferes with rather than facilitates learning. Hoffman (2006) argues that people can't focus when they both hear and see the same verbal message during a presentation.
- ***Individual Differences Principle:*** This principle states that the effects of the aforementioned principles differ depending on individual attributes of

the students. Learning from multimedia presentations is enhanced when the structures for organizing the information are activated, i.e., the student's prior knowledge. Mayer (2001) acknowledges that design effects are stronger for low-knowledge Students than for high-knowledge Students and for high-spatial Students rather than for low-spatial Students.

Generally speaking, Mayer's cognitive theory of multimedia learning presents principles to guide teachers (and multimedia designers) in how to design multimedia and multimodal presentations. It worth noting that "... the principles should be used in ways that are consistent with what we know about how people learn from words and pictures", states Mayer (2001, p 184).

2.2.2.2. Schnotz and Bannert's (2003) Integrated Model of Text and Picture Comprehension

On the other hand, another model that addresses the issue of reading comprehension from multimodal texts including text and pictures was developed by Schnotz and Bannert (2003) and was further elaborated by Schnotz (2005). An outline of this model is shown in Figure 2.14. This model consists of a descriptive side of representations on the left, and a depictive one on the right. The right side which represents the descriptive branch of representations illustrates how the textual written information is represented. According to Schnotz (2005), descriptions are basic forms of representation that are represented as the interaction between external text, the internal mental representation of text surface structure, and the propositional representation. This interaction between the descriptive representations is based on *symbol processing*. On the other hand, depictive representations are the interaction between the external picture, the internal visual perception of the image, and the internal mental model of the subject matter represented in the picture. The interaction between the depictive elements is based on analogical structure-mapping.

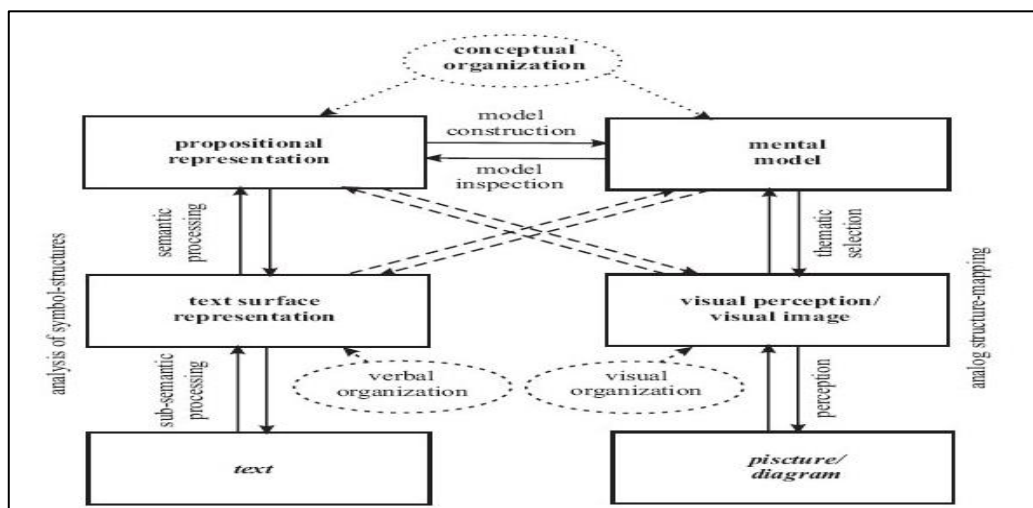


Figure 2.14. Schematic illustration of an integrative model of text and picture comprehension (Schnotz, 2002, p. 109).

These descriptive and depictive representations have different uses for different objectives. Descriptive representations (texts) are more powerful to express abstract concepts, while, pictures such as photographs, drawings, paintings, or maps are depictive representations which are iconic because they resemble their referents more closely. Schnotz (2002) clarifies:

If we describe something in a text, we use nouns to refer to its parts and we use verbs and prepositions to relate these parts to each other. Visual displays, on the contrary, are depictive representations. A depictive representation consists of iconic signs. These signs are associated with the content they represent through common structural features on either a concrete or more abstract level (p. 103).

A descriptive representation consists of symbols that have an arbitrary structure and that are associated with the content they represent simply by means of a convention. These descriptive and depictive representations have different uses for different objectives; descriptive ones are more powerful to express abstract concepts. On the other hand, pictures such as photographs, drawings, paintings, maps or small miniatures are depictive representations which are iconic because they resemble their referents more closely.

As a matter of fact, despite the fact that they are based on different sign systems and different principles of representation, text comprehension and picture comprehension are to be considered as complementary ways of creating mental representations from the textual and visual information.

To sum up, the models reviewed so far provide teachers and multimedia designers with comprehensible guidelines to understand the cognitive processes on the students' minds as they are exposed and learn from multimedia materials. Likewise, Schnotz (2002) asserts that "visuo-spatial text adjuncts and other forms of visual displays can support communication, thinking, and learning only if they interact appropriately with the individual's cognitive system" (p. 113).

2.2.3. Multimodality and Mobile Literacy

Globalization and digitization have reshaped the communication landscape, affecting how and what we use to communicate. Mobile technology affords numerous digital resources which open up for multimodal composing and communication of different modes of expression. The emergence of new literacies gave rise to a new type of technological literacy, which can be considered as an extension of digital literacy. Novak and Wang (2015) coined the term *mobile literacy* to refer to "A system of meaning-making that uses mobile technologies to help Students achieve their goals and communicate with their affinity groups" (p. 398). The researchers emphasize on shifting the focus of mobile learning from a focus on a particular technology into a focus on how students and educators learn and achieve their goals through the use of mobile technologies.

Even though mobile technologies offer a wide range of affordances which permit students to exploit a range of modal affordances, research in multimodality and mobile language learning applications represents a somewhat understudied area (Eisenlauer, 2014). These handheld devices have provided an entry point for transformations in the creation and sharing of texts, they can facilitate the reading, creation and sharing of multimodal texts. In her article,

Multimodal Methods for Researching Digital Technologies, Jewitt (2013) indicates four potential areas of multimodal research with regard to digital technologies, including mobile technologies.

First, multimodality serves as a toolkit that helps and guides educators to provide a systematic description of the modes and their semiotic resources used in multimodal texts. Jewitt mentions that some multimodal researchers use a style of diagramming called system networks to map the meaning potentials of a mode (2013).

Second, multimodal research focuses on the investigation of interpretation and interaction with specific digital environments. The multimodal investigation maps and compares people's choice of mode and its semiotic resources. This second area of focus allows examining how these modal choices are shaped by the materiality and affordances of a mode and the research subjects' knowledge and experience. Jewitt (2013) points out that multimodality has been applied to a range of multimodal digital genres to explore questions of digital identities and literacy, notably in the field of education.

In addition to the creation, description, and analysis of the use of modes and their semiotic resources in particular contexts, multimodal research focuses on the identification and development of new digital semiotic resources and new uses of existing resources in digital environments. In this case, Multimodality moves beyond intuitive ideas about what a technology can do, to provide detailed analysis of the way semiotic resources of digital technologies work, what they can and cannot do, states Jewitt (2013).

Finally, multimodality contributes to research methods for the collection and analysis of digital data and environments within social research. Researchers are now looking beyond language to better understand how people communicate and interact in digital environments which lies at the heart of multimodal research.

The focus of the present research will be on the description of the meaning potentials available to both EFL teachers and students when using mobile technologies in Algerian higher education context. In other words, we will attempt to provide a systematic description of the different modes and their semiotic resources integrated and used in the mobile-based activities.

To sum up, as a consequence of the above changes in the social and technological landscapes, the field of education, in particular, TEFL has been influenced, as the traditional literacy pedagogy, which considers language as a central means of communication, has been challenged to expand beyond the skills of encoding and decoding texts to include other modes of communication (Kern & Schultz, 2005). Therefore, we shall investigate the issue of reading multimodal texts; that is, to review the five modes and their semiotic resources for a systematic multimodal description of multimodal texts.

2.3. Reading Multimodal Texts

The emergence of new types of texts which contain multiple modes require different conceptualisations and a different way of reading texts. Likewise, researchers like Kress and van Leeuwen (2001) argued that multimodal texts (which may incorporate spoken or/and written language, still or moving images, and which may be print-based or screen-based) are developing new ways of communication. Table 2.4., summarizes some differences that may occur while reading and interpreting print-based (traditional) texts and multimodal texts.

Reading print-based texts	Reading multimodal texts
Words: The words ‘tell’ including the discourse, register, vocabulary, linguistic patterns, grammar, chapters, paragraph and sentence structure.	Visual images: The images ‘show’ including layout, size, shape, colour, line, angle, position, perspective., screen, frames, icons, links, hyperlinks.
Use of senses: visual some tactile.	Use of senses: visual, tactile, hearing, kinaesthetic
Interpersonal meaning: developed through verbal ‘voice’ - through use of dialogue, 1st, 2nd, 3rd person narrator.	Interpersonal meaning: developed through visual ‘voice’ : positioning, angle, perspective – ‘offers’ and ‘demands’.
Verbal style: including tone, intonation, humour, irony, sarcasm, word play, developed in the use of ‘words’. Typographical arrangement, formatting, layout, font, punctuation.	Visual style: choice of medium, graphics, animation, frames, menu board, hypertext links.
Verbal imagery: including description, images, symbolism, metaphor, simile, alliteration [poetic devices with words, sound patterns].	Visual imagery: use of colour, motifs, icons, repetition.
Reading pathway: mostly linear and sequential. Reader mostly follows.	Reading pathway: use of vectors – non sequential, non-linear. Reader has more choice and opportunity to interact.

Table 2.4. Differences between reading of print-based and multimodal texts
(Walsh, 2005, p. 10)

Our point of departure is the work of the New London Group (2000) who advanced five elements of communication. They suggested a linguistic mode (e.g. word choice, metaphor, information structures, relations between clauses,

etc), visual mode (e.g. still or moving images, colour, etc), gestural mode (e.g. body language, facial expressions, etc), spatial mode (e.g. the design of the text) and auditory mode (e.g. music and sound effects, etc). The group of researchers identifies the integration of more than two of the five mode of communication as *multimodal design*. As previously stated, for researchers who attempt to describe multimodal texts adopt system networks for each mode which provide an analytical tool for mapping the range of semiotic resources and options made available. These system networks give the reader of the multimodal texts the opportunity to decipher meaning from the modes and their semiotic resources used in a multimodal text.

2.3.1. Linguistic Design

According to Halliday's functional model of language, language is a system of choices and a resource for making meaning. The social-functional theory of language states that the meanings likely to be expressed and the language likely to be used to express those meanings are defined by particular aspects of a given context (such as the topics discussed, the language users and the medium of communication).

SF theory works with three levels of analysis within language in which context constrains the appropriateness of language choices:

- ***Semantics Level:*** at this level, we describe how the text is organized as a system of meanings. In other words, the meaning of the whole text with regard to its context of use.
- ***Lexicogrammar Level:*** this level deals with the way words are structured in sentences and clauses.
- ***Graphophonic Level:*** this level can be divided into two parts: *Graphology* which has to do with written texts. It describes how the text is organized as a system of written symbols (sentences, paragraphs, etc). *Phonology* which concerns spoken words. It describes how the text is organized as a system of soundings (phonemes, tone units, etc.)

2.3.2. Audio Design

In his book, *Principles of Interactive Multimedia*, Elsom-Cook (2001) distinguishes three primary channels of communication. The spoken word is considered as one of the primary channels through which we communicate. The spoken words are governed by specific grammar that differs to some extent from the written words, such as intonation, stress, and other speech-related aspects. The second channel of communication is the sound effect in the audio. This can be through the use of natural sounds (for example a sound of an engine to show a moving car) in order to communicate to the listener about events in a media world which parallels their real world, states Elsom-Cook (2001). The sound effect can be also in the form of created sounds effects. This is used when the particular sound we are trying to achieve is beyond the scope of everyday life, claims Elsom-Cook (2001). The last channel of communication identified by the author is the music added to the audio. Wingstedt Brändström and Berg (2010) presented six classes of musical narrative functions: *a*) The Emotive function; *b*) The Informative function; *c*) The Descriptive function; *d*) The Guiding function; *e*) The Temporal function; *f*) The Rhetorical function

2.3.3. Visual Design

Visual communication is becoming the most important form of conveying and sharing information throughout the world. In some contexts, visualizations are seen as the most useful way of explaining things, and words become supplements, comments, or footnotes. Many researchers have provided toolkits to describe and analyze the visual elements that constitute the visual mode. In their work *The Grammar of Visual Design*, Kress and van Leeuwen (2006) developed one of the most systematic tools for the analysis of visual mode. This toolkit which is grounded on Halliday's social-functional theory, assumes that the visual structures, similarly to linguistic ones, perform simultaneously three meta-functions: representational meta-function, interpersonal meta-function, and

compositional meta-function. However, in this study, the researcher will discuss the work of Smaldino, Russell, Heinich, and Molenda (2004). In their book, *Instructional Technology and Media for Learning*, the researchers discussed the decisions that teachers and designers need to be aware of in selecting and arranging the visual elements to be included in a visual design. They grouped these decisions into three sets: elements, pattern, and arrangement. In this review of modes, the visual mode will be concerned with the first set; *elements*, while the last two sets will be dealt with in the spatial design.

In the visual design process, elements refer to the process of gathering and selecting the appropriate verbal and visual elements to incorporate into the display. According to Smaldino, Russell, Heinich, and Molenda (2004), this aspect includes three sub-aspects.

2.3.3.1. Visual Elements

This concerns the type of visual selected depending on the learning task. The visual element can be *realistic visuals* (showing the actual object under study); *analogic visuals* (conveying a concept by showing something else and implying a similarity); and *organizational visuals* (in the form of flowcharts, graphs, maps, etc.)

2.3.3.2. Verbal Elements

Visual displays generally include verbal elements in addition to visuals. Hence, it is necessary to consider the lettering as it carries powerful meaning, too. Letter style should be consistent and harmonize with other elements. For straightforward information, a plain, not decorative style is recommended, using capitalization only where normally required. The colour of the lettering should contrast with the background colour for more legibility.

2.3.3.3. Elements that Add Appeal

The main purpose a visual is to capture the viewer's attention. Smaldino, Russell, Heinich, and Molenda (2004) suggested three devices that add appeal.

First, adding an element of surprise which can be an unusual metaphor, or an incongruous combination of word and picture. Next, changing the texture of the actual material is also appealing. Finally, encouraging interaction between the viewer and the visual is an important element to ensure appeal.

2.3.4. Spatial Design

The spatial design is concerned with choosing an underlying pattern for the elements of the display, and arranging the individual elements within this pattern.

2.3.4.1. Pattern

After selecting the elements to include in the visual display, it is important to consider how the viewer's eye will flow across the display. First, alignment of elements refers to the way we position the elements within a display in a way to show a clear visual relationship to each other. Next, it is important to create a certain balance between the elements of display. Such a balance is generally achieved when the elements are equally distributed either horizontally or vertically. Finally, choosing the colour scheme of the underlying pattern helps the viewer understand the meaning conveyed and it adds appeal as well.

2.3.4.2. Arrangement

Once the elements are selected, and the pattern has been chosen, the next step is to arrange them in a coherent way. This last aspect includes four main principles. First, the proximity principle considers putting the related items close to each other, and the unrelated elements far from each other. When this rule is broken, the viewer confuses the meaning of the visual. In addition, the design may want to direct the viewer's eyes to read the display in a particular sequence. Visual devices such as arrows and coloured elements can be used as *directionals* in this case. Another important principle is the figure-ground contrast. This principle focuses on how important elements should stand in good contrast to the background. For instance, dark figures show up best on light grounds, and vice versa. Finally, arranging all the previously mentioned elements should obey the

consistency principle. Viewers should begin to form and understand the meaning in the visual as they go through its different consistent elements. Otherwise, they will get lost in the middle if the arrangement does not conform to the rules.

2.3.5. Gestural Design

According to Hood (2010), gestures can occur without speech (for instance, mimes), with speech to enhance the message (using hands to show directions), or with speech but provide a different message (frowning expressing anger). The gestural design can deliver a variety of messages. To illustrate, it can identify attitudes and feelings, positions, and engagement.

2.3.6. Multimodal Design

Kress (2005) claimed that multimodal design (or intermodal coupling) produces three possibilities: semantic displacement (simultaneously conflicting messages), reiteration (repeating the message without enhancing it) or enhancement (combining design elements to emphasize the message).

Conclusion

The review of the literature of the current chapter revealed that the multimodal approach is complex indeed. First, the chapter traced the development of multimodality which draws its origins from the works of the Swiss linguist De Saussure and the American philosopher Peirce. The chapter shed light on the evolution of meaning-making research, from sign to semiotic resource. It then tackled the multimodal landscape with the focus on the three assumptions and the core concepts within multimodality that are related to the present research. The interdisciplinary nature of multimodality has led practitioners to expand the notion of multiliteracies in order to fit the multimedia and digital world. Hence, the chapter discussed this change in the literacy landscape with regard to multimodality from three perspectives. The chapter reviewed the pedagogy of multiliteracies developed by the New London Group; it describes the dramatically changing social and technological contexts of communication and

learning. Mayer's Cognitive Theory of Multimedia Learning and Schnotz and Bannert's Integrated Model of Text and Picture Comprehension are two multimedia models that have also been reviewed to account for multimedia design. The third perspective of literacy, which is the cornerstone of this research, is mobile literacy. Finally, multimodality provides a toolkit for reading and analysing multimodal texts. Therefore, the chapter ends up by introducing each mode, its semiotic resources and the system networks that help the reader of a multimodal text to decipher the meaning.

**CHAPTER THREE:
MOBILE DEVICES AS TOOLS TO TEACH LISTENING
AND SPEAKING SKILLS**

Introduction

In real-life communication, people use a variety of skills in order to achieve better communication with people around them. . Listening and speaking are considered as two skills that co-occur in real-life discourse and they are not mutually exclusive. These skills are stated in the curriculum scope and curriculum objective of ELT in the Algerian syllabus in higher education context. In fact, advances in technology have increased the numbers of ways in which teaching and learning these two skills can be achieved. Therefore, this chapter begins by exploring the literature related to teaching listening and speaking skills; including key concepts, principles and techniques, and different ways of assessment used in teaching both skills. It also tackles the communicative approach to teaching listening and speaking skills. Finally, the chapter looks at the different mobile-based activities and tasks that can be used in a listening and speaking class from a multimodal approach.

3.1. Teaching Listening Skills

Listening is regarded as one of the crucial components of spoken language processing. In daily activity, listening is a skill that is used dominantly by people over the world. People often listen to news reports, songs from tape or television, or people often listen to people speaking around them directly, by phone, or by any other means. Several studies have put listening before speaking and considered placing speaking before listening in learning language as to "put the cart before the horse.", (Vandergrift, 1999). Rivers (1984) states that research has shown that adults spend 30 to 40% of communication listening, 25 to 30% speaking, 11 to 16% reading and about 9% writing (as cited in Chelli, 2013). He also adds that speaking does not of itself constitute communication unless what is said is comprehended by another person. Teaching the comprehension of spoken speech is therefore a primary importance of the communication aim is to be reached (1966) (as cited in Rocío, 2012). Despite this, spoken language is

considered as “the most sophisticated behaviour of the most complex organism in the known universe” (Rost, 2011, p. 1).

3.1.1. Listening as Comprehension and Listening as Acquisition

In the field of language teaching, various definitions of listening have been provided. Rost (2011) points out that both individuals and specialists tend to define listening in terms of their personal or theoretical interests in the topic. According to Vandergrift & Tafaghodtari (2010), listening is defined as a complex skill that involves many simultaneous processes on diverse levels and engages a mixture of linguistic and non-linguistic knowledge. This view is supported by The Commission on the English Curriculum of the National Council of Teachers of English (1956) who writes that:

Listening is more than hearing. It involves following attentively the thread of conversation, the development of an idea, the points of an argument. Like reading, it requires comprehension in terms of past experience of the listener and often involves critical examination of what is heard. Whenever attention wanders, a portion of what is being presented is lost...In comprehending ideas given orally or in print the Student is actively engaged in perceiving these ideas and weighing them against his experience and in deciding his actions in response to them (pp. 77-78) (as cited in Wolf, 1973, pp. 6).

The definition of listening has been elaborated over years. Richards (2008) considers the subject from two different perspectives: *a)* listening as comprehension; and *b)* listening as acquisition.

- **Listening as Comprehension**

As Rixon (1986) notes that the aim of teaching listening comprehension is to help Students of English cope with listening in real life. One of the main reasons for getting students to listen to spoken English is to let them hear different varieties and accents – rather than just the voice of their teacher with its own

idiosyncrasies. In today's world, they need to be exposed not only to one variety of English. The second major reason for teaching listening is because it helps students to acquire language subconsciously even in terms of native English speakers' communication (as cited in Rahman, 2014). In listening comprehension, "the listener has a crucial part to play in the process, by activating various types of knowledge and by applying what he knows to what he hears and trying to understand what the speaker means" (Anderson & Lynch, 1988, pp. 6).

Richards (2008) advocates that listening comprehension is based upon the following assumptions:

- Listening comprehension aims at extracting meaning, whether explicit or implicit, from messages
- Students need to be taught certain strategies and processes (such as top-down and bottom-up) in order to understand messages

Richards (2005) exemplified that listening for comprehension takes place in "... situations where listening to extract information is the primary focus of listening, such as listening to lectures, (...) and situations where listening serves primarily a transactional function, such as service encounters" (p. 89).

- **Listening as Acquisition**

Another view of listening considers how listening can provide input which triggers the further development of second language proficiency. Schmidt (1990) clarifies that for language acquisition to take place, students take advantage of what they hear (input) and filter the part of the input that they notice (intake). In other words, the intake serves as the basis for language development which will emerge later in the student's own speech (as cited in Richards, 2008).

The author of this thesis advocates that in the context of this study, a two-part strategy is appropriate in the classroom where comprehension and acquisition are the goals of the listening course. As Richards claims, "a listening course may be part of a general English course or linked to a speaking course, and in these

situations both listening as comprehension and listening as acquisition should be the focus” (2005, p. 89). Hence, listening texts and materials can then be exploited, first as the basis for comprehension, and second as the basis for acquisition (Richards, 2005).

3.1.2. Listening Sub-skills

Listening is considered as one of the four language macro-skills and refers to the ability to identify and understand what the speaker is saying through understanding a number of speech components. In fact, it is important to understand that in real life communication, the listening skill encompasses a number of micro-skills (or sub-skills) that enable the language Student engage in an effective communication. According to Vandergrift (2007), listening skill is as an active activity that listeners have to differentiate between sounds, comprehend vocabulary and grammatical structure, interpret stress and intonation. Therefore, listening is a complex process requiring interdependence of different sub-skills that students need to be taught. In reviewing the related literature, there was no general consensus among the scholars about a fixed list of sub-skills that constitute the listening skills.

In fact, Harmer (1991) divides the skills into two categories. He claimed that, “The first thing the students are asked to do with a text concerns its treatments as a whole. Thus students may be asked to listen to a text and extract specific information, they might listen to get the general picture, they might listen to perform a task, and they may attempt to conform expectations they have about a text” (1991, p. 188). While type 2 skills are generally “concerned with a more detailed analysis of texts and for these reasons are generally practiced after Type 1 skills have been worked on” (1991, p. 189).

First, Harmer (1991) mentioned the following sub-skills that can represent type 1:

- Identifying the topic;
- Predicting and guessing the topic;

- Listening for the gist;
- Listening for specific information;
- Listening for detailed information;
- Interpreting the text.

As far as the type 2 of listening sub-skills that are essential in understanding the speaker's accent, pronunciation, grammar, vocabulary and grasping the meaning, (Rost,1994) provides a list of sub-skills to master when dealing with this skill:

- Discriminating between sounds;
- Recognizing words;
- Identifying stressed words and grouping of words;
- Identifying functions (such as apologizing) in conversations;
- Connecting linguistic cues to paralinguistic cues (intonation and stress) and to non linguistic cues (gestures and relevant objects in the situation) in order to construct meaning;
- Using background knowledge and context to predict and then to confirm meaning;
- Recalling important words, topics and ideas;
- Giving appropriate feed back to the speaker;
- Reformulate what the speaker has said.

It is worth noting that the use of these skills depends on the student's aim of listening. In addition, for all these we will have to select carefully the micro skills most relevant and appropriate for our Students. Moreover, Rost(1994) insists on the fact that students must deploy all these sub skills to realize a successful process when he states that, "Successful listening involves an integration of these component skills .In this sense, listening is a coordination of the component skills, not the individual skills themselves. This integration of these skills constitutes a person's listening ability" (p. 142).

3.1.3. Types of Listening

According to Kline (1996), “Different situations require different types of listening” (p. 29). The good listener, of course, is the one who is able to apply each type to the situation wherein it would be most appropriate. In fact, there are many types of listening; however, the present discussion will be restricted to those types which relate to the educational program and are focused upon classroom activities.

3.1.3.1. Informative Listening

According to Derrington, Groom & Chapman (2004), informative listening is «where your aim is to concentrate on the message being given” (p. 42). It is a situation in which the aim is to understand and concentrate on the message being given. Thus, listeners are required to show comprehension of the meaning of the message that is close to the intention of the speaker.

This type of listening is found in all areas of our lives. Much of our learning comes from informative listening, claims Kline (1996). To illustrate, students may listen to someone giving directions or instructions.

3.1.3.2. Appreciative Listening

This type of listening “.... is the response of the listener, not the source of the message that defines appreciative listening” (Kline, 1996, p. 34). Appreciative listening is involved in situations where the listener gains pleasure from listening to a specific text. However, it is worth mentioning that personal preferences, expectations, and expectations may shape and influence what one appreciates.

3.1.3.3. Analytical/ Critical Listening

Critical (or analytical) listening takes place when the listener tries to evaluate, judge, and assess the credibility of what the speaker is saying. This type of listening is particularly pertinent when the speaker is trying to persuade us. Therefore, the listener is recommended to weigh up the arguments the speaker is trying to give, hence, to be able to critically evaluate them. Indeed, critical listening is plays a vital role in our daily life, as we need to adopt it when faced

with situations like on the job, in the community, in the family. Consequently, listeners are recommended to give opinions about what they hear in everyday life (Goh, 2002).

3.1.3.4. Discriminative Listening

The last type of listening, discriminative listening, is considered as the most basic and important type. Goh (2002) asserts that the objective is to distinguish sound and visual stimuli. Listeners also should be able to distinguish inferences or emotions through the speaker's change in rate, volume, force, pitch, and emphasis; therefore, differences in meaning can be perceived.

3.1.4. Models of Listening Processes

In order to explain how the listening process functions, researchers such as Richards (1990) and Vandergrift and Goh (2009) investigated the techniques that contribute directly to the understanding and remembrance of listening input. These techniques are referred to as models of listening. The review of literature revealed three models: bottom-up, top-down, and interactive model.

3.1.4.1. The Bottom-up Model

According to Richards (1990), the bottom-up processing is defined as “using the incoming input as the basis for understanding the message” (p. 50). That is to say that this model goes from language to meaning. This type of listening process, also called “lexical segmentation” (Field, 2008) (as cited in Vandergrift & Goh, 2009, p. 102), involves segmentation of streams of language into meaningful units so that message interpretation can occur, states Vandergrift & Goh (2009). The units of language include sounds, words, and grammar that are combined together to get the meaning of the text.

A significant point to consider is that “Students need a large vocabulary and a good working knowledge of sentence structure to be able to process texts bottom-up” (Richards, 200

3.1.4.2. The Top-down Model

According to Goh (2017), top-down processing is “the application of prior knowledge or schema to infer and interpret meanings from a spoken text” (p. 102). In other words, in bottom-up processing, students rely on the use of their background knowledge and contextual clues in understanding the meaning of the message. Put simply, as Richards (2008) states, the top-down model goes from meaning to language in a way to assist in comprehending the message. Top-down processing can help SL/FL listeners bridge gaps in comprehension and construct a reasonable interpretation without depending too much on linguistic features (Izumi, 2003) (as cited in Vandergrift & Goh, 2009, p. 397). Richards (2008) points out that exercises that require top-down processing develop the Student’s ability to do the following:

- Use key words to construct the schema of a discourse
- Infer the setting for a text
- Infer the role of the participants and their goals
- Infer causes or effects
- Infer unstated details of a situation
- Anticipate questions related to the topic or situation (p. 9).

3.1.4.3. The Interactive Model

It is worth noting that the previously mentioned cognitive processes can occur interactively during listening comprehension. The interactive model is claimed to be helpful for students. Indeed, according to Richards (1990), “Bottom-up processing alone often provides an insufficient basis for comprehension” (p. 52), asserting that listeners who use only bottom-up processing might not grasp the intended meaning of a spoken text or a conversation. Accordingly, successful listeners use both bottom-up and top-down strategies, cites Howell (2005).

Interactive processing is defined as the combination of both bottom-up and top-down processes “to arrive at an understanding of the message, listeners must understand the phonetic input, vocabulary and syntax (bottom up processing), and at the same time use the context of the situation, general knowledge, and past

experience”, states Hedge (2000, p. 234-235). Hence, to achieve a better understanding of the communicative message, listeners should be aware of the importance of combining both processes.

3.1.5. The Stages in Listening Class

Listening skill plays a significant role as far as using any language is concerned. As far as teaching listening skill is concerned, Richards (2008) states that a typical lesson sequence from the current position involves a three-part lesson sequence consisting of pre-listening, while-listening and post-listening.

3.1.5.1. Pre-listening Stage

The pre-listening stage is the first stage which prepares the students to practice listening comprehension. This stage is considered as a warming-up and a general preparation for listeners in order to well benefit from the listening passage. Therefore, teachers in this stage are required to provide enough background and contextual information about the topic that pave the way for students to guess and predict the intended meaning.

Richards (2008) mentioned some activities that can be used in the pre-listening stage. This can involve activating prior knowledge, making predictions, and reviewing key vocabulary. In fact, this can help the teacher set the context and create motivation for the students before tackling the listening task.

3.1.5.2. While-listening Stage

The while-listening stage, as can be deduced from its labeling, is the stage in which listeners accomplish listening activities and tasks while listening to a specific passage. It is considered as the most difficult stage for teachers to control and the teacher need to "... help listeners find their way through the listening text and build upon the expectations raised by pre-listening activities" (Underwood, 1989, p. 46).

Richards (2008) states that while-listening phase focuses on comprehension through exercises which require selective listening, gist listening, sequencing and so forth. There are some activities that could be included in this stage such as: extensive listening (followed by questions on context, attitude), pre-set task/pre-set questions, intensive listening, checking answers (Richards, 2008).

3.1.5.3. Post-listening Stage

Finally, the post-listening phase typically involves a response to comprehension, states Richards (2008). In other words, it is in this stage that the teacher checks the students' comprehension of the listening task. Accordingly, Hedge (2000) points out that, "Post-listening work creates an extra source of motivation to learn more about the topic, thus the interest will not be confined to the original listening text, but will certainly extend to others interests by means of students personal attitudes and impressions about the topic" (p. 197).

Teachers can choose a number of post-listening activities in order to check the extent to which students achieved the set objectives. Activities can include: examining functional language, inferring vocabulary meaning (Field, 1998) (as cited in Richards, 2008), summarizing, answering multiple questions, speaking activities (Hedge, 2000).

3.1.6. Assessing Listening

Assessment and evaluation are the core elements of the domain of teaching. It is through assessment that the teacher tracks the improvement of the students. Mead and Rubin (1985) claim that important elements in all listening tests are: the listening stimuli, the questions, and the test environment.

First, the researchers mentioned that the listening stimuli should not be a simple reading of written passages; that it to say that the material should reflect conversations that the student is expected to hear in various contexts. They claimed that students need to be motivated so the listening stimuli should be interesting, common to all students and relatively short.

Second, as far as the questions are concerned, questions need to tackle the most important aspects of the material, and measure specific skills. Questions can take different forms such as multiple-choice items, closed /open tasks, and other listening tasks.

Finally, the testing environment plays a significant role in the listening assessment. The testing environment should be free of external distractions, state Mead and Rubin (1985). The listening material should be clear whether presented by the test administrator or from a tape.

Rost (2011) reviewed five attributes that are commonly claimed to represent listening-specific attributes of language ability:

- Phonological knowledge
- Syntactic knowledge
- Semantic knowledge
- Pragmatic knowledge
- General knowledge

All in all, teaching listening is a complex process. It depends heavily on the teacher's understanding of key concepts, principles and techniques used in teaching listening skills. This includes top-down and bottom-up processing, pre-/while-/post-listening activities, listening sub-skills, and listening skills assessment.

3.2. Teaching Speaking Skills

In this world dominated by communication, speaking is one of the four language skills that becomes a priority for foreign language students. Luoma (2004) argues that “speaking in a foreign language is very difficult and competence in speaking takes a long time to develop” (p. 1) (as cited in Omari, 2015, p. 10). Indeed, when learning a new language, the ability to speak appropriately and fluently reflects the extent to which the Student has learned the language. Thus, the goal of teaching speaking should be to improve the students' communicative skills so

that students can express themselves and learn how to follow the social and culture rules.

Speaking has been tackled from different perspectives and according to different contexts, generally referring to public speaking. However, the speaking skill that we are referring to in this study is much more than that; it is tightly related to the process of teaching and learning.

The speaking skill is regarded as the productive skill that the student seeks to master in order to engage in an effective communication. The Oxford Dictionary (2009) cites that speaking is the action of conveying information or expressing one's thoughts and feelings in spoken languages (as cited in Omari, 2015). Speaking has been described as an interactive process that involves "...two or more people in whom the participants are both hearers and speakers having to react to what they hear and make their contribution" (Scott, 1978) (as cited in Idrissovaa, Smagulovaa, &Tussupbekovaa, 2015, p. 278). Therefore, speaking is considered as an activity that focuses on communicating ideas, thoughts, and feelings and involves interlocutors that interact and react with each other.

Speaking is also described as an interactive process of constructing meaning that involves producing, receiving and processing information, cites Brown (1983) (as cited in Idrissovaa, Smagulovaa, &Tussupbekovaa, 2015, p. 278). In fact, in the speaking process, interlocutors alternate in their roles as speakers and listeners in order to achieve effective communication. In addition, the construction of meaning is tightly related to some factors such as the context, the participants (their background knowledge, their ideologies, and other characteristics), and the purpose of speaking.

As far as teaching speaking skills is concerned, it is important to draw the students' attention to the fact that when communicating, people use both verbal and non-verbal means to reach their communicative goals. Accordingly, Chaney (1998) points out that the process of building and sharing meaning through the

use of verbal or non verbal symbols in a variety of contexts (as cited in Omari, 2015).

Considering speaking as a skill, Bygate (1987) distinguished between *knowledge* and *skill* in speaking. He claims that having the required knowledge of grammar, pronunciation, vocabulary, and other language features is not sufficient to master speaking. However, the speaker must have the skill to use this knowledge appropriately. He states that we do not merely *know* how to assemble sentences in the abstract: we have to produce them and adapt them to the circumstances.

As far as the present study is concerned, the terms speaking skills and teaching speaking skills refer to the speaker's ability to communicate effectively not only by having the necessary knowledge, but also by being able to use this knowledge appropriately.

3.2.1. Speaking Sub-skills

As mentioned before, speaking encompasses both knowledge and skills to achieved better communication. When referring to skills, Nunan mentioned that successful oral communication involves the following:

- The ability to articulate phonological features of the language comprehensibly;
- mastery of stress, rhythm, intonation patterns;
- an acceptable degree of fluency;
- transactional and interpersonal skills;
- skills in taking short and long speaking turns;
- skills in the management of interaction;
- skills in negotiating meaning;
- conversational listening skills (successful conversations require good listeners as well as good speakers);
- skills in knowing about and negotiating purposes for conversations;

- using appropriate conversational formulae and fillers (1989, p. 32) (as cited in Omari, 2015, p. 15).

3.2.2. Characteristics of Speaking Performance

In teaching and learning context, the teacher's main purpose behind teaching speaking skills is to enhance the students' speaking performance. Thus, teachers pay a lot of attention to design activities which focus more on tasks that are balanced between the need to achieve fluency and accuracy. In order to have a clear idea on what constitutes the speaking performance, the following subsection deals with three elements in performing oral communication.

3.2.2.1. Fluency

According to Hughes (2002), fluency is the ability to express oneself intelligibly reasonably, accurately and without too much hesitation, otherwise the communication will break down because listeners will lose their interest (as cited in Omari, 2015). This implies that fluency can be broken down into sub-elements. Speed and pause seem to be important factors in fluency. Indeed, language students refer to fluency as the ability to speak in a rapid, connected speech. Hughes (2002) also adds, as cited in Omari (2015), that fluency and coherence refer to the ability to speak in a normal level of continuity, rate and effort in addition to link the ideas together in a coherent way. The researcher also emphasizes the role of the teacher in teaching students this aspect of speaking. He asserts that the key to enable students to be fluent is training them to use their personal language freely, to express their ideas and avoid imitations. Moreover, knowledge of the specific spoken genre allows students to activate their prior knowledge. They, then, can select relevant content and convey their message through language that is appropriate and accurate.

3.2.2.2. Accuracy

Accuracy refers to how well the target language is produced in relation to the rule system of the target language, states Skehan (1996) (as cited in Omari,

2015). Therefore, students should pay attention to the rules that govern the target language; including grammatical knowledge, lexical knowledge, and phonological knowledge.

- **Grammar**

Goh (2017) claims that, even though spoken grammar, or “micro features of speech” (p. 98), share common feature with written grammar, they have distinctive grammatical features that are related to specific speech genres. For instance, it is common to observe fragment sentences in spoken language in an attempt to fulfill a specific function. Goh also claimed that grammatical features as ellipsis, deixis, tags, tails, heads, and discourse markers are closely linked to speech production.

- **Vocabulary**

Spoken language is characterized by the use of a number of common lexical phrases. In fact, the appropriate selection of lexical items plays a major role in achieving accuracy. Still, this remains one of the issues that face a number of foreign language students; they lack the appropriate vocabulary that enables them to express themselves accurately. Goh (2017) mentioned three main lexico-grammatical features of speech that students should be aware of. First, the feature of vague language like in the example: “bring *that* thing over *here*” where the speaker used the demonstratives *that* and *here* to refer to the object and the place referred to. The meaning can be deduced by using non-linguistic cues. Second, the use of fixed or formulaic expressions is a lexico-grammatical feature speakers tend to repeatedly use in familiar contexts which serves various functions such as to initiate or close a topic. For speakers, formulaic expressions allow them to buy time for thinking and to maintain the interaction in a smooth and socially acceptable manner, states Goh (2017). Finally, discourse markers, or “conversational punctuation” (Carter and McCarthy, 1997, p. 9) (as cited in Goh, 2017, p. 99), are lexical items that signal the speaker’s intention to mark and organize discourse.

- **Pronunciation**

Pronunciation can be considered as the cornerstone of spoken language. Spoken discourse is constructed not only through grammatical and lexical choices but also pronunciation. According to Vrchota (2007) it is imperative that you use the correct word in the correct instance and with the correct pronunciation. Pronunciation means to say words in ways that are generally accepted or understood (p. 104) (as cited in Omari, 2015, p. 29).

As far as teaching pronunciation is concerned, teachers can choose four alternatives to include this aspect into a lesson sequence. First, teachers can devote the whole lesson sequence to teach pronunciation, dealing with its various aspects. Second, some teachers prefer to insert pronunciation slots into lesson sequences. They can deal with individual phonemes either separately or in contrasting pairs. Since pronunciation is not a separate skill, it is claimed that the discrete slot alternative is very useful. Pronunciation sequence can also be as an integral part of the lesson. In other words, teachers can draw the students' attention to a particular intonation pattern and get them imitate it. Finally, pronunciation can be taught in an improvised way; that is to say that the teacher may want to stop at a pronunciation issue that has arisen while teaching something else (Goh, 2017).

3.2.2.3. Supra-segmental Features

One feature of pronunciation is the supra-segmental features. It is the study of phonological features applied to groups larger than the single segment, such as the syllable or the word, mentions Omari (2015). Goh cited that many researchers view that supra-segmental features contribute to the comprehensibility of the speech. Therefore, they should be prioritized when teaching pronunciation (2015).

- **Stress**

Stress is an important aspect in the spoken language as it can shift and change emphasis or meaning. Stress can be found at the level of individual words, phrases, and sentences. Thus, teachers need to draw the students' attention to the different cases of stress and how it affects their oral performance and the conveyed message.

- **Intonation**

Another feature of spoken performance teachers need to make their students aware of is discourse intonation. The latter is important because the change in pitch carries meaning, reflects the thematic structure of the spoken discourse, and conveys mood, says Harmer (1991). The teacher can focus on classroom activities that not only teach students identify specific intonation patterns, but also raise their awareness on the power of intonation in conveying and understanding the message being communicated.

- **Linking of Words**

When speaking, we do not utter words in isolation. Words when they are part of a sentence tend to be pronounced differently when they are isolated. This is referred to as connected speech or linking of words. Harmer (1991) suggested a three-stage procedure to teach students the various features related to the pronunciation of words in connected speech. The teacher can start by letting the students listen to the pronunciation of each word in isolation in a given sentence. Then, the teacher either plays a tape or reads the sentence in connected speech and asks the students to compare. The second stage is the identification stage. Students, in this stage, are asked to write the full sentence after they listen to a recording of connected speech. Finally, after comparing and identifying how the words can be pronounced in a connected speech, students are asked to produce phrases and sentences that include contractions and other forms of connected speech.

- **Rhythm**

English is considered as a rhythmical language. This feature, if mastered, enables the speaker to sound both natural and native-like. Rhythm encompasses a number of supra-segmental features, including stress, intonation, connected speech and the speed of talking. Omari (2015) listed a two-fold teaching activities provided by Darn (2010), and which focus either on rhythm as a whole or on contributing aspects. First, the recognition activities can be in the form of speed dictation, recognizing word boundaries, teaching of weak forms and contractions, and authentic listening. The second group of techniques is the production; they can be in the form of drills, short dialogues with focus on stress and rhythm, reading aloud, poems and tongue-twisters, and songs.

3.2.3. The Stages in Speaking Class

Developing an effective classroom lesson plan of a speaking class depends of what kind of speaking activity it is and what the demands are of that activity. Kurum (2016), reviewed Harmer's (2007) model which states that an instruction unit in a speaking class should consist of the following stages:

3.2.3.1. Introduction

The teacher should start by introducing the topic to the students. A selected warming-up activity that involves thought and reflection, provides opportunities for students to plan and organize for speaking.

3.2.3.2. Presenting the Task

At this stage, the teacher needs to explain what is expected from the students to perform. If the students are expected to perform role plays, the teacher, for instance, can show an excerpt of a role play as a first step.

3.2.3.3. Observation

The next step is to keep track of the speaking activity going on in the class. At this stage, the teacher intervenes and gives feedback whenever necessary. The

feedback does not necessarily come in the form of correcting the errors, but also in the form of tracking the progress, and managing the time.

3.2.3.4. Feedback

After performing the speaking activity, the teacher is required to give the necessary feedback about the students' performance. The focus of the feedback depends on the purpose of the activity itself. A feedback on pronunciation rather than content would be more appropriate if the purpose of the speaking activity focuses on a phonological aspect. Indeed, this stage would boost the students' inner motivation, sense of achievement and self-confidence.

3.2.3.5. Follow up Activity on the Topic

Finally, assigning a follow up activity on the topic being discussed can reinforce what the students have seen in the classroom. Still, this stage is optional.

3.2.4. Assessing Speaking

Speaking is considered as the most challenging skill to assess. In speaking assessment, the teacher has to judge, in real-time, the oral production related to several aspects of what constitutes the speaking performance. Two approaches are normally used for assessing oral performance; global assessment scales and analytical profiles (Harmer, 1991).

3.2.4.1. Global Assessment Scales

The global assessment scales, also referred to as the holistic approach, is a way of considering the speaker's performance as a whole; thus, providing an overall score by assessing a number of general criteria. In fact, the teacher evaluates the speaker's oral performance based on 'pre-defined descriptions of performance' (Harmer, 1991, p. 329). These descriptors say what the speaker is required to perform in order to gain a specific score. It is apparent that this type of assessment is less-time consuming and less complicated. However, it does not provide detailed information on the speaker's oral ability.

3.2.4.2. Analytical Profiles

Analytical assessment, on the other hand, seeks to provide a detailed analysis of the speaker's performance. In the analytical approach, the teacher examines various features of the oral production separately, providing an independent score for each feature. The criteria range from pronunciation, grammar, lexis, and other oral production features. This type of assessment is more reliable and offers a number of benefits; however, it is more time-consuming since the teacher needs to carefully assess the speakers against separate criteria and provide detailed descriptions.

3.3. The Communicative Approach in Teaching Listening and Speaking Skills

Traditionally, speaking was taught as drills to promote students' speaking performance. However, speaking and listening skills are currently recognized as an integral part of the language learning process that should go hand in hand with the other skills. Listening and speaking skills are not mutually exclusive of each other but they positively complement each other. Speaking is rarely carried out in isolation, as put by Redmond and Vrchota (2007) "speakers are at the mercy of listeners" (p. 120), cites Omari (2015, p. 19). In authentic real-life everyday communication, there is a common partnership between speaking and listening.

As far as teaching is concerned, due to the lack of time teachers have per week for their subject, the best way to practice listening and speaking skills is by adopting the integrated skills approach. The principle upon which the integrated approach of teaching both skills is based is that of the communicative approach. As a teacher of listening and speaking skills class, which is somehow different from other classes, applying the communicative approach to teach listening and speaking skills requires careful design of activities. The teacher should find suitable listening materials, which are practical, up-to-date, and related to real-life situations.

What characterizes the communicative method of teaching is that it consists of four aspects; possibility, feasibility, appropriateness and performance (Hymes, 1972). Firstly, possibility refers to the ability to produce sentences that are grammatically correct. Secondly, feasibility refers to the ability to produce sentences which can be understood; that is, the ability to apply the grammatical rules to produce understandable sentences. Thirdly, appropriateness refers to more specific meaning; it refers to the speaker's ability to fit in the context. It reflects the ability to use correct forms of language in a specific socio-cultural context. Finally, the ability to perform naturally and appropriately completed utterances.

3.3.1. Types of Communicative Activities

The communicative approach focuses on communicative activities that aim at encouraging students to speak and listen to others in the classroom setting. Littlewood (1998) states two kinds of communicative activities: the pre-communicative activities, and the communicative activities.

3.3.1.1. Pre-communicative Activities

These are activities that prepare the students to engage in a communicative activity. The pre-communicative activity helps students acquire linguistic forms and structures and develop both fluency and accuracy in order to relate and use them in social communicative functions. They focus on the form of the language, not on the content. The activities can be in the form of drills, memorized dialogues, and other teacher-controlled activities. Indeed, the pre-communicative activities, then, give the teacher control over the activities performed.

3.3.1.2. Communicative Activities

On the other hand, the communicative activities are the stage in which students focus on using language within a real communicative context. It is in this stage that the students activate and use their pre-communicative repertoire, creating a link between the language forms being taught and the language functions. The

communicative activities allow for a maximum student's creativity and autonomy, and the focus will shift from fluency to the appropriate outcome of communication. Consequently, the teacher, here, plays the role of monitor and facilitator.

All in all, teaching listening and speaking skills can vary depending on the methodology followed by every teacher. Figure 3.15. represents both types of activities as being part of a single continuum:

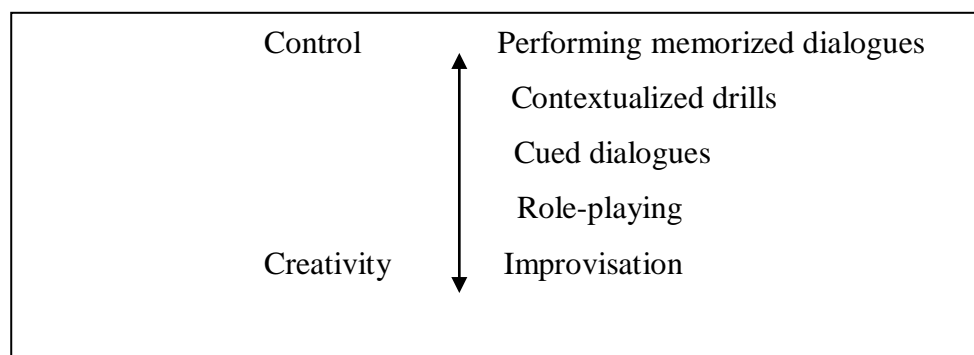


Figure 3.15. A single continuum which links pre-communicative activities and communicative activities (Littlewood, 1998, p. 50)

3.4. Multimodal Mobile-based Teaching in Listening and Speaking Skills Class

The traditional approach to teaching and learning listening and speaking skills presents several shortcomings. Accordingly, Busà (2010) argued that the type of input is limited to one mode only which is the linguistic mode, represented by the teacher in most cases, and sometimes supported by audio materials. This traditional approach is still largely used in listening and speaking classes in Algeria, especially in the department of English where the study was conducted. Few teachers only innovate by using internet technology in their classes, most frequently offline because of poor internet connection. This suggests that the essential part of the information communicated is conveyed by means of what is spoken only. Consequently, by limiting the students' attention to one modality, this approach ignores the other modes that contribute to meaning-making. As

mentioned in the previous chapter, meaning can be carried as a combination of various elements such as intonation, gaze, facial expressions, body movements and posture.

Nowadays, thanks to the advances in mobile technologies, teaching aural/oral communication can take advantage from the various affordances made available by a mobile device. The latter offers a variety of multimodal and multimedia resources that can be used to teach listening and speaking skills. Using mobile-based materials to assist teaching listening and speaking skills was extensively discussed by some researchers. However, learning material and activities designed in their studies were less diverse; thus a practice of listening and speaking skills was limited. Hence, the next sub-points will explore what literature has revealed with regard the integration of mobile-based materials as multimodal resources in teaching listening and speaking skills.

3.4.1. Multimodal Mobile-based Resources for Teaching Listening and Speaking Skills

Mobile devices offer a number of services that can be used as learning/teaching tools in a listening and speaking skills class. These digital tools (e.g., websites, blogs, social networks, online dictionaries, and vodcasts) support a multimodal approach, due to the range of modes that are employed in their production. Here are some of the most useful and popular tools that enable teachers of listening and speaking skills to make use of them.

3.4.1.1. Audio Podcasts

Podcasts, one type of MALL, have been proposed as a technological resource to improve EFL students' listening and speaking skills. A podcast is a portmanteau that combines the "pod" from iPod, an MP3 player produced by Apple Inc., with "broadcast" (Rosell-Aguilar, 2007) (as cited in Kang, 2016, p. 6). Podcasts can be divided into two types; receptive and productive, and they can be in the form of audio or video. In this study, a podcast refers to an audio

format file. Receptive podcasts refers to the existing podcast programmes that can be downloaded by students. They comprise “comprehensive, whole lessons, vocabulary, idioms, conversations, jokes, songs, phonetics, pronunciation, stories, and listening comprehension” (Sze, 2007, p. 118) (as cited in Kang, 2016, p. 28). Productive podcasts, on the other hand, are the ones that are created either by the teacher or by the student.

Podcasts could be used as both a source for authentic listening materials and a supplement to textbook materials, stated Stanley (2006). Fernández-Pacheco (2016) reported that research on listening skills in language learning courses has been performed through the analysis of audio podcasts. The researcher claimed that researchers lean towards the students’ positive attitudes towards the use of podcasts. This preference towards audio podcasts is due to several reasons. The ease of access, the possibility of listening to them at any time and place, speed speech and the opportunity of listening to podcasts several times are the main reasons stated by the students. Thus, audio podcasts allows students to practice listening in a self-directed manner and at their own pace. However, students mentioned some worries with regard to the length and style of the podcast.

3.4.1.2. Vodcasts

A vodcast is a video recording uploaded onto the net with RSS feeds. Vodcasts are regarded as multimodal and multimedia tools, which include audio, visuals in the form of text, graphics, and/or movies. They are characterized by their use in different settings, for this reason, they have been categorized, by Evans (2008), as a form of mobile learning (as cited in Fernández-Pacheco, 2016). Vodcasts are considered as being beneficial for students because they:

- Foster students’ active role;
- Allow anywhere-anytime learning;
- Offer a wide range of themes to both teachers and students;
- Suit the different students’ learning styles, difficulties and disabilities;
- Distribute authentic content.

Several studies have been conducted to explore the integration of vodcasts as multimodal digital resources which combine audio and visual modes. Fernández-Pacheco (2016) reviewed some related studies. Abdu and Abdul (2012) conducted a study with 60 Yemeni students. The experiment aimed at analyzing the effects of audio podcasts and vodcasts as supplementary material in traditional English language listening courses. Results support the integration of podcasts and vodcasts in teaching listening skills compared to traditional listening courses. Likewise, Abdous, Camarena, and Facer (2009) confirmed the students' positive attitudes towards the effectiveness of audio and video podcasts. On the other hand, Campos (2012) focused on exploring the effectiveness of listening to vodcasts to improve listening skills in foreign language learning. The researcher reported that vodcasts are a great pedagogical resource. This statement is supported by his findings that the vast majority of his participants showed real improvement on speaking and listening skills, and believed they could learn pronunciation better.

However, several authors such as Mayer (2001) indicate that simultaneous presentation of verbal and visual information can enhance or detract from learning if too great a demand is placed on cognitive processing. Another significant point that should be taken into account is the length of vodcasts. Cebeci and Tekdal (2006) noted that the length of a podcast should not exceed 15 minutes. In addition, the music integrated should be inserted with content to increase listen ability.

3.4.1.3. Digital Images

Pictures are considered as one type of visual media that are integrated in the process of teaching and learning English. In fact, the use of visual aids in teaching is due to the fact that most people are visually oriented. In addition, instructional media helps students to handle abstract concepts through integrating students' prior experiences, and relating the concrete to the abstract (Karsono, 2014).

Mobile devices are considered as visualization tools that have two main uses; interpretive and expressive. First, when the student views and manipulates visuals in order to obtain meaning and clarify difficult concepts from the information being visualized, the mobile device, here, is used as an interpretive tool. On the other hand, if the mobile device is used mainly to visually convey students' ideas, the student, then is taking advantage of the expressive function of the device (Lee, 2013).

Previous studies of multimedia presentations have studied the effects of the combination of text and pictures on some aspects of language learning. Vocabulary learning, one aspect of speaking skill mastery, has recently been offered new alternative ways to teach and learn this aspect. Lin and Yu (2017) stated that language practitioners and researchers frequently used pictures as the non-verbal aid for vocabulary learning.

3.4.1.4. Mobile Applications

With the evolutionary development of mobile devices, a new market of educational software labeled mobile apps has been rapidly growing. Today, smartphone users can download free and/or payed smartphone/mobile apps from hundreds of apps in app stores like Apple's *App Store* and *Google Play*. As far as teaching listening and speaking skills is concerned, teachers can take advantage of a large variety of mobile apps. However, they need to be selective so that the mobile apps fit the learning objectives and the students' expectations. Here are three main types of mobile apps that could be used to teach in a listening and speaking skills class.

- **M-Dictionaries Apps**

Mobile dictionaries are one type of mobile applications that is extensively used by EFL students to improve their listening and speaking skills. M-dictionaries are used by students as helping tools that have a referential function. It is worth noting that m-dictionaries have many advantages, especially for foreign language

students as they can search for a greater number of words, phrases, collocations, idioms, synonyms and antonyms; play pronunciation of words; and find images and videos related to the word's meaning.

Some technologically advanced mobile dictionaries offer numerous multimodal affordances such as visual media and audio media. Joseph and Uther (2009) stated that among mobile apps, using m-dictionaries is highly regarded by students. This appraisal is due to the multimodal affordances. This is also the reason of better learning when students use mobile dictionaries (as cited in Rahimi and Miri, 2014).

- **Pronunciation Apps**

EFL students can exploit the great potential of mobile apps to practice and improve certain aspects of English pronunciation, such as individual phonemes, stress, and intonation. A pronunciation app generally gives access to a number of features. Students can listen to model pronunciation and record their voices by using the recording function that the apps provide. Then, they can test their progress through a number of tests. Hence, drill and practice become the dominant learning activities. This type of apps help students pronounce English sounds, words or phrases accurately and naturally.

- **Automatic Speech Recognition Apps**

Automatic speech recognition (ASR) app is machine-based software that consists of decoding and transcribing oral speech, generally into readable output. While recording the speech, visual representations of waveforms and pitch curves are generally displayed on the mobile device screen. The device recognizes the accuracy of what was read, and then transcribe it into a written output. In other words, this helps both students and teachers know what areas of foreign language pronunciation are most important for intelligibility.

In the context of pronunciation teaching, researchers suggest two possible applications for ASR; *a*) to teach pronunciation of a foreign language; and *b*) to assess students' oral production (Liakin, Cardoso, &Liakina, 2014). It is worth mentioning that this type of apps fulfills Chapelle's and Jamieson's (2008) criteria for selecting pronunciation software and activities to develop oral skills. The researchers claim that ASR app allows for:

- Student fit (ASR is useful for Students as it allows them to identify needed features);
- explicit teaching (focus on particular pronunciation features and how they contrast with other sounds);
- opportunities for interactions with the computer [or the mobile device], including the ability for Students to speak and analyze their own production;
- comprehensible and accurate feedback (e.g., visual feedback that uses forms and symbols with which Students are familiar); and
- the development of strategies for Students to gain an understanding of new features on their own, outside of the language learning or classroom environment (as cited in Liakin, Cardoso, &Liakina, 2014, p. 2).

The application of Automatic Speech Recognition (ASR) technology helps in assisting EFL students to engage in meaningful speech interactions through simulated real-life conversation.

Conclusion

Over the years, there have been many changes that impacted teaching and learning listening and speaking skills in a foreign language classroom. First of all, this chapter highlighted the basic concepts and principles related to teaching listening and speaking skills in a foreign language classroom. The two first sub-chapters were devoted to review listening skills and speaking skills, respectively. As far as listening skill is concerned, a two-fold definition has been provided, and the different sub-skills that constitute listening skill have been described.

Therefore, it was necessary to review the main types of listening, as well as the models, stages and assessment of the listening process. The second sub-chapter, dealing with the speaking skills, begun by defining the concept and reviewing its sub-skills and its main characteristics. As far as teaching speaking is concerned, there are a number of stages through which a lesson goes through in order to achieve better outcomes. Theoretically speaking, assessing speaking skills is a challenging task; hence, teachers should be aware of the different approaches used in assessing the skill in order to opt for the one that best fits the assessment objectives. It is important to mention that in a listening and speaking skills class, both skills are generally taught following the integrated skills approach. Thus, the researcher attempted to shed lights on two types of communicative activities that can be used in teaching both skills. Finally, as it has been mentioned in the sub-chapter devoted to research on the integration of multimodality and mobile-based teaching in a listening and speaking class, a number of mobile-based activities can be used to teach both skills.

PART TWO
EMPIRICAL RESEARCH

CHAPTER FOUR
RESEARCH DESIGN AND METHODOLOGY

Introduction

The present work investigates the effects of multimodal mobile-based teaching on first year LMD students' listening and speaking skills of English department at Algiers 2 University, Algeria. This chapter details the research strategy that is used in order to explore the integration of multimodal mobile-based activities in teaching the module of listening and speaking skills. First, this chapter explains the nature of the research as far as research design and methodology are concerned. Then, it discusses the population subjected to the study and the sampling methods and techniques used to select representative participants in addition to negotiating factors related to access. After that, it expounds data collecting methods and instruments, and how they are aimed at answering our research questions and testing our hypotheses. As far as data collection is concerned, the chapter describes the questionnaire survey addressed to the students. It details the choice and selection of the Listening and Speaking proficiency tests. In addition, an interview that addresses teachers' attitudes and perceptions on teaching multimodal mobile-based teaching is presented. Furthermore, the procedure of the quasi-experimental study is carefully described; including the pre/post test and a detailed multimodal description of the mobile-based activities used in the treatment phase. The final data collection tool is a students' evaluation form. Finally, the chapter describes data analysis procedures.

4.1. Rationale for Research Design and Methodology

Research is a methodical investigation in which relevant data are collected, examined and interpreted in a systematic way, using relevant instruments. Bryman (2012) claims that qualitative research is used when the research is based on conducting interviews and when the nature of the research is exploratory. When the researcher attempts to comprehend opinions and reasons regarding particular phenomena, we opt for qualitative research. However, the quantitative research is used when the researcher intends to gather numerical data

that are gathered with the help of a survey and/or test scores and which is not possible only by the qualitative research.

Mobile learning “differs from learning in the classroom or on a desktop computer in its support for education across contexts and life transitions” (Sharples 2009, p. 17). Thus, Investigation in such a learning environment is always complex and problematic and requires the adoption of a research design which expands its scope of inquiry from the formal classroom to the individual Students and learning environment.

In order to decrease the risks of results’ incredibility and invalidity, the triangulation research method is applied to combine quantitative and qualitative research because “this combination has great potential for future research as it can bring out the best of both approaches while neutralizing the shortcomings and biases inherent in each paradigm” (Dörnyei, 2003, pp. 130-131). This amalgamation of these two approaches is referred to as the mixed design research.

In fact, several researchers in the field of mobile learning recommend the use of mixed methods design to investigate this field. Taylor (2006) points to a need for mobile learning researchers to move beyond a purely “pre-post” kind of study:

Traditionally, evaluators might relate the success of a design to the success with which Students can achieve pre-identified learning outcomes. The nature of learning outcomes in the mobile age needs to be adaptive. For example, they may relate to the extent to which someone has assimilated information into their own experience and developments, rather than how well they can reproduce knowledge in a pre-post questionnaire style study. Success may also be measured by how and how much they use their mobile devices: e.g. do they look for new functionality? Does its use change the nature of the ‘talk’? (p. 27). Van’t Hooft (2009) adds that mobile learning research needs to

make use of several sources and types of data to fully understand what is happening in the mobile learning environment.

This choice of the mixed method design is considered as being helpful in achieving the objectives set by the researcher. As far as the present study is concerned, the nature of the research questions requires both qualitative and quantitative methods. Therefore, this study adopts a mixed methodology in order to collect rich, detailed qualitative descriptions of the process involved in teaching listening and speaking skills through multimodal mobile-based activities as well as quantitative data which offer insights on how students' perceive and evaluate these activities and how they impact the development of their listening and speaking skills. In fact, the use of mixed research methods, that relies on multiple research instruments, back up each other to provide a full set of findings that sound convenient to the research hypotheses.

The methodological framework adopted in this study was based on a multimodal approach to teaching. The multimodal approach supported the theoretical frame of the research, as it is “[...] a reconceptualization of learning, which can lead to rethinking pedagogy” (Stein, 2008, p. 877). In other words, traditional ways of teaching are not enough in this era of multimedia, and with more and more multimedia facilities appearing in classrooms, the whole education is being multimodalized. Therefore, this research integrates multimodality teaching theory in the selection of the mobile-based activities in teaching listening and speaking skills.

4.2. Research Population and Sampling

Reaching all members of an ideal population (all EFL degree students at Algiers 2 University) is by no means doable and realistic (Ladico, Spaulding & Voegtle, 2006) for it is time and effort consuming. Therefore, the standards of large population were forgone and “realistic population” is selected to allow applicable generalizations of results obtained from the sample. The study population was purposefully selected because it is an available representative of similar research

case that consists of “key informants” about the subject being investigated. In addition, the selected population had a listening and speaking skills course that is instructionally in need of adjustments and reconsideration, especially with the rapid growth of educational technologies.

According to Burston (2014), MALL studies remain limited in terms of the number of the participants in MALL studies. The researcher found that “only 8% of the cohorts consisted of more than 100 participants. Over half involved no more than 25, with well over a third of these groups consisting of no more than ten Students and some as few as four”. In order to fill this gap, a moderate sample size, specifically of 78 participants, was selected from 1st year EFL undergraduate students at Algiers 2 University.

In order to achieve the primary aim of the study, two randomly chosen groups of 1st year EFL degree students at Algiers 2 University have been assigned. The groups shared some common characteristics. The sample consisted of 78 participants out of more than 1200 enrolled in year 1 of the English degree course

The sample that has been chosen for the investigation is composed of two groups from the English department. The sample is randomly chosen due to the fact that the characteristics of the participants, their background, age and level of learning do not affect the experiment. The experimental has undergone a special treatment which is the integration of multimodal mobile-based activities as part of their listening and speaking skills class; however, the control group has been taught in a traditional way.

Besides randomization, the already mentioned groups were chosen due to the fact of being the teacher of those groups in the subject of Listening and Speaking Skills which facilitated the task of conducting the experiment within the desired timing and setting. Also, being a teacher to the sample groups allowed explaining the tasks in each time.

4.3. Data Collection Procedures

In addition to the gap revealed in the available MALL literature in terms of sample sizes (Burston, 2014), it has also been found that there is a gap in terms of “the duration of implementations, the language skills targeted, the kinds of learning activities undertaken and the methodological approach used” (Burston, 2014, p. 103).

In order to fill these gaps, starting with the gap observed in terms of the language skills investigated by previous MALL studies, the current study investigates the speaking and listening skills. In addition, this study had been implemented during a 12-weeks period, which corresponds to three calendar months. It used a methodological triangulation, i.e. “multiple data-gathering procedures”(Brown & Rodgers 2002, p. 244). for data collection, and it took into consideration both conventional and technology-related methods of teaching and learning a foreign language for the purpose of improving the students’ proficiency.

Thus, the researcher adopts a combination of data collection tools in the present study so that the research questions can be dealt with from any angle and every type of data can be collected. It is in this regard that the following sections discuss the instruments used. Therefore, an informational questionnaire for first year LMD students was used to collect both qualitative and quantitative data, the proficiency test which was used to collect quantitative data, the quasi-experimental study (the multimodal mobile-based teaching), as well as the teachers’ interview, and an evaluation form about the course.

4.3.1. Students’ informational Questionnaire

The first data collection tool is an informational questionnaire addressed to students. The informational questionnaire is a questionnaire that seeks to provide information about the participants. The students’ questionnaire aims at acquiring an accurate, thorough picture of each student’s profile. Therefore, by addressing the questionnaire, the researcher attempts to collect the necessary data in order to

set the stage for the appropriate integration of the different mobile devices as pedagogical tools in teaching listening and speaking module. The next sub-points provide the rationale for the questionnaire and describe the different aspects related to questionnaire development.

4.3.1.1. Rationale for the Questionnaire

Questionnaire is a quantitative data collection tool that has many advantages, some of which include timely and accurate information. First, the choice of collecting students' data by means of questionnaire is due to the fact that questionnaires are "extremely versatile, and uniquely capable of gathering a large amount of information quickly in a form that is readily processable" (Dörnyei, 2003, p. 1). Information gathered through a questionnaire can be quantified, and visually represented through charts and graphs.

As far as the present study is concerned, one crucial aspect for the researcher to consider before implementing any kind of technology into the classroom setting is to have a clear understanding of the context of the research. The informational questionnaire in the present study covers issues with regard to the student's personal mobile device usage and ownership; how students currently use their mobile devices for learning, and how they expect to use them for learning in the future. It also aims to identify the student's needs, lacks and wants which gives insights into course objectives, material selection, language skills, teacher's roles and evaluation and assessment methods. Hence, it specifically deals with students' present situation and preliminary perceptions with regard to mobile devices usage as multimodal interfaces as teaching and learning tools.

Two versions of the questionnaire were made at the beginning of the first semester of the academic year 2017/2018; the pilot and the final version attempting to guarantee the reliability of the findings and increase the sound credibility of the results analysis. The researcher checked the collected questionnaires in order to make sure the participants filled them out properly and fully. Confidentiality of the responses of the participants was handled by

assigning codes to the respondents. Moreover, no personal questions or identities were asked, either in the questionnaire survey.

4.3.1.2. The Pilot Questionnaire: Description

Before having the final version of the questionnaire, it was necessary to pilot it. This stage is considered as an integral part of questionnaire construction because “questionnaires do not emerge fully-fledged; they have to be created or adapted, fashioned and developed to maturity after many abortive test flights” (Oppenheim, 1992, p. 47) (as cited in Dörnyei, 2003, p. 65).

The questionnaire was administered to 15 participants (19.23% of the sample size) as a small scale trial version of the final questionnaire. The questionnaire was administered to students during their Listening and Speaking Skills class time (3h) in October 2017. They responded directly after the teacher’s reading and explaining of the different questionnaire items. The participants were given one hour to read and answer the questions.

The piloting of the questionnaire was done to ensure the comprehensibility of the instructions, verify the wording and the layout of the questions in terms of style, redundancy and ambiguity, and obtain necessary feedback on the general structure and content of the questionnaire. Therefore, the ultimate objective is to strengthen the validity and reliability of results and ensure that the questionnaire items are conveying the intended messages.

4.3.1.3. The Pilot Questionnaire: Some Drawbacks

The main troublesome issue for participants was their unfamiliarity with the terminology related to technology usage. This misled some participants to give inappropriate responses. To illustrate, some of the participants didn’t understand the question investigating the type of the participant’s mobile operating system, which required brief explanation.

4.3.1.4. Description of the Final Questionnaire

The questionnaire is divided into four main parts, and consists of twenty eight questions. The questions range from closed ended to multiple choice, with few open ended questions to get respondents comments.

Part one (General Information) deals with the student's personal profile, with two questions devoted to gender and age. The two items are regarded as two factors that might have an impact on the learning process; therefore, it is necessary to mention in order to reveal any possible impact.

Part Two (Students Profile with regard to Mobile Devices) contains six (06) questions which are devoted to collect specific technical data concerning each student current ownership of mobile devices. For the sake of the research, it is important to be aware of the type of the mobile device, the android/ iOS version of the mobile device, the type of internet connectivity, as well as the level of technological sophistication of each student.

Part Three (Mobile Usage with Regard to Listening and Speaking Skills) includes eight questions that seek to investigate the current usage of mobile devices by students as learning tools to learn English generally, and listening and speaking skills specifically. Thus, the part begins with a question that pictures the students' general usage of their mobile devices. It, then, relates the usage of the mobile device with learning English, with an open ended question asked to students, who do not use their mobile devices to study English, in order to get their comments. For those who do use their mobile devices to learn English, questions related to the frequency, time and place, and type of activities used were asked. As far as the type of activities is concerned, students are asked to specify the type of mobile-based content they generally use, whether online or offline content. Before relating the usage of mobile devices to learning the two skills (listening and speaking), the researcher, first, attempts to identify the student's weaknesses in listening and speaking skills, and the factors behind these weaknesses. The third part ends up by merging the usage of mobile devices and learning listening and speaking skills. The students are asked to identify and

provide examples of some mobile-based activities they use to practice listening and speaking skills.

Part Four (Students' Readiness towards Mobile Usage with Regard to Listening and Speaking Skills) consists of nine questions that attempt to measure students' readiness to use their mobile devices as learning tools inside the classroom. This last part surveys students' attitudes, and preferences towards the way they want the devices to be integrated within the teaching process. This part investigates students' preferred learning styles, types of content, class work, types of tests, and other items related to mobile-based tools. The questionnaire ends up with an open-ended question that allows the students to give any suggestions.

4.3.2. Listening and Speaking Proficiency Test

To measure the progress of the students' listening and speaking skills, students were given a pre-test before the intervention, and a post-test after being exposed to multimodal mobile-based input. The pre-test is usually conducted in the beginning of the investigation and before the experiment to test the sample initial level and to make sure that it is likely the same in terms of level of learning, ability and skills of listening and speaking. The pre- and post-tests of listening and speaking skills were respectively given to both groups before and after the 12-week experiment. During the pre- and post-tests, all of the participants were asked to complete English examination papers. The exam papers were from Cambridge IELTS.

IELTS is short for The International English Language Testing System, it is held by the University of Cambridge Local Examinations Syndicate, the British Council and IDP Education Australia Limited (Caroline, 1996). IELTS is the most secure, valid and reliable test of English language accepted by more than 6000 organizations around the world such as government departments, universities, and schools. It has been designed to test all major parts of language

skills Listening, Reading, Writing and Speaking. The interactive quality of the test makes it as close to the real-life situation as possible.

Pre- and post-tests were identical in format, but the contents of the examination papers were different. Both of the tests were designed to evaluate the participants' ability of understand, listen to and speak English in a daily life context and to express themselves clearly and correctly.

As far as the listening test is concerned, test takers listened to four recorded texts, monologues and conversations by a range of native speakers, and wrote their answers to a series of questions. The test consisted of four sections, each with ten questions. The first two sections were concerned with social needs. The first section was a conversation between two speakers and the second section was a monologue. The final two sections were concerned with situations related to educational or training contexts. The third section was a conversation between up to four people and the fourth section a monologue.

The listening test mainly targeted the skills such as: predicting; identifying key words; identifying paraphrase; targeted listening; spelling; and grammar.

As far as the speaking test is concerned, the evaluator is the researcher (who is the teacher at the same time). The speaking test consists of three parts. In the first part, the participant introduced themselves, and answered general questions about themselves and a wide range of familiar topic areas. The second part consisted of giving the participant a task card with prompts. The participant had one minute to prepare before speaking for between one and two minutes. Finally, in the third part, the researcher and the participant engaged in a discussion of more abstract issues which were related to the topic in the previous part.

The speaking test assessed the extent to which the participant can communicate effectively in English. It took into consideration fluency and coherence, lexical resource, grammatical range and accuracy, and pronunciation.

The marking system for the different sections was as follows:

- The listening test: 40 points, every question is worth 1 point.
- The speaking test: 9 points

The final marks of both tests were converted to 20. So, the pre and post-tests are out of 20.

The speaking test is scored using the IELTS Speaking Assessment Criteria for each of the following four **criteria**:

- Fluency & Coherence
- Lexical Resource
- Grammatical Range & Accuracy
- Pronunciation

These criteria are equally weighted and the Speaking Band Score is an average of the total score of these criteria (Appendix 8).

4.3.3. Teaching Materials: The Intervention

After administering the students' informational questionnaire, a multimodal mobile-based instructional treatment (the integration of different mobile-based activities selected from a multimodal-based approach) has been introduced and experimentally conducted with students during one semester to ascertain its effectiveness in bettering students' aural/ oral performance. A group of first year LMD degree students follow a multimodal mobile-based instruction in order to develop their listening and speaking skills. The programme lasted for 12 weeks (during the first semester of the academic year 2017/2018).

4.3.3.1. Rationale for Quasi-experimental Design

Experimental research design is one of the social science research situations in which the researcher can evaluate the success of an instructional programme or intervention in changing and/or improving the participants' performance. In educational research, it is often not simple to conduct a true experimental research. The latter requires a random selection of participants, which is confronted by the "unwillingness of educational administrators to allow the random selection of students out of classes for experimental samples. Without randomization, there are no true experiments" (Yount, 2006, p. 8). However, both

true experiment designs and quasi-experiment designs seek to investigate the causal relationship between variables that results from an implemented treatment.

One of the aims of the present research is to investigate the effectiveness of multimodal mobile-based language teaching in listening and speaking skills classes. Therefore, it opts for a quasi-experimental design for a number of reasons. First, due to administrative reasons, it was unfeasible to randomly select the participants who were administratively grouped into groups that are likely to be dissimilar in some ways. In addition, we decided to opt for the nonequivalent group pretest–posttest design” in order to gauge the relationship existing between the two variables (the multimodal mobile-based activities and the students’ achievement in listening and speaking skills). Thus, in a pretest-posttest design, the researcher measures the dependent variable before the treatment is implemented and once after it is implemented. According to Cohen, Manion, and Morrison (2005), the application of quasi-experimental design provides the researcher with relevant information about the participants who are under treatment with regard to their attitudes, readiness, and instructional background.

The nonequivalent group pretest–posttest design is represented by Cohen, Manion, and Morrison (2005) as follows:

$$\begin{array}{ccc} \underline{\mathbf{NR\ O1}} & \mathbf{X} & \mathbf{O2} \\ \mathbf{NR\ O1} & & \mathbf{O2} \end{array}$$

where NR indicates nonrandom assignment, in which **O1** represents the dependent variable, the **X** is the experimental manipulation and the **O2** is the measured group outcomes (Cohen, Manion, & Morrison, 2005). Hence, the pretest-posttest design generally consists of an intervention level and a pre- and after measurement of the dependent variable to look at the difference between means in pretest and posttest.

To ensure more validity, this type of research design requires collecting multiple forms of data. Indeed, the researcher studies the participants’ background information, the purpose and context of the intervention (the quasi-experimental

programme), and finally the outcome data. In other words, the quantitative data of the test scores supported by accommodating form of qualitative data conducted in the form of course evaluation checklist filled out by the participants at the end of the programme.

To guarantee a substantial level of tests validity, participants were not informed that they were going through a special treatment for research purposes in order to keep the ordinary study routine and avoid all sorts of anxiety, excitement or other attitudes towards the intervention.

4.3.3.2. The Description of the Intervention

To ascertain the impact of the mobile-based language teaching on the performance of 1st year EFL degree students, the researcher designed purposeful and focused activities which aim at improving students' listening and speaking skills and that meet the course objectives related to the official syllabus. The course aimed at helping students:

- understand instances of connected speech
- recognize different varieties, accents, and registers
- produce correct and relevant instances of discourse with ease and confidence.
- have full control of the English sound system.

The themes covered during the experimental phase were:

1. Socializing;
2. Shopping;
3. Living away from home;
4. Healthcare;
5. Sightseeing;
6. On the phone;
7. Interviews.

The teacher relied on the book *Real Listening and Speaking 4* (Figure 4.16), whose writer is Miles Craven. It is one of the 12 books in the *Cambridge English Skills Series*. The series offer skills training to students from elementary to advanced level. The book used in this experiment targeted the advanced CEF: C1, Cambridge ESOL: CAE, NQF Skills for life: Level 2. The book contains 16 four-page units, divided into two sections: *Social and Travel and Work and Study*. The units covered in the book met the topics and the objectives set by the department to teach the module of Listening and Speaking skills.

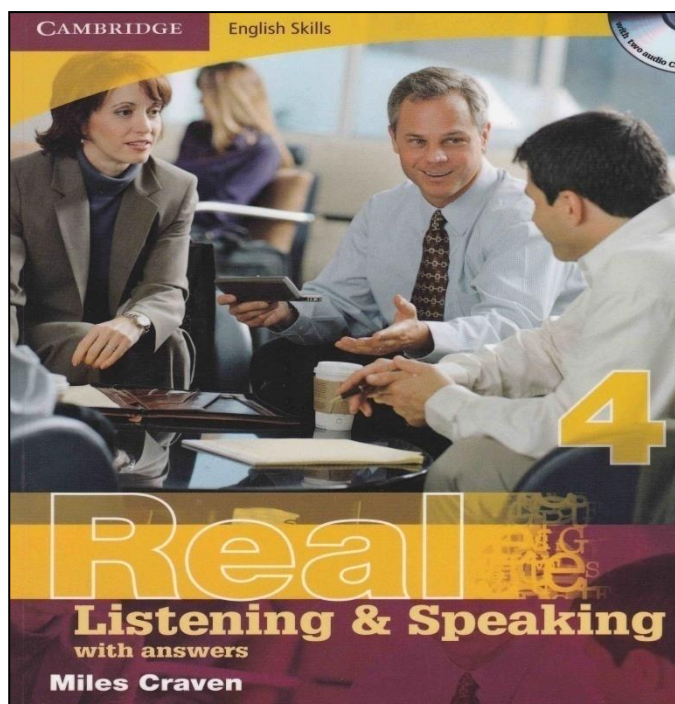


Figure 4.16: Screenshot of the Real Listening and Speaking 4

Taking into consideration the research questions, a set of multimodal mobile-based activities have been implemented within the lesson plan. The activities have been integrated in the different phases throughout the lesson plan (warm ups, listening activities, follow up activities, vocabulary activities, phonetics, speaking activities, etc.). In fact, the study featured a wide range of modalities (visual, audio, audio-visual, etc). The activities varies in that they were used to introduce the lesson topics (e.g. what is ‘small talk’ and how is it used?), create listening exercises, show the dynamics of communication, and exemplify the language occurring in all the different types of linguistic situations examined in

class (interviews, talk shows, news, monologues, presentations). The researcher did not rely on a consistent implementation of the multimodal mobile-based materials in order to vary the utilization of mobile devices and show how each lesson utilized multiple and different modalities in order to meet the learning style needs of students. The activities were implemented based on what the teacher is going to focus on during each session. However, the mobile apps have been used regularly. This integration aimed at avoiding the overloading of modes within one session.

The materials of the course were partly created by the teacher and partly retrieved online. The mobile-based materials were distributed to students during their regular class time using the mobile app *ShareIt* (Figure 4.17.). It is a free app that allows the teacher and the students to share the mobile-based content. Therefore, students were asked to download *ShareIt* and have the same version as the teacher. At the beginning of each session, for Android users, the teacher created a *Group Share* (as shown in Figure 4.17), selected the files/ materials that will be dealt with during the session, and sent them to the students. Another option of sending was that the students could scan the QR code from the teacher's device and receive the files. However, for iOS users, they should go to Settings, and make sure WIFI is turned on and select the hosted network from under *choose a network* section. Once the iOS device is connected to the hosted WIFI, they should open the *ShareIt* app on it and they could receive the files. In order to avoid any inconveniences, the teacher set a classroom routine consisting of sending the materials that will be used in each session at the beginning of each class.

It is worth mentioning that both the experimental and the control group received the same content; however, different modes and media were relied on to deliver the content to the experimental group. First, the experimental group used their mobile devices to receive the mobile content. The latter was represented via different modes (written texts, images, audios, etc.) and through different

multimedia (pictures, videos, etc.). As far as the control group is concerned, they received content using traditional means such as the speaker and papers.

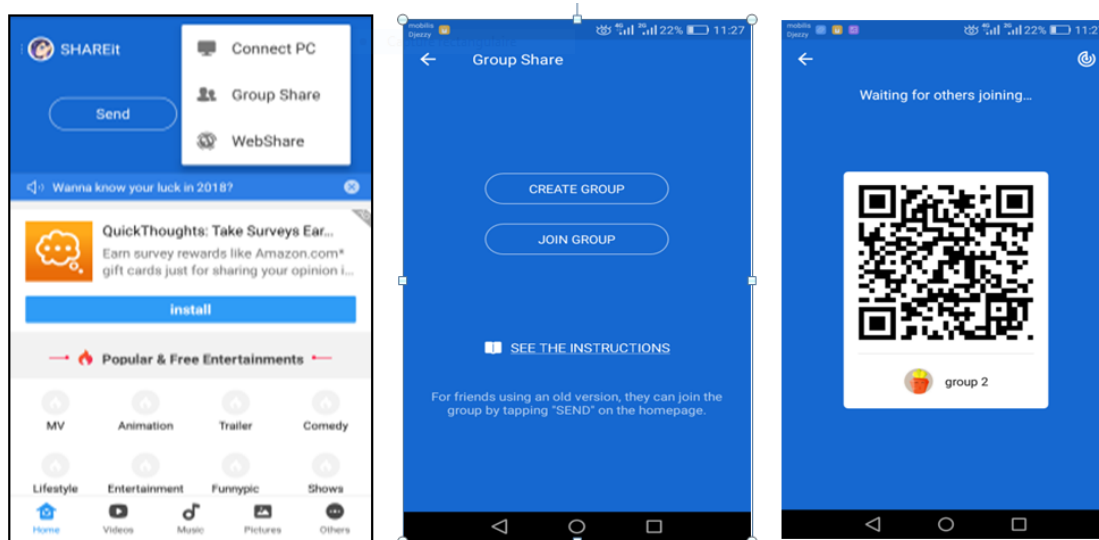


Figure 4.17. Screenshot of ShareIt app

To ensure the delivery of lessons, activities and assignments to all participants, the teacher (the researcher herself) created a Facebook group to maintain the well-management and running of the experiment. The group was created to ease the delivery and explanation of the course activities, mobile application installation process, and the different processes related to the mobile-based activities. Figure 4. 18 demonstrates a sample post of the Facebook group.

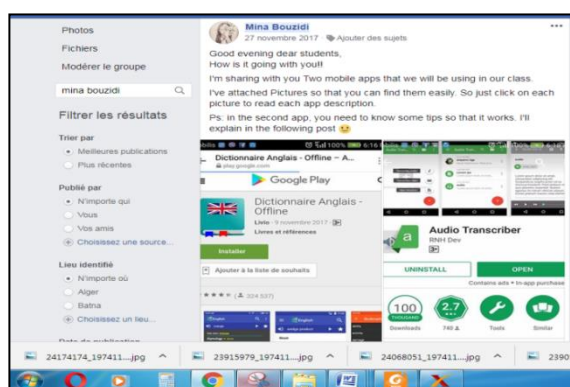


Figure 4.18: screenshot of a Facebook group post

4.3.3.3. The Selection Criteria of the Mobile apps

However, although the stimuli from multi-channels (sound, image, interaction, etc.) may be very advantageous for the Student, mobile technologies also require the thoughtful integration of EFL pedagogy. The apps used in the treatment phase were analyzed according to the analytical framework which has been adapted to better fit in mobile apps assisted language learning environments. As an attempt to pave the way for linguists and IT engineers for the development of MALL apps, Rodríguez-Arancón, Arús, and Calle (2013) created a quality guide and rubric for the evaluation of educational apps. This app quality guide took the ten criteria used by Fernández-Pampillón *et al.* (2012) and adapted them to the characteristics and goals of educational apps. Table 4.5 shows the ten original quality criteria for Learning Objects and our adaptation for educational apps.

<i>Quality criteria in Fernández-Pampillón et al. (2012)</i>	<i>Adaptation to Educational Applications</i>
1. Goals and pedagogic coherence	1. Cognitive value and pedagogic coherence
2. Content quality	2. Content quality
3. Capacity to generate reflection, critical thinking and innovation	3. Capacity to generate learning
4. Interactivity and adaptability	4. Interactivity and adaptability
5. Motivation	5. Motivation
6. Format and layout	6. Format and layout
7. Usability	7. Usability
8. Accessibility	8. Accessibility
9. Reusability	9. Visibility
10. Interoperability	10. Compatibility

Table 4.5. Quality criteria. From Learning Objects to educational applications, (Rodríguez-Arancón, Arús, & Calle, 2013 , p. 1193).

The app quality guide combines pedagogical criteria (1-5) with technical ones (6-10). Rodríguez-Arancón, Arús, and Calle (2013) pointed out that the first criterion (*Cognitive value and pedagogic coherence*) focuses on assessing the teaching aims, the target users, and the skills to be developed. Therefore, information about the pedagogic aims, the targeted skills and Students, and the way these

elements interrelate needs to be included in the app's download page. The content quality criterion deals with the topics/themes of the learning materials and their structures, as well as the content size (number of units, topics, sentences, words, *etc.*) and focus (linguistic, language skill, sociolinguistic). The third criterion, *capacity to generate learning*, emphasizes the actual achievement of the goals and aims already set in criterion 1. Interactivity and adaptability refers to the dynamic way of presenting the content which depends on the use by the Students and their needs, and to the ease with which the app adapts to the different types of users; respectively. The fifth criterion assesses the extent to which the app can motivate Students.

The app quality guide also included some technical aspects. The first one is the *format and layout* of the app. As far as this research is concerned, this criterion is tackled from a multimodal perspective; that is to say that the app is assessed on the orchestration of the different modes available, and the way they are combined to make meaning. Usability refers to the extent to which students can launch and operate the app independently. Indeed, the ubiquitous accessibility and flexibility nature of the educational apps need to be assessed in terms of offering personal and Student-centered learning opportunities. Another criterion to be assessed upon is the *visibility* of the app. It deals with the apps' download rate and the users' comments. The last criterion, *compatibility*, is essential in the functioning of the mobile app. It refers to the capacity of both the mobile device and the mobile app to operate with each other.

Based on this guide, an evaluation app rubric was designed to facilitate the app evaluation process. The way in which we proceed is to fill in the cell corresponding to the appropriate punctuation (from 5 to 1), i.e. the maximum punctuation is 5 and gradually moving down the scale until the minimum punctuation, i.e. 1.

The present research relied on three main mobile apps to be integrate in teaching the Listening and Speaking skills module. Table 4.6. briefly

demonstrates them with the icon and name of each app that is found on *Play store* and its function. It is worth mentioning that the researcher will rely on offline apps due to the fact that there is no appropriate internet connection in the classrooms. In addition, it has been relied on free apps which do not require paying any fees to download them.




Icon	Mobile App Name	Function
	English Dictionary - Offline	the meaning of English words, translation.
	English Pronunciation	Listening, Speaking
	Transcription Tool	Speaking

Table. 4.6. The apps used in the experiment group

Before using the already stated apps in the present study, they have been analyzed and evaluated using the app evaluation quality guide rubric. For more objectivity and reliability, two evaluators (the researcher Ev.1, and another teacher Ev.2) undertook the evaluation of the three apps. The evaluation process results are summarized in table 4.7.

	<i>Evaluation</i>					
	<i>English Dictionary - Offline</i>		<i>English Pronunciation</i>		<i>Transcription Tool</i>	
	<i>Ev.1</i>	<i>Ev.2</i>	<i>Ev.1</i>	<i>Ev.2</i>	<i>Ev.1</i>	<i>Ev.2</i>
<i>1. cognitive value and pedagogic coherence</i>	4	4	5	4	4	3
<i>2. Content quality</i>	5	4	4	5	4	4
<i>3. Capacity to generate learning</i>	3	4	5	4	4	3
<i>4. Interactivity and adaptability</i>	5	4	4	4	4	4
<i>5. Motivation</i>	5	5	5	5	5	5
<i>6. Format and layout</i>	5	5	5	5	4	4
<i>7. Usability</i>	5	5	5	4	4	5
<i>8. Accessibility</i>	4	4	4	4	4	3
<i>9. Visibility</i>	5	5	4	4	4	3
<i>10. Compatibility</i>	4	4	4	4	4	4

Table 4.7. Evaluation results (Ev.1= Researcher; Ev.2= evaluator 2).

As can be seen from the table, the three apps obtained high scores from both evaluators. The results shown in table 4.7 seem to show consistency between the two evaluators and therefore allow us to be positive as to the usability of the rubric. The assessment covered both the technological and educational features

of the apps. An interesting point in the evaluation is that the format and layout of the three apps seemed to fulfill the multimodal requirements of the present research. A detailed description of each app will be provided in the next point.

4.3.3.4. The Multimodal Mobile-based Description of the Teaching Materials

As it has already been mentioned, the present research adopted a multimodal approach as a framework to rely on to select/ create the mobile-based teaching materials. Therefore, the following sub-points deals with every type of activity from a mobile- and multimodal-based approach and how the activity was integrated within the listening and speaking lesson plan. First, the researcher provides a description of how, why, and from where the activity has been selected (or created), the different modes that constitute the activity and the function of each mode within the required task, and the SAMR classification of the mobile-based activity.

- ***Picture-based Activities:***

This mobile-based activity is created by the teacher in which idioms and proverbs are illustrated through images. The teacher combines the *visual* and the *linguistic* modes to help the students recognize the missing words in each idiom/ proverb. The two modes were created using the collage option in the picture editing. The teacher did not rely on a mobile app to create and combine the linguistic mode and the visual mode. Therefore, the *editing* smartphone capability was used.

Based on the *principles of multimedia design* described earlier in the literature review (see Chapter 2), the researcher created the text-picture collage. The full pictures have been carefully designed by the teacher and everything in them has a meaning. Therefore, every element in the image has a purpose. From the perspective of page layout, there is clearly an aesthetic intention since the page is designed to combine several elements in a way that is pleasurable to the eye.

This activity has been used as a warm up activity to introduce the lesson. Figure 4.19. illustrates a screenshot of a picture-based idiom used by the teacher. As far as the control group is concerned, the students received only the linguistic part, i.e., they had to complete the idiom/ or the proverb, which was written on a piece of paper, with the help of the teacher's explanation.

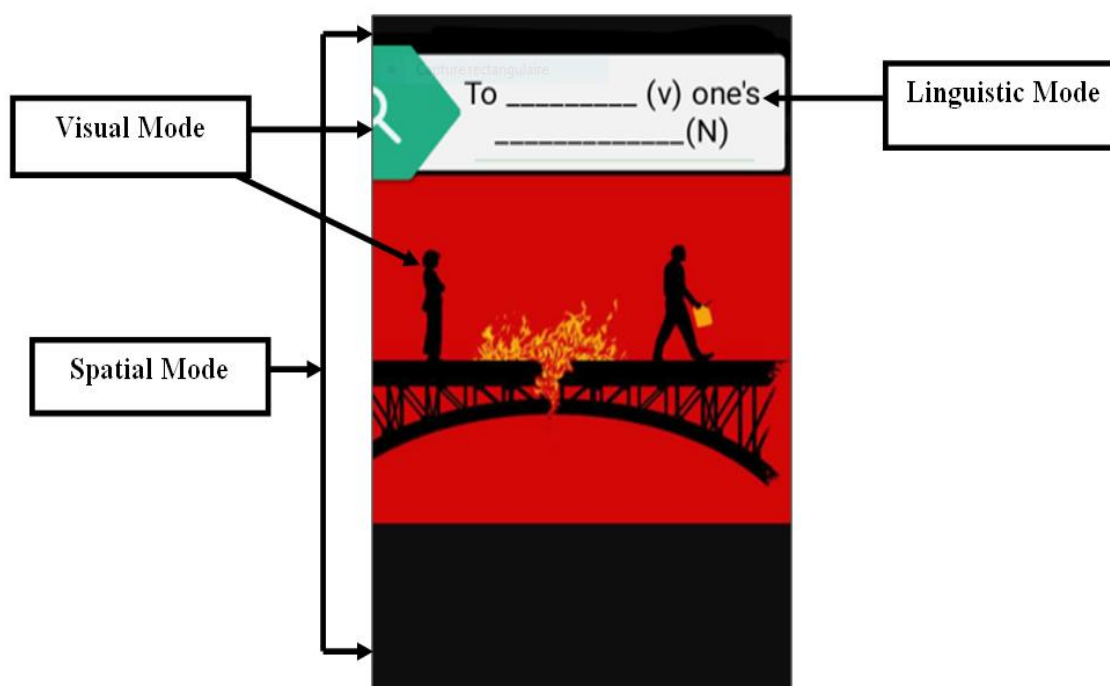
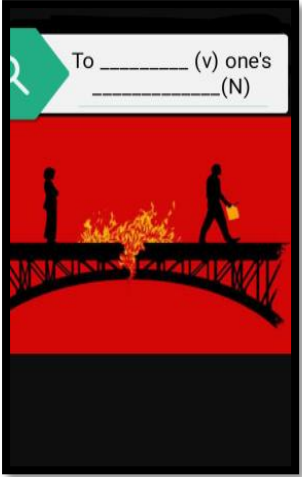


Figure 4.19. a screenshot of a picture-based idiom

Since all the picture-based activities had the same design and format, and they have been used to introduce the topics, a sample of a picture-based activity will be classified, on one hand, according to the SAMR integration framework, and on the other hand, according to the different modes of communication available in it and their functions. Table 4.8 provides a description of the picture-based activities.

A sample of a picture-based Activity	SAMR Classification	Mode of communication	Function of each mode
	<ul style="list-style-type: none"> This activity falls within the <i>Substitution</i> level as the activity could have been done traditionally with the help of a printed picture. Hence, the mobile device, here, replaces the traditional means of meaning making representation. 	<ol style="list-style-type: none"> Linguistic Visual Spatial 	<ul style="list-style-type: none"> Introduce contents (the idiom/ proverb). It also functions as a device that helps readers navigate and access the contents of the image. To do this, written language first appears at the top. The first visual element that draws the reader's attention is the pictorial image which functions as a <i>Stimulus</i> to help the students guess the missing words of the idiom/ proverb. The visual mode also relies on the affordances of color. The black background is used to emphasis the page layout. From this, we can deduce that the page itself becomes a visual unit in the eye of the viewer. Guiding the viewer through the

			image; legibility and readability of the image elements.
--	--	--	--

Table 4.8. Mobile- based and Multimodal-based description of the picture-based activities

- **Video-based Activities:**

The video-based materials were used as a follow-up activity in the speaking skills part of the session. The researcher opted for videos in order to emphasize the visual aspect that cannot be shown with still or audio materials. The choice of this multimodal mobile-based activity depends on the lesson and its objectives. The videos take up to 5 minutes and in these videos students both hear and see how the target expressions are used in real-life situations. Both experimental and control group received the same content of the videos. The videos were retrieved from trustworthy online resources such as *TEDEd*. Figure 4.20 illustrates a video retrieved from TED talks.

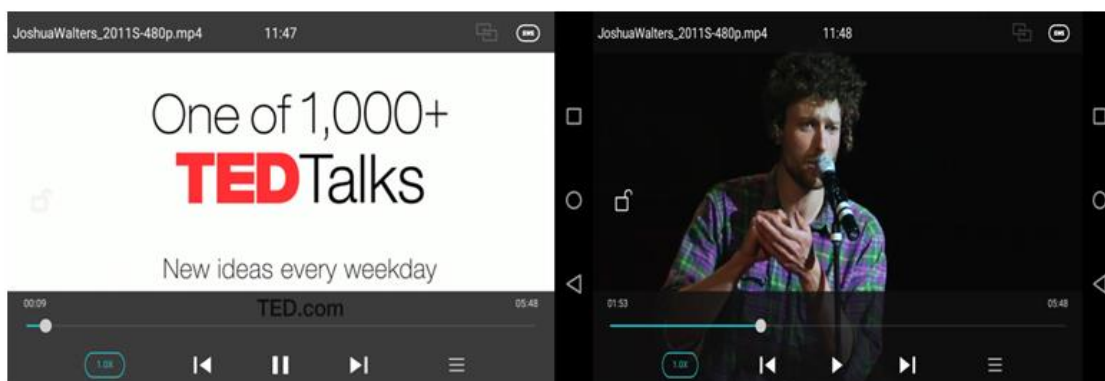


Figure 4.20: a screenshot of a video-based activity

The first video that has been used is an extracted scene from the movie *Confessions of a Shopaholic*. The scene “*The Green Scarf*” has been used as a stimulus to practise speaking in the topic of *Shopping*. The scene has been chosen for several reasons. First, it tackles the topic of the session which is *Shopping*. Regarding the semiotic codes, the scene contains a number of symbolic items that help the students gain a semiotic knowledge. The scene also favors the multimodal approach as it is audio-visual. The video has been retrieved from *Youtube* <https://www.youtube.com/watch?v=xfPuQLbnsu8> and it lasted 3minutes 11secondes.


The second video was retrieved from TEDEd website, <https://ed.ted.com/lessons/what-does-it-mean-to-be-a-refugee-benedetta-berti-and-evelien-borgman> . The video untitled “*What does it mean to e a refugee?*” aimed at introducing the theme of “*Living away from home*”. The video duration was around 6minutes. The video enabled the students to deal with one of the latest issues.

The third video used was also downloaded from TED talk website; it was untitled “*On being just crazy enough*”. This video tackled the issue of mental illnesses and how to embrace them and it lasts around 6 minutes. It was retrieved from https://www.ted.com/talks/joshua_walters_on_being_just_crazy_enough .

The researcher also relied on a video untitled “*7 Body Language Tips to Impress at your Next Job Interview*” to teach the students the different body language tips in the theme of Interviewing. The video lasted 4minutes and it was retrieved from <https://www.youtube.com/watch?v=PCWVi5pAa30>

The last video was created by the teacher and its duration was 1 minute. It has been created using *Vivavideo* app, that enables the user combine audio with pictures. Therefore, the teacher combined an audio and pictures from the textbook *The Real Listening and Speaking4* from the topic *On the Phone*, and the video was untitled “*overcoming difficulties*”. The video combined situations of difficulties faced when making or receiving a call with a picture that refers to each situation.

As far as the description is concerned, unlike the picture-based activities, each video will be described in table 4.9.

The video-based activity	The SAMR classification	Modes of Communication	Functions of the each mode ¹³⁹
<p>1. Confessions of a Shopaholic “The Green Scarf Scene”</p> 	<ul style="list-style-type: none"> • Augmentation level. Students in this type of activity exploit the functional improvement of the mobile device by enabling them to pause, screenshot, and edit the video if they wanted. 	<ol style="list-style-type: none"> 1. Linguistic 2. Visual 	<ol style="list-style-type: none"> 1. “DENNY & GEORGE has Landed at Henri Bendel” this was the only linguistic mode that appeared in the video. It aimed at attracting the viewer’s attention to the fact that the store is of a prestigious brand of scarves. 2. The green scarf is the most symbolic item in the video. It referred to the embodiment of the society – the consumerism, materialism, social beliefs and values. Another visual element is the mannequin, which represents

<p>Scenario:</p> <ul style="list-style-type: none"> • In this selected scene, Rebecca (the main character) wants to buy a scarf to feel confident for her upcoming job interview but she doesn't have enough money. • Students listen for general vocabulary and money vocabulary. 		<p>3. Audio</p>	<p>Rebecca's inner voice.</p> <p>3. The scene begins with song saying: <i>"Oh just do watcha want, watcha want Like nobodies watchin' Do watcha want watcha want Keep the party rockin' What what what Give it up Like nobodies watchin' You know The rhythms calling you Lose control The rhythms calling you"</i> this helped the viewers understand the plot of the scene.</p> <p>The main sound effect found in the scene is the money counter machine sound.</p> <p>As far as the spoken words are concerned, the</p>
---	--	-----------------	--

		<p>4. Spatial</p> <p>5. Gestural</p>	<p>mannequin talks to the main character in a way to make the viewer understand that it's her inner voice.</p> <p>4. The spatial arrangement functions in a way to involve the viewer in the atmosphere of shopping.</p> <p>5. The main character showed a number of facial and gestural expressions to enhance the message of astonishment when seeing the scarf, and of surprise when knowing that she doesn't have enough money on her credit card.</p> <p>The mannequin's posture showed engagement.</p>
--	--	--------------------------------------	--

2. “What does it mean to be a refugee?”



- **Augmentation level**

1. Linguistic

1. The linguistic mode is prominent in this video. Short expressions from one word to three maximum are used to accompany the speaker in the video which aims at emphasizing the idea presented. The words were capitalized and the lettering contrasted with the background colour for more legibility for emphasis

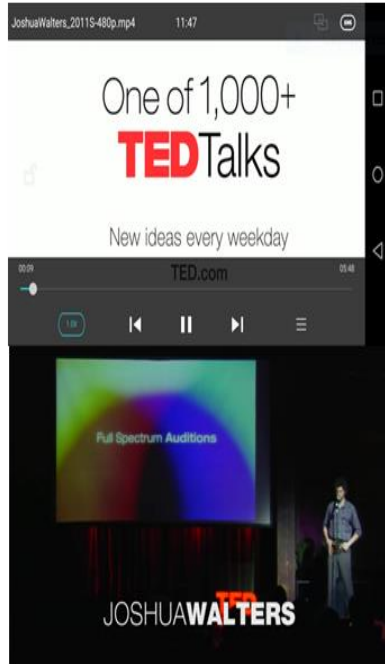
2. Visual

2. The visual representation was through iconic illustrations.

The use of plain and unadorned colours reflects the negative connotation of

<p><i>Scenario:</i></p> <ul style="list-style-type: none"> • A selected educational video from the website www.ed.ted.com . it tackles the issue of refugees around the world. 		<p>3. Audio</p> <p>4. Spatial</p>	<p>the theme discussed.</p> <p>The different visuals used upgrade the explanation.</p> <p>3. The type of spoken words in this video is a narration. A narrator is the main speaker in this video with background music and sound effects to deliver the real meaning of refugees.</p> <p>4. The arrangement of written words invited the viewer to engage in the video.</p>
---	--	-----------------------------------	---

3. “On being just crazy enough”



Scenario:

- This video is retrieved from TED Talk website. It deals with the issue of mental health. The speaker

• **Augmentation level**

1. Linguistic

1. The video starts with 3 main linguistic expressions that generally all ted talk videos start with: “One of 1.000+ TED Talks”, “New ideas every weekday”, and "TED.com". The first expression is written bigger than the two others, with the word “TED” written in red for emphasis. The second expression presents the aim of the talks. The last expression is informative and informed about the official website of ted talks.

2. Visual

2. The speaker did not rely on visual aids such as

incorporates elements of spoken word and beatbox into his shows in a mash-up of comedy, intimate reflection and unpredictable antics.



3. Audio

animations or graphs. As far as the speaker is concerned, he was center stage and the lightning focused only on him.

3. The speaker incorporated elements of spoken word and beatbox into his talk.

His used narration to talk about his experiences. In addition, he used exposition to explain the mental illness finally, he opted for argumentation by giving real examples of people with mental illnesses in order to prove his ideas.

As far as the background

		<p>4. Spatial</p> <p>5. Gestural</p>	<p>music and the sound effects, the speaker used beatboxing to help himself with external sounds.</p> <p>4. The speaker stands in center stage. Shot sizes ranged from close-up to medium close-up shots.</p> <p>5. The speaker showed a number of body postures to deliver his message. He gave much information with rich body language to engage audiences. The open palm conveyed openness at the risk of being overenthusiastic and offensive. In addition, the open posture refers to keeping hands within the “strike zone”</p>
--	--	--------------------------------------	--



Scenario:

- This video is retrieved from Youtube. It highlights the main elements of body language that the interviewee should show.

3. Audio

visuals. The placement of the linguistic mode at the left side of the image had a Complementary function when both text and image are needed to grasp the meaning.

The expressions were written in white and blue. The blue was used for emphasis. With black background for legibility.

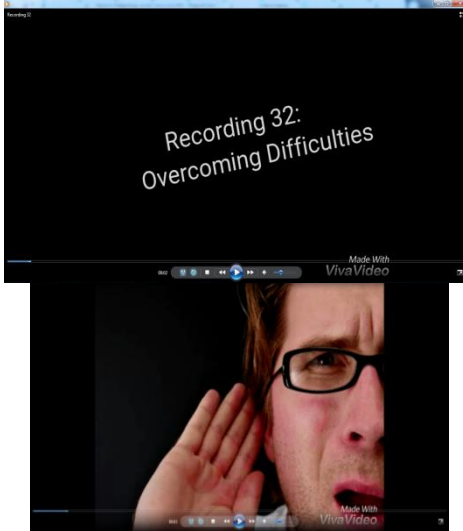
The video's background is a meeting table which reflects the theme of the video which is interviewing.

3. The spoken words of the speaker were characterized by

		<p>4. Spatial</p> <p>5. Gestural</p>	<p>low voice of the speaker by going down to their chest to speakers might choose to transmit some air of power</p> <p>Slow pace is accompanied with pauses to create greater impact.</p> <p>There was no background music or sound effects.</p> <p>4. In this video, medium close-up shot size has been adopted in order to let the speaker be the focus during the whole scene.</p> <p>5. Here, as can be deduced from the title of the video, the gestural mode, including</p>
--	--	--------------------------------------	---

			<p>postures and gestures, is the most relied on mode to convey the messages.</p> <p>The speaker adopted an open posture for exposition and argumentation.</p> <p>He also used expressive body gesture which refers to hand movement no more than the length of the forearm for emphasis.</p> <p>Rich gestures reflect that the speaker did not look nervous.</p>
--	--	--	--

4. "Overcoming difficulties"



- **Augmentation level**

1. Linguistic

1. The video started with the title which is the only linguistic element in this video used for navigation and access structure.

2. Visual

2. The title was written in white with black background for legibility purposes. It was in italics and slightly rotated to the right, and introduced with linear personalized effect for aesthetic and visual cohesion.

The next scenes consisted of five pictures accompanied by five extracts from people speaking on the phone facing difficulties. Each picture was



3. Audio

edited with slowly enlarged motion.

3. The video contained five extracts, each reflecting a difficulty in understanding a phone call.

In the first extract, the speaker's voice was soft indicating unclarity of speech.

In the second one, the speaker has an unfamiliar name.

The third extract was characterized by background sound effects of cars while the speaker is talking.

The speaker in the fourth extract was characterized by

<p><i>Scenario:</i></p> <ul style="list-style-type: none"> • This video is created by the teacher using the application VivaVideo. It is a combination between pictures and audio elements that illustrates some difficulties while talking on the phone. 		<p>4. Spatial</p>	<p>cuts in the voice which indicated poor line quality.</p> <p>The last speaker talked in a fast pace which indicated giving too much information at once.</p> <p>4. The arrangement of the shots in this video is characterized by linearity of pictures; with smooth transition from one picture another.</p>
--	--	-------------------	---

Table 4.9. Mobile- based and Multimodal-based description of the video-based activities

- **Audio Recordings:**

Songs and audio recordings have been sent to the students in an MP3 format. This offers students a much higher level of control over the way they use the materials. It allows students to stop, start, re-wind and fast forward the tape. This makes it much easier to integrate the use of audio with other learning materials and tasks. Additionally, as the bandwidth and sound quality of mobile devices is continually improving, it was preferable to listen to activities as audio clips in order to teach specific listening aspects such as stress, phonetics. Students may have difficulty hearing the device through the phone's built-in speakers due to interference of external sounds (wind, traffic, talking, etc.). In these situations, students need to use/ share their headphones. Figure 4.21 shows the icon of the recordings.

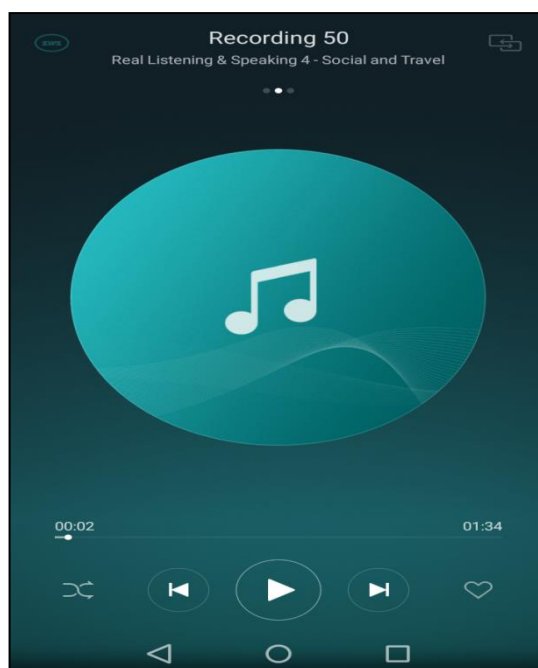


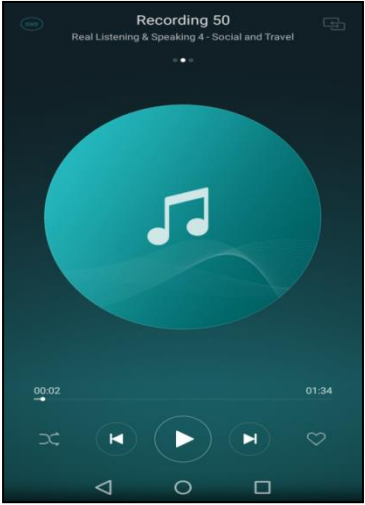
Figure 4.21: a screenshot of an audio-based activity

During the treatment period, the teacher relied on thirty six (36) recordings extracted from the audio CDs of the book *Real Listening and Speaking4*. The recordings share some common features such as:

- The duration: no more than two (2) minutes in each recording.
- Some recordings focused on both the listening skill and speaking skill on each particular aspect of the theme being discussed, for instance, making a small talk (listening), keeping a conversation going (speaking).
- Other recordings were part of *Focus on* activities, which provided contextualized practice in particular language or vocabulary areas.
- The teacher also relied on audio recordings to focus on pronunciation activities as part of *Sound Smart* activities which is found in the book.

As an attempt to provide a multimodal mobile-based description of the audio recordings, the researcher will select a sample of an audio recording as it goes beyond the scope of this study to provide the multimodal mobile-based description of all the 36 recordings.

The recording under analysis tackled the speaking skill; specifically how to indicate emotions through the intonation. Students would listen to expressions spoken in a different way, and then, they would try to guess what emotion the speaker was trying to convey in each case; either enthusiastic or bored.

The Icon of an audio recordings	The SAMR classification	Modes of Communication	Functions of the each mode
	<ul style="list-style-type: none"> • Augmentation level. The mobile device, here, is a direct substitute, but there is a functional improvement over what one did without the technology in terms of the functions such as rewinding, pausing, fast forwarding, and other functions. 	<ol style="list-style-type: none"> 1. Linguistic 2. Visual 3. Audio 	<ol style="list-style-type: none"> 1. Short expression indicating interjection. For example: “<i>That’s really interesting</i>”, “<i>How marvelous</i>”. 2. What can be seen in the audio icon are the icons that indicate the different functions of MP3 audio reader , such as pausing /▶/, rewinding / ◀/, fast forward 3. In this recording, the speakers uttered one expression in two different ways. In the first expression, the speaker had a high tone (Rising intonation ↗) to show enthusiasm. While in the second expression, the flat tone and lack of intonation (falling intonation ↘) indicated boredom.

		4. Spatial	4. In audio recordings, spatial mode looks at the sound if it comes from near or far sound perspective is “close”, implying that the character who speaks is near.
--	--	------------	--

Table 4.10. Mobile- based and Multimodal-based description of the audio-based activities.

- ***The Mobile-based Apps:***

As it has already been mentioned in the previous sub-chapter (4.3.3.3), the mobile apps used in the treatment phase have been evaluation before their implementation in teaching the Listening and Speaking Skills module. The three apps have been downloaded from *Play Store*.

The *English Dictionary-Offline-* app, as shown in Figure 4.22., is a free offline English dictionary application that explains the meaning of English words. Definitions are based on *English Wiktionary*. It is characterized by fast search, easy and functional user interface, optimized also for tablets. The dictionary has been used regularly during the course, whenever needed. The teacher guided the students to use their mobile dictionaries to complete the listening/ speaking tasks. They were encouraged to learn new vocabulary and learn their phonological, morphological, and contextual aspects. The app provides the student with different word/ expression-related features such as etymology, phonology, grammar, synonyms and antonyms, and so many other features. The dictionary also allows for personalized learning by enabling the student to manage their bookmarks, personal notes and search history.

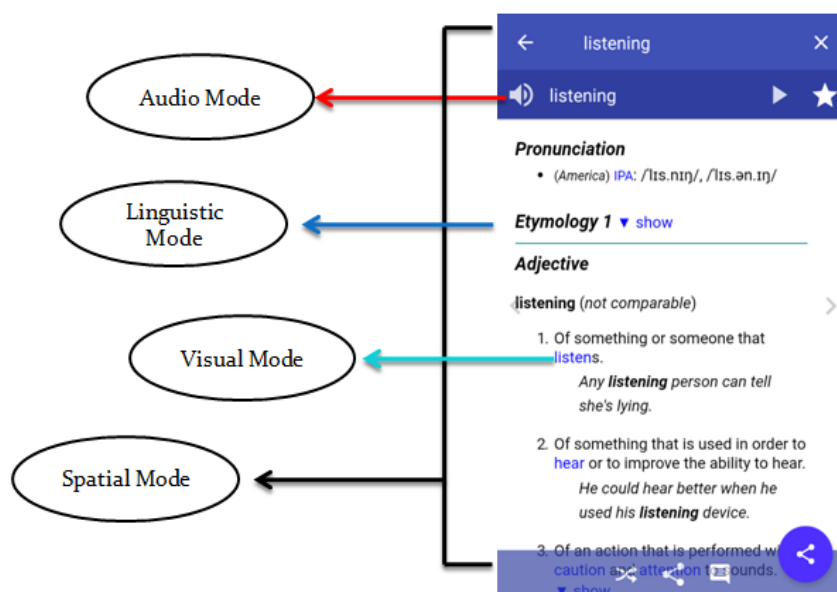


Figure 4.22. Screenshot of the different modes in the Mobile Dictionary-Offline-app.

The second app is *English Pronunciation* app. This app was developed to build the students' phonetics awareness and improve their pronunciation. It includes basic pronunciation of vowel sounds and consonant sounds through the *Pronunciation Chart* section, which introduces the *International Phonetic Alphabet (IPA)*. This includes:

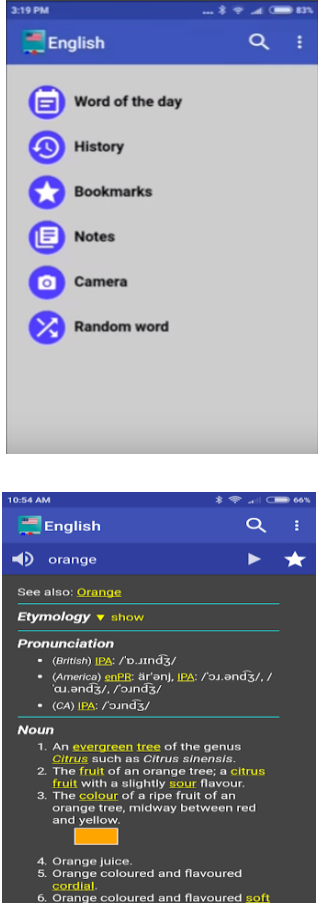
- Short vowels
- Long vowels
- Double vowel sounds
- Voiced consonants
- Voiceless consonants
- Other consonants
- Mouth and tongue positions when pronouncing sounds
- Voiced and unvoiced sounds
- How to pronounce with a lot of rules in English.

When touching on each phonetic symbol on the screen, students can listen to the tutor's demonstration and see the mouth movement to help them understand how to pronounce correctly. Students can learn pronunciation through videos, audios, pictures, and examples. Students can practice through reading, test voice, selecting different sounds, choosing the correct words, writing the word, and listening. Students can review their progress and earn points after making correct pronunciations.

The last app used in the present research was the Transcription Tool App. It is a tool for audio/video transcription and dictation. It was used to practice both the listening and speaking skills. Students can listen to a listening passage, and they try to write what they hear – without subtitles. Then they can check with the actual transcript. They can also practice their speaking skills by recording themselves speaking (for instance, in a role play) and check if the app has captured the words they pronounced correctly.

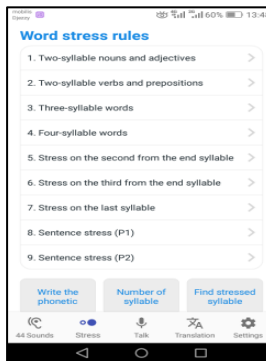
This apps allows the teacher to edit/shorten existing videos and embed their voice or questions, enabling self-paced learning with interactive lessons while providing individual feedback.

Table 4.11. represents the multimodal mobile-based description of the selected mobile apps used in this research.

Screenshot of the Mobile App	The SAMR classification	Modes of Communication	Functions of the each mode
<p>1. “The English Dictionary app”</p> 	<ul style="list-style-type: none"> • Augmentation level: the mobile dictionary allowed both the teacher and the students to reach the end goal of a listening and speaking task with the mobile dictionary as an assistive tool. 	<p>1. Linguistic</p>	<p>1. The app home page screen shows headings of the different functionalities (word of the day, history, etc.) the app provides.</p> <p>Once starting a new word, it appears a running head (English) + titles (orange, Etymology, Pronunciation, Noun) are for navigation and access structure purposes. A phonetic transcription with different accents is also provided.</p> <p>The linguistic search in the dictionary varies from single search word to idioms and short expressions.</p> <p>The suggested definitions are enumerated (use of numbers) for organizational purposes.</p>

		<p>2. Visual</p>	<p>2. The mobile dictionary contained a number of visuals:</p> <ul style="list-style-type: none"> ❖ Icons: the search icon (to tap/look for words), three points (for more options), triangle (to start the reading mode), star (for adding to favourite), sound icon (to read the word), the “hide” and “unhide” functions. ❖ Font: boldface and <i>Italics</i> are used for headings. <p>The typeface used in the rest of the page allowed for legibility and readability</p> <ul style="list-style-type: none"> ❖ Colour: colours are used either for illustration (to show the orange colour), or for emphasis, navigation and access structure as it helps the reader to click on the colored word to check its
--	--	------------------	--

			<p>be real.</p> <p>Individual examples often start on a new line.</p> <p>A top-bottom reading path is formed while scrolling down from definitions to examples.</p> <p>Foregrounding and backgrounding are used on the dictionary screen. For instance, there is a practical function of hiding examples which may help optimize textual cohesion in the dictionary.</p>
3. <i>“English Pronunciation”</i>	<ul style="list-style-type: none"> • Augmentation level 	1. Linguistic	<p>1. The linguistic elements in this app were mainly used for navigation and access structure and content presentation.</p> <p>The app relied on phonetic</p>



2. Visual

alphabets since it aims at teaching pronunciation aspects.

2. The app relied on different semiotic resources of visual mode.

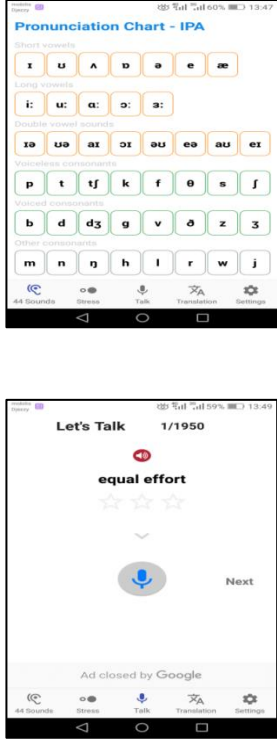
The icon of flags introduced the app, enabling the user to select the language.

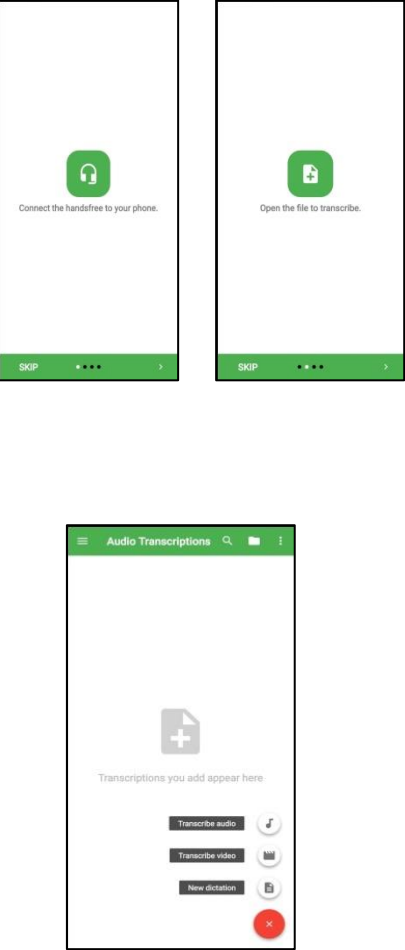
Icons of microphone, ears, and loudspeaker were used for navigation and access structure.

The main colours used were blue for headings, and black for content presentation.

3. Audio

3. The app's main focus was the phonological aspect of the language. Thus, it provided interactive phonemic chart with

		<p>4. Spatial</p>	<p>high quality audio. It also enabled phonemic transcriptions and audio record the students' own pronunciation.</p> <p>4. The layout of the app was in the form of pages that can be easily accessed by only clicking on the selected icon.</p>
<p>4. <i>“Transcription Tool”</i></p>	<ul style="list-style-type: none"> • Modification level: this 	<p>1. Linguistic</p>	<p>1. The app adopted a simple font for linguistic elements for more</p>

	<p>app falls in the modification level since it allowed the redesign of the learning task (recording and transcribing).</p>	<p>2. Visual</p> <p>3. Audio</p> <p>4. Spatial</p>	<p>readability and legibility.</p> <p>The linguistic elements were mainly used as headings for navigation and access structure.</p> <p>2. Icons were used to represent the desired option such as recording, uploading, dictating.</p> <p>The app designer relied on white and green, representing trust and security.</p> <p>3. The audio mode was the main mode that the app relied on. It supported all type of recordings.</p> <p>4. The app's layout offered space for annotation.</p> <p>The layout provided easy access and navigation through the app.</p>
--	---	--	--

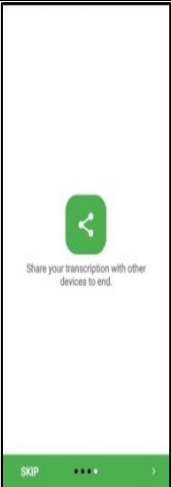
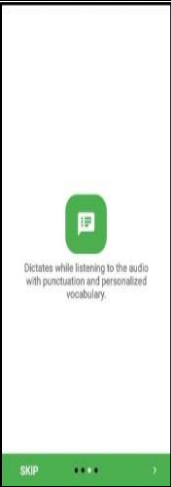
 <p>Share your transcription with other devices to end.</p>	 <p>Dictates while listening to the audio with punctuation and personalized vocabulary.</p>			
--	--	--	--	--

Table 4.11. Multimodal mobile-based description of the mobile apps .

The above multimodal mobile-based analysis of the different activities used in this research provides us with clearer understanding of the nature of treatment that the students had undergone. Therefore, it was necessary to provide detailed descriptions of each type of activity, then to provide the two-fold (multimodal and mobile) analysis. The multimodal analysis tackled the different modes (linguistic, visual, audio, gestural, and spatial) (See Chapter 2) available in each activity, while the mobile-based analysis classified the activity depending on the SAMR model of classification (See Chapter 1, section 1.4.2).

4.3.4. Teachers' interview

The second data collection tool is the teachers' interview. It aims to collect different teachers' attitudes towards MALL. In addition, the interview seeks to explore how EFL teachers adapt themselves with the new educational trend represented in mobile devices. Therefore, we shall provide the rationale for the interview, the population that is addresses and the description of the interview items.

4.2.2.1. Rationale

Interviews are considered as an "action technique" (Jonker & Pennink, 2010, p. 37) that provides newly generated linguistic data. There are many types of interviews. The most common of these are unstructured, semi-structured and structured interviews. The semi-structured interview is the type mostly used in qualitative social research. This allows the interviewee to remain flexible so that other important information can still arise, states Dawson (2009).

In fact, the process of teaching relates not only to students but also to teachers. Therefore, it is necessary to explore the different teachers' practices with regard to mobile learning as multimedia tools that provide multimodal affordances. In other words, it aims at gathering information about the extent to which teachers use and implement the mobile devices as teaching tools, and their attitudes towards the integration of these devices in teaching listening and speaking module.

4.2.2.2. Population and Sampling

The interview was conducted with six (06) teachers of 1st year EFL degree, who teach Listening and Speaking Skills module from Algiers 2 University, Department of English. The choice of the sample was based on the consideration that the population under study is 1st year EFL degree students. Therefore, it is necessary to conduct the interview with teachers who are currently teaching the same level.

Before conducting our interview with the teachers of Listening and Speaking skills module, we, first, sent them an email in order to know whether they will accept to afford us an interview or not. After getting their confirmation, which sometimes was time-consuming to get, every teacher devoted some time to meet at the staff room of the department. Each interview lasted for 20 minutes on average. The meetings took place at the end of the first semester of the academic year 2017/2018. Data was recorded through note-taking in order to avoid causing embarrassment to respondents since respondents showed discomfort of being audio-recorded.

4.2.2.3. Description of the Interview

A semi-structured teachers' interview is conducted as a data collection tool devoted to teachers. The teachers' interview, mainly related to the last research question of this study, intends to investigate if 1st year EFL degree teachers of listening and speaking skills module at Algiers 2 University use the mobile technologies as supporting and teaching tools to improve their teaching style in general, and to teach listening and speaking skills in specific. It also aims to explore their attitudes regarding future implementations.

The teachers' interview is divided into three parts, and composed of nine (09) questions. The first part consists of two factual items that primarily seek to create initial rapport and gain general information about the interviewees such as gender (Q1) and the number of years of teaching listening and speaking skills module (Q2). The second part which consists of four (04) questions, seeks to investigate the extent to which teachers use and allow the use of mobile technologies as semiotic resources in teaching the module. The last part, which consists of three

(03) questions, is devoted to teachers' perceptions towards the integration of mobile devices in teaching EFL in general and listening and speaking skills in particular in the future.

4.2.2.4. Piloting the Interview

Piloting the interview is considered an integral aspect in the process of conducting qualitative research as it allows the researcher to practice the interviewing techniques and to identify possible problems. The present interview was administered to two first year LMD teachers of listening and speaking skills module to be piloted. The piloting phase did not reveal any conveniences related to the questions asked.

4.3.5. Students' course Evaluation Form

Students' evaluation of programme effectiveness has become a paramount source of data for teachers to make judgments on the course running and determine the success or failure of their instruction. The next sub-chapter discusses the rationale for choosing this instrument as a data collection tool and highlights its significance. It then describes the layout of the present course evaluation form

4.3.5.1. Rationale for the Students' course Evaluation

Evaluation refers to a tool which can be used to help teachers judge whether a curriculum or instructional approach is being implemented as planned, and to assess the extent to which stated goals and objectives are being achieved, claim Fleichman and Williams (1996). Johnstone (2005) also defined evaluation as "the means by which a course or a curriculum change can be monitored to see if, in fact, it is what it claims to be and if it achieves, in students, the intended outcomes"(p. 2).

As far students' evaluation is concerned, Little, Goe and Bell (2009) consider it as a form of questionnaire that requires students to measure and evaluate different aspects of teaching including course content, classroom practices and

teacher behaviour to get their feedback. Hence, this research instrument aims at empowering instructors to improve Students' performance and enabling them to make appropriate readjustments regarding different aspects of the teaching process.

Although it is not the only and the best tool, the students' evaluation form has been increasingly applied as an instrument to appraise the success or failure of any language instructional programme. In their guide *Student Course Evaluations: Research, Models, Trends*, Gravestock and Gregor-Greenleaf (2008) report that students' evaluation of teaching has been practised in North American institutions for over 40 years. It is also noted that most institutions have developed policies regarding the collection, administration and use of student course evaluation systems. This supports the worth of such an instrument in seeking to gauge the effectiveness of a certain programme.

The student's evaluation has three main purposes. Firstly, it offers a formative diagnostic feedback to develop the instruction, course content and structure. It also aims to set out a measure of teaching effectiveness for decision making, i.e.; to improve teaching and courses. Finally, it provides necessary information to students about the courses and the teachers. Therefore, the students' evaluation form can be considered as a source of data for research and teaching.

However, the mobile learning community has yet to produce standardised attitude measurement instruments such as those available in other fields (Moore & Sutman 1970). Therefore, the evaluation form used in this study was adapted from Vavoula and Sharples (2009) and Meddour's (2014) to fit the study's objectives. The former includes a three-level framework for evaluating mobile learning, comprising a micro level concerned with usability, a meso level concerned with the learning experience, and a macro level concerned with integration within existing educational and organisational contexts. Meddour, in his PhD thesis, used an evaluation check list to evaluate the effectiveness of a

web-based instruction. The layout of his evaluation form has been adapted in this study.

Atwell (2006) explained that the lack of serious empirical evaluation studies on technology-mediated learning was a result of the heavy focus on the technical improvements of programmes and software at the expense of pedagogical implications. If they exist, Atwell added, they are purely “descriptive rather than analytical or predictive” or they, in most cases, are comparative studies that demonstrate the difference between traditional classroom instruction and the good application of technology-mediated learning programmes.

The present multimodal mobile-based course that students of English at Algiers2 University had followed aimed to develop Students’ academic listening and speaking skills. The course was organized in one semester of instruction that ended up with a summative evaluation which intended to check up students’ rating of the level of the course success or failure and provide feedback for programme improvement besides their evaluation of the teaching effectiveness. The students’ evaluation checklist form is used as a research instrument to rate the effectiveness of the mobile-based course and the extent of the instructor’s success in bridging the objectives of the course to the needs of students. Moreover, the evaluation checklist form provides responses to certain questions related mainly to the course effectiveness, the attainment of objectives and the well application of teaching materials.

4.3.5.2. Layout of the Evaluation Form

The present evaluation form of the mobile-based programme relied on a checklist survey as an evaluation tool to fulfill the requirements of the rating with Likert scale. The participants had to select the appropriate choice that matches the degree of their approval to the statements. The checklist is used because “checklists are valuable evaluation devices when carefully developed, validated, and applied” (Stufflebeam, 2000)

The evaluation form covered six common components of course evaluations listed in Gravestock and Gregor-Greenleaf (2008). The first component covers the various instructional ingredients that are directly bound to the instructor's teaching behaviour. This includes the instructor's communication skills and clarity as well as the quality of student-teacher interaction. The second component tackled the various mobile-based activities regarding course content, organization and coverage. Accordingly, the third and the fourth aspects encompassed a range of statements to 'agree' or 'disagree' with the activities design, level of difficulty, their fitness to the course objectives and students' needs, and their usefulness to their learning. The last two components attempted to tackle some students' attitudes and challenges that might have faced them.

The summative evaluation checklist was administered to students at the end of the course (the end of the first semester of the academic year 2017/2018) to obtain students' ratings of the effectiveness and significance of the programme they followed on their overall achievements. It has been administered online on their facebook group relying on a survey website JotForm. JotForm enabled the teacher to create online forms, collect responses directly to the email, and create fillable PDF and Excel forms. It is a powerful online application that allows anyone to quickly create custom online forms. Respondents to surveys delivered online remain anonymous, which can encourage people to be more transparent in their answers.

4.6. Data Analysis Procedure

Triangulation of methods necessitates adhering to a collection of both qualitative and quantitative methods. This coupled with the research paradigms and the researcher's stance delineate theories and procedures of data analyses implemented. The data obtained through the previously mentioned data collection instruments is analyzed by different techniques in order to answer the research questions of this study. Therefore, this section presents the procedures of data analysis. The data analysis procedures range from qualitative data analysis to quantitative data analysis.

4.6.1. Statistical and Descriptive Analysis of the Questionnaire

The questionnaires are analyzed following the quantitative method as the majority of items are closed questions. The completed questionnaires were serially numbered. The analysis involved coding, organizing, describing, interpreting, and drawing conclusions. There are various computer spreadsheet programs which allow for setting up rows and columns in an electronic form. Excel statistical software is used in order to analyze the quantitative data of the students' questionnaire, while the open-ended questions are descriptively discussed. In order to set the profile of each student in both groups, the researcher will opt for a comparison of the student's general information, students Profile with regard to mobile devices in the Experimental and Control group. The analysis focused on descriptive statistics that involved computing of frequencies, percentages, and means. The data was synthesized and transformed into tabular form, bar graphs as well as pie charts.

4.6.2. Quantitative Analysis of the Pretest/ posttest Experiment

Any statistically-based research requires portraying how the participants performed on each test by means of “descriptive statistics” and “graphic representations” to “understand the logic behind experimental research” (Nunan 1999, p. 28).

- ***Descriptive Statistics***

To ascertain the difference between the pretest and posttest performances in a detailed statistical depiction, we need to handle the quantitative data, chiefly through calculation of the mean, the variance and the standard deviation to check “to what extent the data are similar and the degree to which data differ” (Nunan, 1999, p. 28). Descriptive statistics are used to “reduce raw data to a more meaningful form” (Yount, 2006, p. 3). They are often used in quantitative studies to validate the numbers shown in the table or the figure, as Hence, analyzing the scores statistically allows better understanding of the logic behind the numbers.

- *Independent Samples t-test and Paired t-test*

In order to check the validity of the results, it is necessary to use unpaired t-test. The t-test assesses whether the means of two variables are statistically different from each other. This is for research design where we are comparing the results of groups that are independent of each other. . In fact, the t-test is used to compare the means of two groups to check whether the two groups are statistically different or not.

The researcher uses a paired t-test design to interpret and to encode the scores of the pre-tests and post-tests of experimental and control groups separately. In order to test the effectiveness of the multimodal mobile-based approach, the researcher uses the paired t-sample procedures to compare between the pre-test scores and the post-test scores of the experimental group.

4.6.3. Thematic Analysis of the Interview

To analyze the data obtained through the teachers' interview, the technique of thematic analysis was employed, which is the most widely used flexible method to examine qualitative data swiftly and simply. One of the main reasons for using thematic technique is the conversational nature of the data. According to Vaismoradi, Turunen, and Bondas (2013), the thematic analysis is the most suitable technique to be applied when examining the conversations of different participants because it reduces the time that is consumed to analyze different and detailed responses.

The thematic analysis goes through different steps. The first step is the identification and categorisation of significant ideas in the responses obtained through the interview. The next step is examining how many times each idea or concept was repeated, as Vaismoradi et al. (2013) referred to as the tally technique. The latter is about counting the number of times each code appeared in a conversation. Then, the researcher groups the selected ideas in common themes. After theme finding, the last step is writing up in which each

theme was elucidated in light of responses and the review of the pertinent literature.

4.6.4. Statistical Analysis of the Evaluation Form

The evaluation form is analyzed following the quantitative method. The evaluation tool was composed of Likert scale ratings in which participants were asked to agree or disagree with the given statements. Thus, the data obtained from the evaluation forms will be statistically analyzed using MS Excel. The statistical data will be presented in the form of tables, charts, graphs, etc.

Conclusion

Along this chapter, we attempted to provide a detailed account on the whole research process. This chapter reviewed theoretical elements for selecting and developing appropriate research approach for the study followed by research design. It justified the need for a mixed method approach that combines both qualitative and quantitative methods in order to answer the research questions. The chapter also highlighted the sampling technique for the study and research design developed which included questionnaire conduction, listening and speaking skills proficiency tests, multimodal mobile-based content description, interview, and course evaluation form. Based on data collection instruments, quantitative, qualitative and thematic analysis were considered to be the most suitable approaches for analysis of the study. Therefore, the methodological chapter opens the gate for further practical investigations in the coming chapter. The next chapter will analyze the obtained data and discuss the research results.

CHAPTER FIVE
ANALYSIS AND PRESENTATION OF RESULTS

Introduction

The aim of this research is to explore the effectiveness of multimodal mobile-based teaching approach in teaching EFL students' listening and speaking skills at Algiers2 University. The following chapter reports the empirical findings of the conducted empirical study. Data for this research is collected by means of: students' informational questionnaire, t-tests, Teachers' interview and students' course evaluation form.

The presentation of the empirical results is split into four sub-sections. The first sub-section deals with the quantitative and qualitative analysis of the students' questionnaire, and data are also encoded in forms of tables and charts that facilitate their interpretations and discussion. Next, T-test results are encoded in tables and charts using Microsoft Excel program, and their interpretation is stated clearly using the paired samples and independent samples procedures for their analysis. For the qualitative analysis, the interview contents will be analyzed and mainly focused on two main areas: using mobile technologies as semiotic resources in teaching listening and speaking skills, and future recommendations. Finally, the students' course evaluation form results are presented in the form of tables. The data collected help the researcher explore the results for testing the hypotheses on a larger scale

5.1. Results of the Students' informational questionnaire

Having collected the responses of the participants, a process of analysing and interpreting the results is conducted to picture out the present status of the target sample and the target needs that students are aiming to meet. Here are the findings.

5.1.1. Part One: General Information

1- Gender

	Experimental Group		Control Group	
	N ^o	%	N ^o	%
Male	10	26.32%	14	35%
Female	28	73.68%	26	65%
Total	38	100%	40	100%

Table 5.12. Students' distribution according to Gender

The Table shows that the number of female is superior to the number of male in both groups. In the experimental group, out of 38 participants, 28 (73.68%) are females and 10 (26.32%) are males. While in the control group, out of 40 participants, 14 (73.68%) are females and 10 (26.32%) are males.

2- Age Distribution

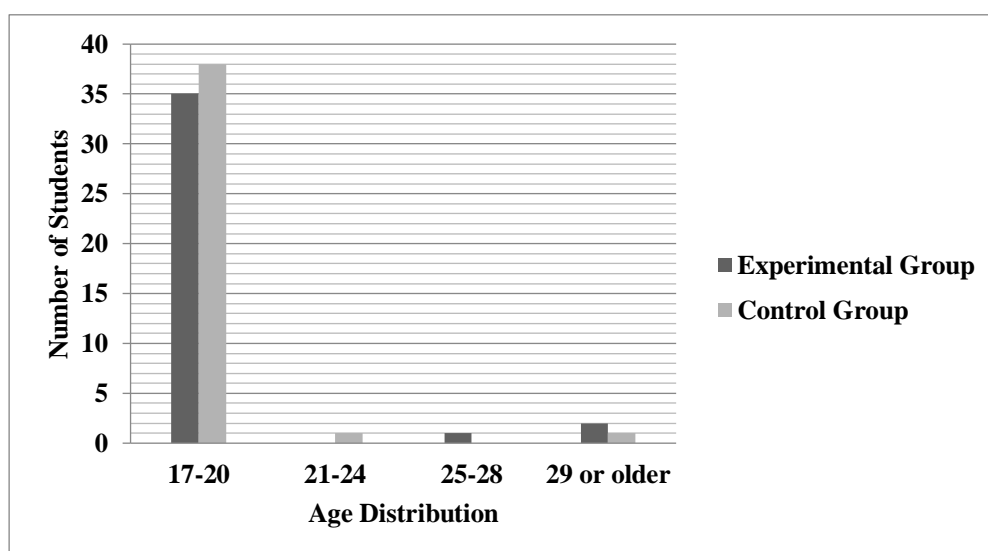


Figure 5.23. Students' Age Distribution

The graph indicates that most of the participants in both groups are aged between 17 and 20 years. In the experimental group, out of 38 participants, 35 are aged between 17 and 20 years, 2 participants are 29 years old or older, and only one

participant is aged between 25 and 28 years. Similarly, in the control group, 38 participants are aged between 17 and 20 years, one participant is aged between 21 and 24 years, and one participant as well is 29 years old or older. The results indicate the students' homogeneity and reveal their similar learning experience in both groups.

5.1.2. Part Two: Students Profile with regard to Mobile Devices

3- What kind of mobile devices do you have?

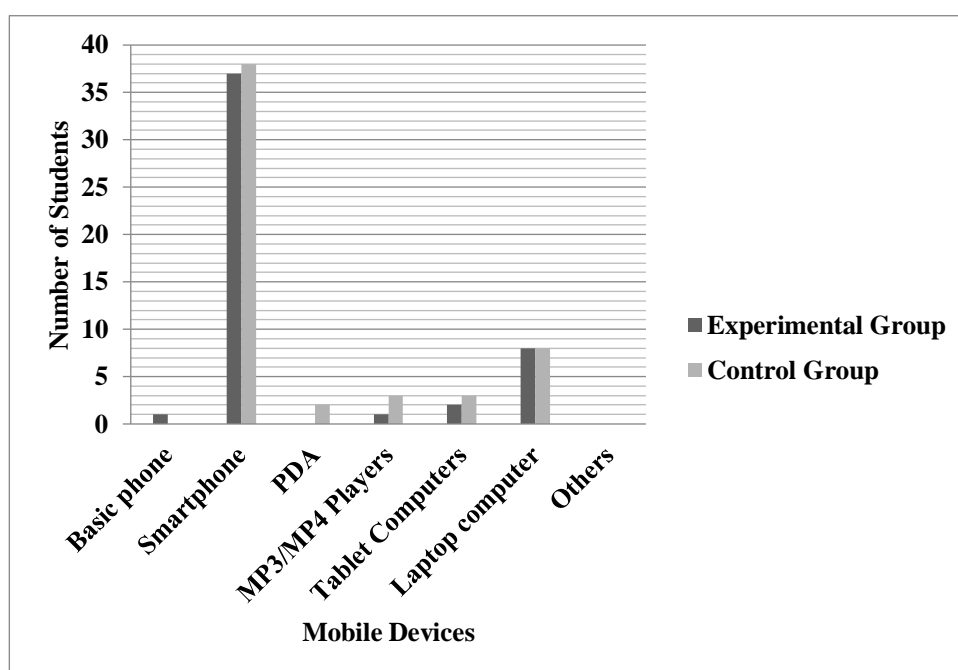


Figure 5.24. Students' ownership of mobile devices

As Figure denotes, the widespread digital device among the respondents in both groups is the smartphone; out of 38 participants, 37 in the experimental group own a smartphone, while out of 40 participants, 38 in the control group own a smartphone. The laptop computer comes at the second place; 8 participants in both groups own a laptop computer. While tablet computers come at the third place with 2 participants in the experimental and 3 participants in the control group who own one. The least percentages refer to MP3/MP4 players, PDAs and basic phones. As for the MP3/MP4 Players, only one participant in the experimental group and 3 participants in the control group claimed to own one. Concerning the PDA, no participant in the experimental group owns one, while 2 participants in the control group own a PDA. As far as the basic phone is

concerned, only one participant in experimental group owns one, and no participant in the control group claimed to own a basic phone. Finally, the respondents did not state any other devices.

4- What is your mobile operating system?

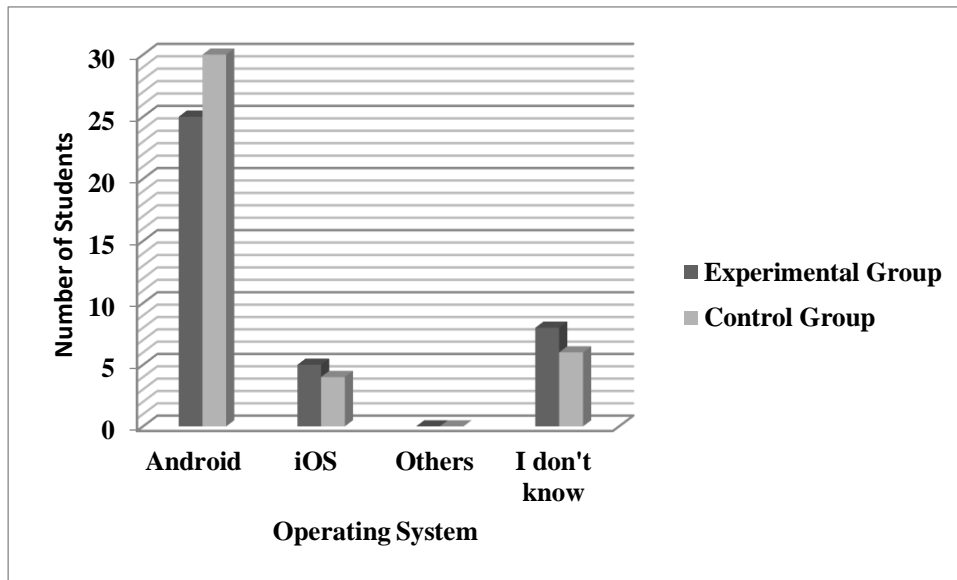


Figure 5.25. Type of Student's mobile device operating system

Figure 5.25 indicates that the vast majority of the participants in both groups are Android users. In the experimental group, out of 38 participants, 25 have Android devices, while 5 participants have iOS devices. Likewise, in the control group, out of 40 participants, 30 claimed to be Android users, while 4 participants claimed to be iOS users. However, 8 participants, and 6 participants, in the experimental group and the control group, respectively, don't know their mobile operating system.

5- Do you have internet access to your mobile device?

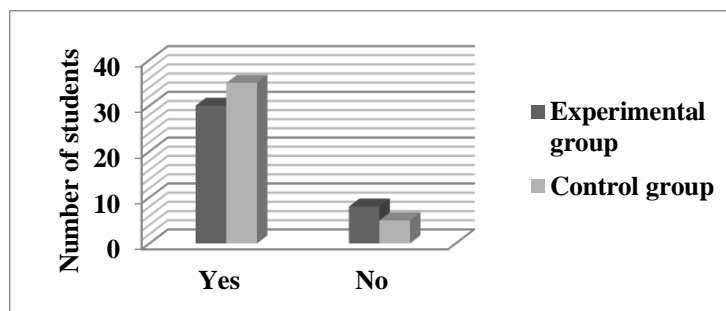


Figure 5.26. Students Internet Access.

As the graph shows, the vast majority of the participants in both groups have access to the internet. In the experimental group, out of 38, 30 participants said that they have internet access to their mobile devices, while 8 claimed the opposite. Similarly, in the control group, out of 40 respondents, 35 have internet access and only 5 do not have internet access to their mobile devices.

a- If yes, what type of internet do you generally use?

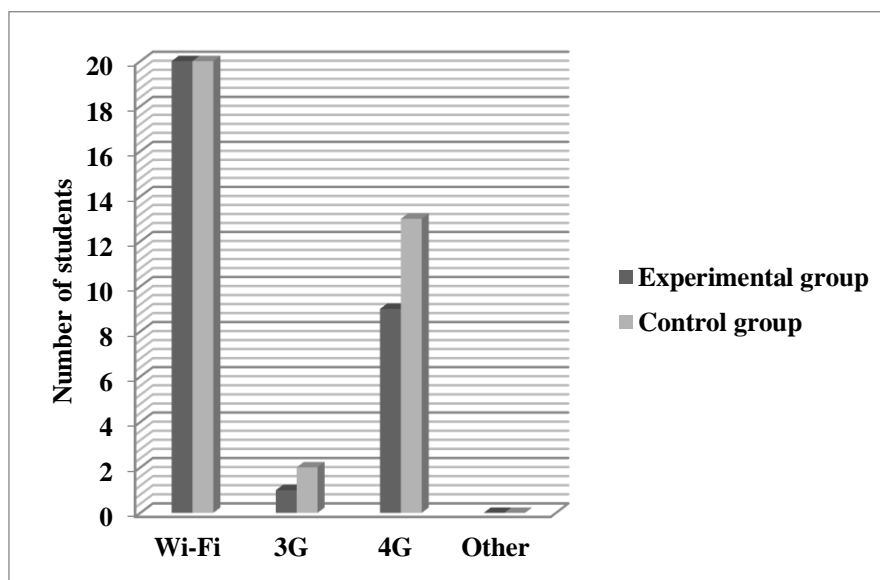


Figure 5.27. Type of Internet Access

From the graph, most of the participants have Wireless Internet Access. 20 participants in both groups claimed that they use Wi-Fi to connect to the

internet. The 4G comes at the second place with 9 participants in the experimental group and 13 in the control group. The rest of the participants (only 1 participant in the experimental group, and 2 participants in control group) use the 3G as a source of internet connection. The respondents did not state any other type of internet access.

b- How often do you top up the internet to your mobile device?

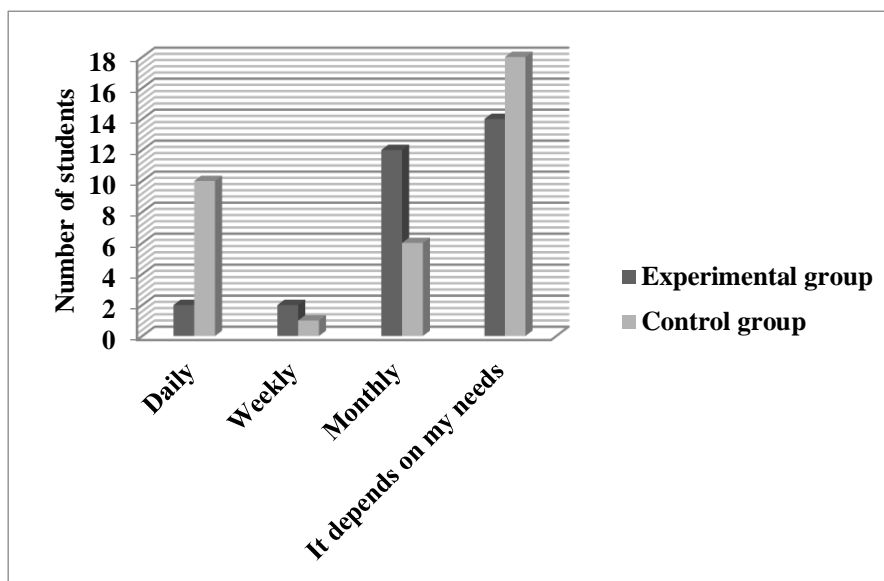


Figure 5.28. Frequency of Students Internet Activation

Figure shows that the majority of the participants top up the internet access to their mobile devices depending on their needs. In the experimental group, out of 30 participants who claimed to have internet access to their mobile devices, 14 claimed that they top up internet access depending on their needs, 12 top it up monthly, 2 weekly, and 2 in a daily basis. By comparison, out of 35 participants in the control group who have internet access to their mobile devices, 18 top up internet access depending on their needs, 10 in a daily basis, 6 participants top it up monthly, while 1 participant claimed to activate internet weekly.

6- How do you evaluate your level of technological knowledge?

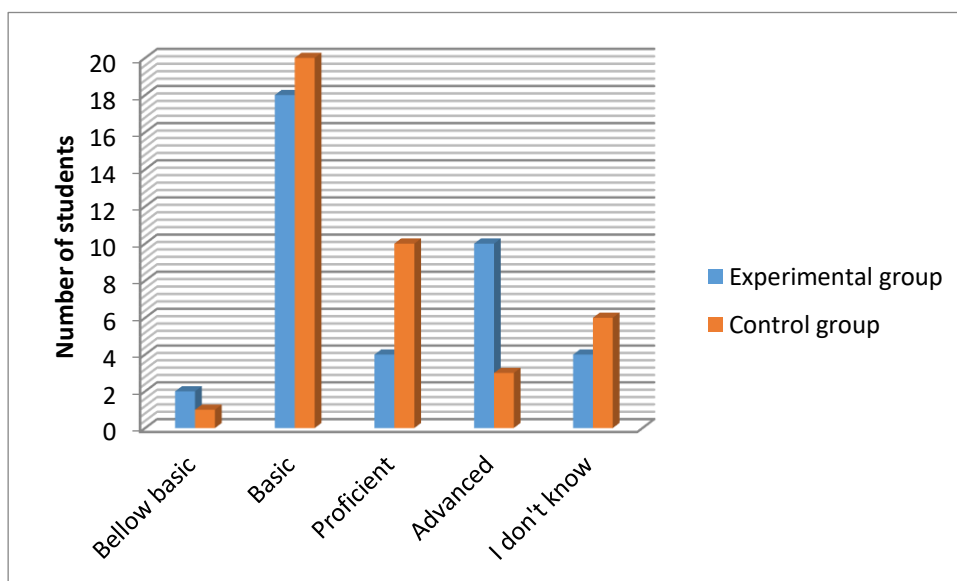


Figure 5.29. Students 'technological level

As far as the technological level is concerned, most of the participants in both groups (18 participants and 20 participants in the experimental group and control group, respectively) described their technological knowledge as basic. Only 2 participants in the experimental group and 1 in the control group claimed that their technological level is below basic. However, out of 38 participants in the experimental group, 4 described their technological level as proficient, 10 as advanced, and only 4 participants don't know their technological level. Concerning the control group, only 2 participants claimed that their technological level is below basic, 10 participants described their technological level as proficient, 3 participants claimed to be advanced, while 6 don't know their technological level.

5.1.3. Part Three: Mobile Usage with Regard to Listening and Speaking Skills

7- What do you often use technology for?

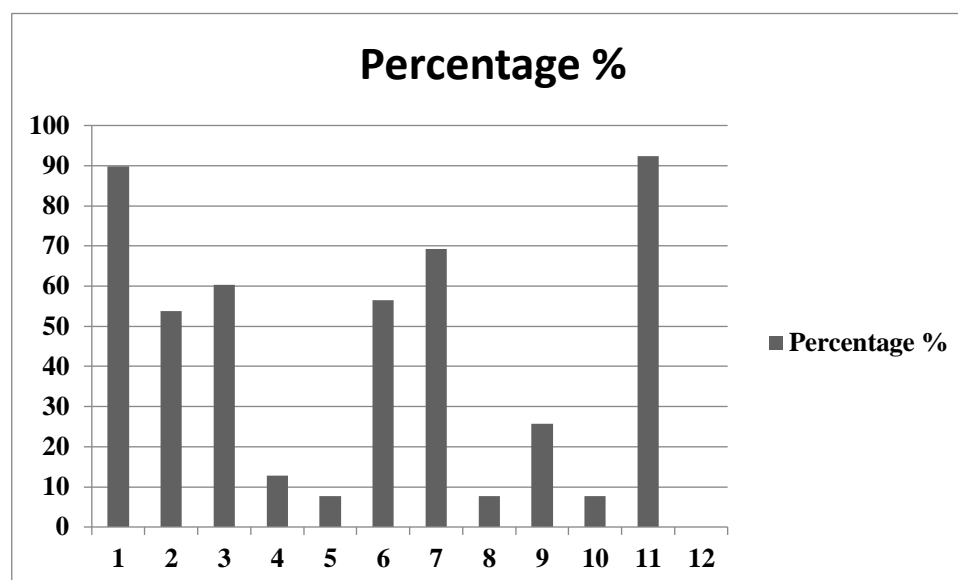


Figure 5.30. Students' use of mobile technology

Expectedly, social networking platforms (11) are the most popular mobile activities accessed by students. Completing homework activities (1) is the second activity, followed by photo editing (7), instant messaging (3), online computer games (6), and email (2). 25.64 % of the respondents claimed that they use technology for web page design activities (9), while 12.82% use it for Programming (4). Finally, watching movies (10), movie making (8), and blogging (5) are reported as less accessed by students. Students haven't reported any other mobile activities.

8- Do you use your mobile device to learn English?

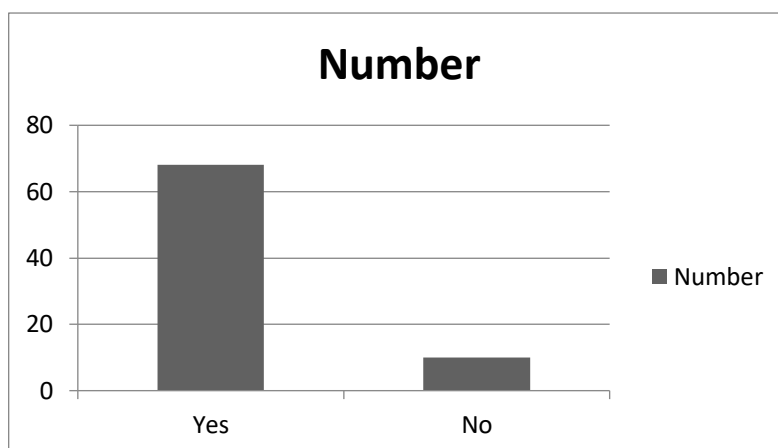


Figure 5.31. Students' use of mobile devices to learn English

The graph indicates that the highest number of students uses mobile devices for learning English.

c- If you do not use your mobile device to learn English, say why:

Most of the answers referred to cost which was identified as a barrier for mobile learning. Reliability of information is another issue. One respondent answered, "It's for one simple reason; my battery runs low", other respondents claimed that it is because their mobiles lack some features.

d- If yes, how often?

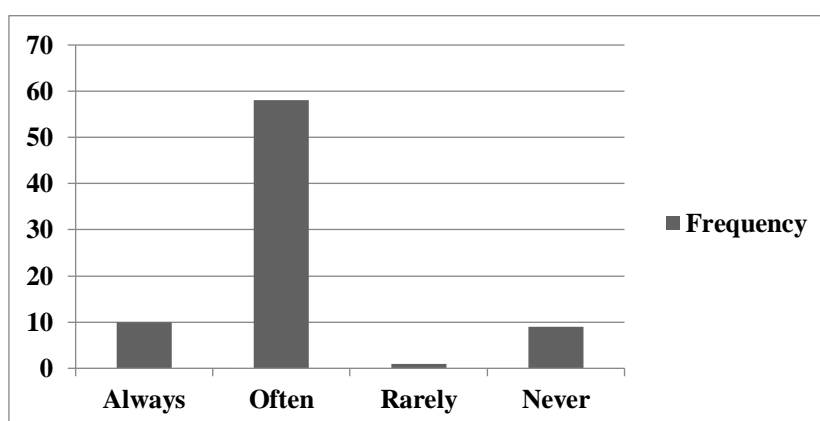


Figure 5.33. Frequency of using Mobile-assisted Language Learning

As far as the frequency of using mobile devices to learn English is concerned, and according to the graph, most of the respondents claimed that

they use their mobile devices very often. Ten (10) respondents always use their mobile devices to learn English, while Nine (09) respondents never do so, and one (01) rarely uses the mobile devices to do so.

9- When do you often use your mobile device to learn English?

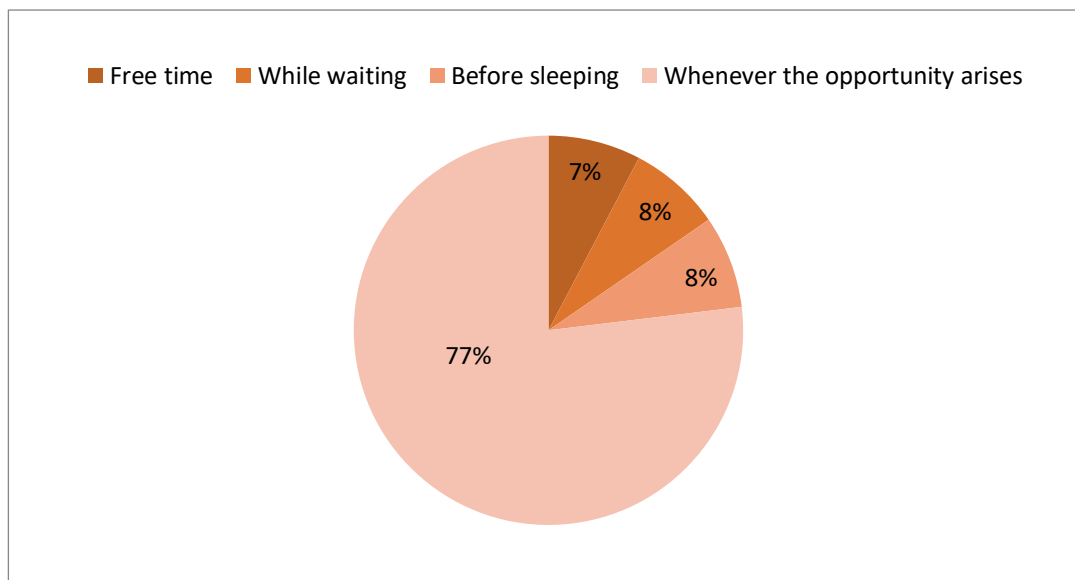


Figure5.33. Times of Mobile-assisted Language Learning

The Figure demonstrates that the majority of the respondents access to Mobile-assisted Language Learning activities whenever the opportunity arises. While the same percentage of respondents claimed that they use their mobile devices to learn English either in their free time, while waiting, or before sleeping.

10- Where do you often use your mobile device to learn English?

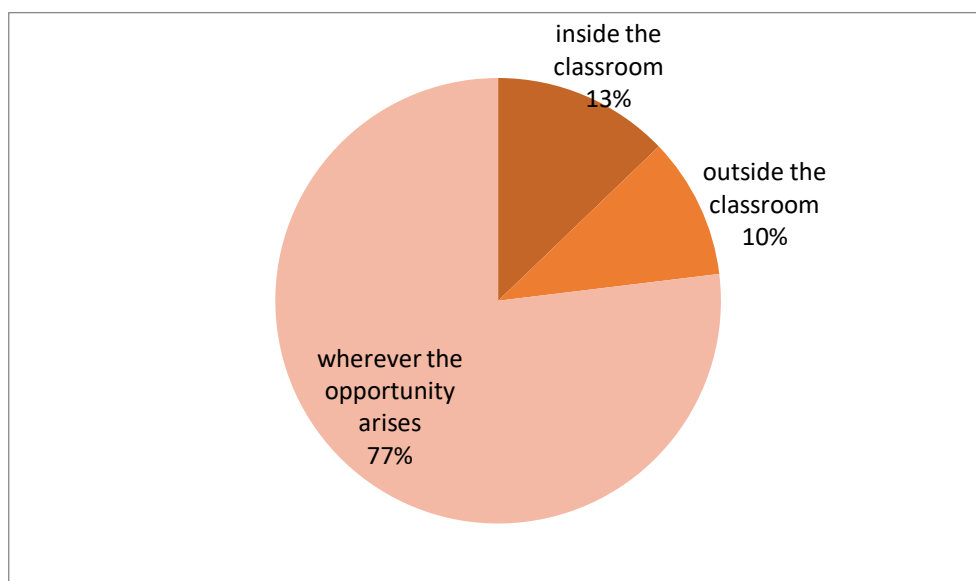


Figure 5.34. Places of Mobile-assisted Language Learning

The highest percentage of participants often learns English through their mobile devices wherever the opportunity arises. Only ten students do so inside the school, and eight outside the classroom.

e- In case it's used inside the classroom, it is for what purpose?

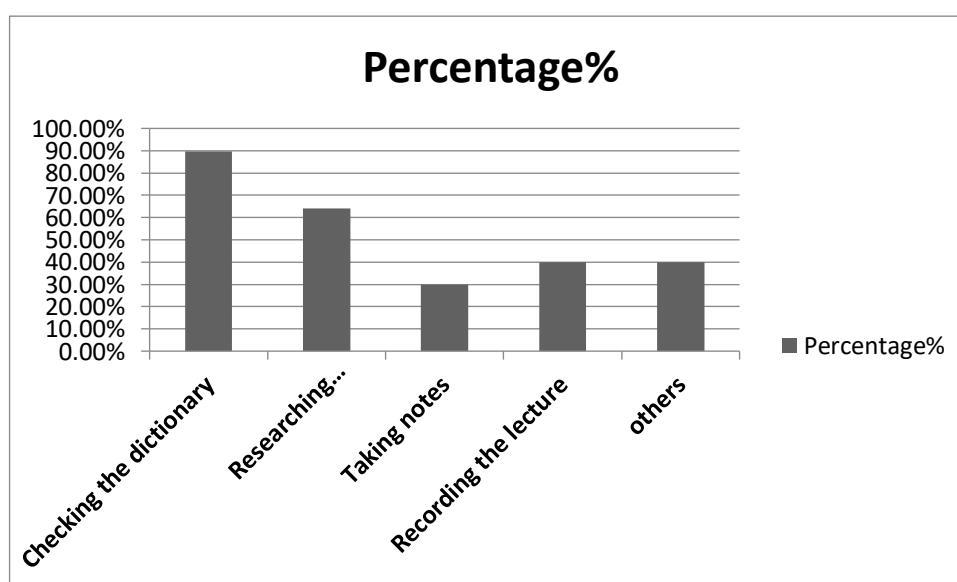


Figure 5.35. mobile-based activities inside the classroom

Figure reveals that students use their mobile devices inside the classroom for different purposes. The vast majority of the respondents (89.74%) use their mobile devices to check the dictionary. Taking advantage of the 4G internet connexion, 64.10% also use their devices for researching information on the internet. Recording lectures and note taking come at the third and the fourth place, respectively. Some respondents added that they also use their mobile devices for activities such as sharing learning materials, downloading/ reading handouts.

14- What kind of content do you generally use on your mobile device?

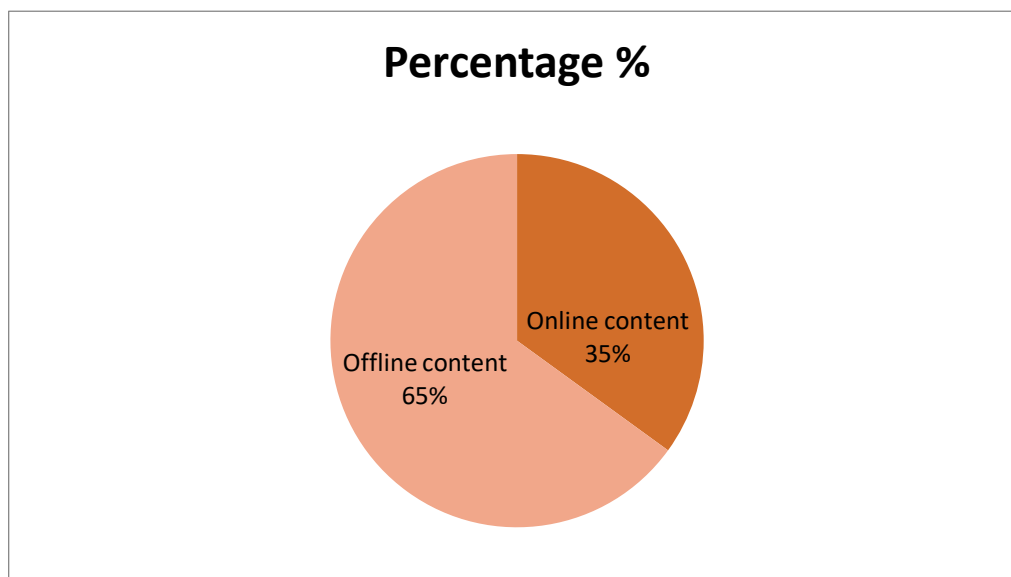


Figure 5.36. type of mobile content

According to the graph, 65% of the respondents claimed using offline content. Students prefer using offline content because it doesn't require an internet connection at all times which avoids the poor network quality.

15- Which aspects of English Language do you intend to improve by using mobile activities?

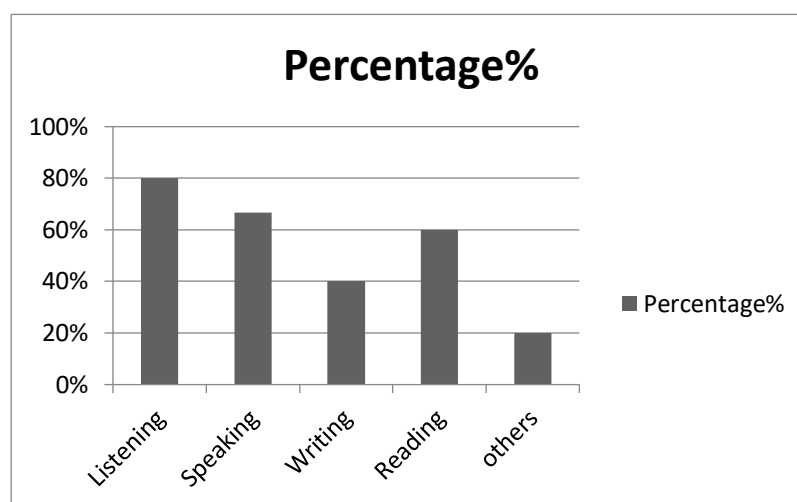


Figure 5.37. Language aspects improved through mobile devices

As the graph shows, 80% of the respondents claimed intending to improve their listening skills with the use of their mobile devices. Speaking skill was ranked at the second place, followed by reading. Writing is less much interesting. 20% of the respondents added vocabulary, pronunciation, and grammar aspects as language aspects they intend to improve with their mobiles. Not surprisingly, the results reflected the students' interest in communication skills as well as the lack of experience in writing.

16- As far as Listening and Speaking skills are concerned, how often do the following happen to you?

A- Listening:

a- Have trouble understanding lectures

Response	Always	Often	Sometimes	Never	N/A
N ^o	12	12	50	02	02
%	15.38%	15.38%	64.10%	2.56%	2.56%

Table 5.13. frequency of having trouble understanding lectures*b- Have trouble taking effective notes*

Response	Always	Often	Sometimes	Never	N/A
N °	10	35	25	08	00
%	12.82%	44.87%	32.05%	10.26%	00%

Table 5.14. frequency of having trouble taking effective notes*c- Have to ask staff questions to clarify material you have been taught*

Response	Always	Often	Sometimes	Never	N/A
N °	05	10	45	1	03
%	6.41%	12.82%	57.69%	19.23%	3.85%

Table 5.15. frequency of asking questions for clarification*d- Have trouble understanding lengthy descriptions in English*

Response	Always	Often	Sometimes	Never	N/A
N °	15	13	40	05	05
%	19.23%	16.67%	51.28%	6.41%	6.41%

Table 5.16. frequency of having trouble understanding lengthy descriptions

e- Have trouble understanding spoken instructions

Response	Always	Often	Sometimes	Never	N/A
N °	05	11	26	30	06
%	6.41%	14.10%	33.33%	38.46%	7.69%

Table 5.17. frequency of having trouble understanding spoken instructions*f- Have trouble understanding informal language*

Response	Always	Often	Sometimes	Never	N/A
N °	11	20	34	08	05
%	14.10%	25.64%	43.59%	10.26%	6.41%

Table 5.18. frequency of having trouble understanding informal language*g- Have trouble understanding the subject matter of a talk*

Response	Always	Often	Sometimes	Never	N/A
N °	03	06	40	20	09
%	3.85%	7.69%	51.28%	25.64%	11.54%

Table 5.19. frequency of having trouble understanding the subject

The tables above report participants' frequency of facing troubles in a range of listening situations such as understanding informal talk, spoken instructions, etc. Therefore, when grouped together, they resulted in the following:

- When asked about how often they have faced trouble understanding lectures, 64.10% of the respondents claimed that they sometimes faced problems understanding lectures, 15.38% always and often do so, respectively, and only 2.56% said they never face problems understanding lectures.
- As expected, the large majority of the participants said that they have trouble in taking effective notes. 10.26% of the respondents said that they never face such a problem.
- As far as asking for clarification is concerned, 19.23% of the respondents claimed never asking for clarification about the material that has been taught, 57.69% sometimes do so, while 12.82% and 6.41% often and always do so, respectively.
- Not surprisingly, lengthy descriptions in English pose a problem to more than half of the participants, with only 6.41% saying that they do not have trouble understanding lengthy descriptions in English.
- When it comes to spoken instructions, the answers varied among the participants. 6.41% said that they always have trouble understanding spoken instructions, 14.10% often do so, and 38.46% never find difficulties in understanding spoken instructions.
- One characteristic of spoken language is its informal aspect. The vast majority of the respondents claimed having trouble understanding the informal language.
- As expected, the subject matter of the talk cannot be easily grasped while listening. 51.28% of the respondents said that they sometimes find trouble getting the subject matter of the talk.

B- Speaking:*a- Have difficulty giving oral presentations*

Response	Always	Often	Sometimes	Never	N/A
N °	08	25	35	10	00
%	10.26%	32.05%	44.87%	12.82%	00%

Table 5.20. Frequency of having difficulty giving oral presentations*b- Have trouble wording what you want to say quickly enough*

Response	Always	Often	Sometimes	Never	N/A
N °	11	23	(10	03
%	14.10%	29.49%	37.18%	12.82%	3.85%

Table 5.21. Frequency of having trouble wording quickly*c- Worry saying something in case you make a mistake in your English*

Response	Always	Often	Sometimes	Never	N/A
N °	15	13	40	05	05
%	19.23%	16.67%	51.28%	6.41%	6.41%

Table 5.22. Frequency of worrying about making mistakes

d- Not know how to say something in English

Response	Always	Often	Sometimes	Never	N/A
N °	02	15	25	30	06
%	2.56%	19.23%	32.05%	32.05%	7.69%

Table 5.23. Frequency of not knowing how to say something in English

e- Not know the best way to say something in English

Response	Always	Often	Sometimes	Never	N/A
N °	33	10	22	12	01
%	42.31%	12.82%	28.20%	15.38%	1.28%

Table 5.24. Frequency of not knowing the best way to say something in English

f- Have difficulty with your pronunciation of words

Response	Always	Often	Sometimes	Never	N/A
N °	22	20	25	09	02
%	28.20%	25.64%	32.05%	11.54%	2.65%

Table 5.25. Frequency of having difficulty with pronunciation of words

g- Find it difficult to enter discussion

Response	Always	Often	Sometimes	Never	N/A
N o	15	13	40	05	05
%	19.23%	16.67%	51.28%	6.41%	6.41%

Table 5.26. Frequency of having difficulty entering a discussion

As far as speaking is concerned, the tables above are to be reported together since they demonstrate the frequency of students facing troubles in speaking situations. Here are the results.

- Not surprisingly, 44.87% of the participants claimed having trouble giving oral presentations while 12.82% of them said they never did.
- Similarly, over 60% of the participants said they have trouble wording what they want to say quickly enough. This is may be due to the lack of practice in English.
- Worrying to say something wrong in English is another factor that the students face when learning speaking. 51.28% of the respondents worry about making mistakes when speaking.
- As expected, 32.05% of the students reported that they sometimes do not know how to say something in English, while 32.05% said that they never did.
- Surprisingly, 42.31% of the respondents reported that they always do not know the best way to say something in English. This may reflect the lack of exposure to the language and lack of practice.
- As far as pronunciation is concerned, over half of the participants have pronunciation issues.
- Finally, even though it may be considered as pivotal in everyday life situations, entering discussions is not regarded as an easy task by the

majority of the participants. However, 6.41% of the respondents never find it difficult entering a discussion.

17- according to you, what factors do affect learning listening and speaking?

A- Listening

a- speakers talk very fast

Response	Often	Sometimes	Never
N °	35	28	15
%	44.87%	35.90%	19.23%

Table 5.27. Factor of speakers talking very fast factor

According to table 5.27, 35.90% of the respondents said that the speaker's speech rate sometimes affects the process of learning listening, 44.87% often do, while 19.23% never do so.

b- the speakers' accents or pronunciation are different from what I am used to

Response	Often	Sometimes	Never
Number	26	50	02
Percentage %	33.33%	64.10%	2.56%

Table 5.28. Frequency of the factor of different pronunciations

Table 5.28 shows that the vast majority of the respondents (64.10%) claimed that they sometimes found that the speaker's accents or pronunciation are different from what they were used to.

c- More than one person is speaking, e.g., in group discussions

Response	Often	Sometimes	Never
N °	18	25	35
%	23.08%	32.05%	44.87%

Table 5.29. Frequency of group discussion factor

Unexpectedly, 44.87% of the respondents claimed that they never considered more than one person speaking as a factor that influences their learning of listening skills.

d- Others:

The respondents did not mention any other factors.

B- Speaking

a- Lack of vocabulary

Response	Often	Sometimes	Never
N °	55	19	04
%	70.51%	24.36%	5.13%

Table 5.30. Frequency of lack of vocabulary factor

An important aspect that may affect the process of learning speaking is the students' lack of vocabulary. As expected, 70.51% of the respondents claimed that they often found lack of vocabulary a factor that hinder their learning speaking, 24.35% sometimes did so, and only 5.13% never did so.

b- Hesitation and/ or fear of making mistakes

Response	Often	Sometimes	Never
N °	59	16	03
%	75.64%	20.51%	3.85%

Table 5.31. The factor of hesitation and fear of making mistakes*c- Uncomfortable atmosphere*

Response	Often	Sometimes	Never
N °	35	28	15
%	44.87%	35.90%	19.23%

Table 5.32. Frequency of the factor of uncomfortable atmosphere

As table shows, the uncomfortable atmosphere is regarded as an influencing factor by the majority of the respondents.

d- Lack of motivation

Response	Often	Sometimes	Never
N °	63	10	05
%	80.77%	12.82%	6.41%

Table 5.33. Frequency of the factor of lack of motivation

As expected, 80.77% of the participants claimed that lack of motivation is often regarded as a factor influencing their learning of speaking, 12.82% of them sometimes did so, while 6.41% never considered it as a factor.

e- Others:

The participants did not mention any other factors.

18- What kind of mobile activities do you often use to practice Listening and Speaking Skills?

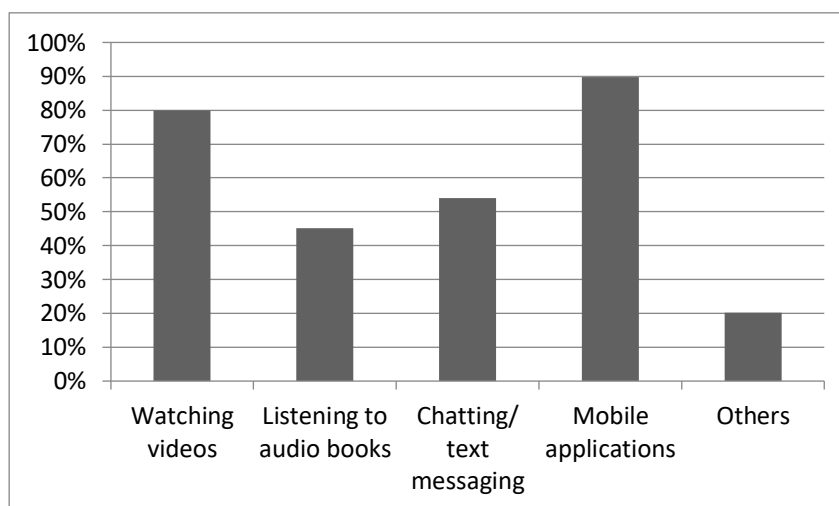


Figure 5. 38. Mobile activities used to practice listening and speaking

As figure reveals, 89.8% of the participants use mobile applications to practice their listening and speaking skills. Watching videos comes at the second place with 80%, followed by text messaging and chatting (54%), and listening to audio books (45.2%). 20.2% of the respondents added other mobile activities such as games, podcasts and songs.

5.1.4. Part Four: Students' Readiness towards Mobile Usage with Regard to Listening and Speaking Skills

19- To what extent are you interested in using your mobile device inside the classroom?

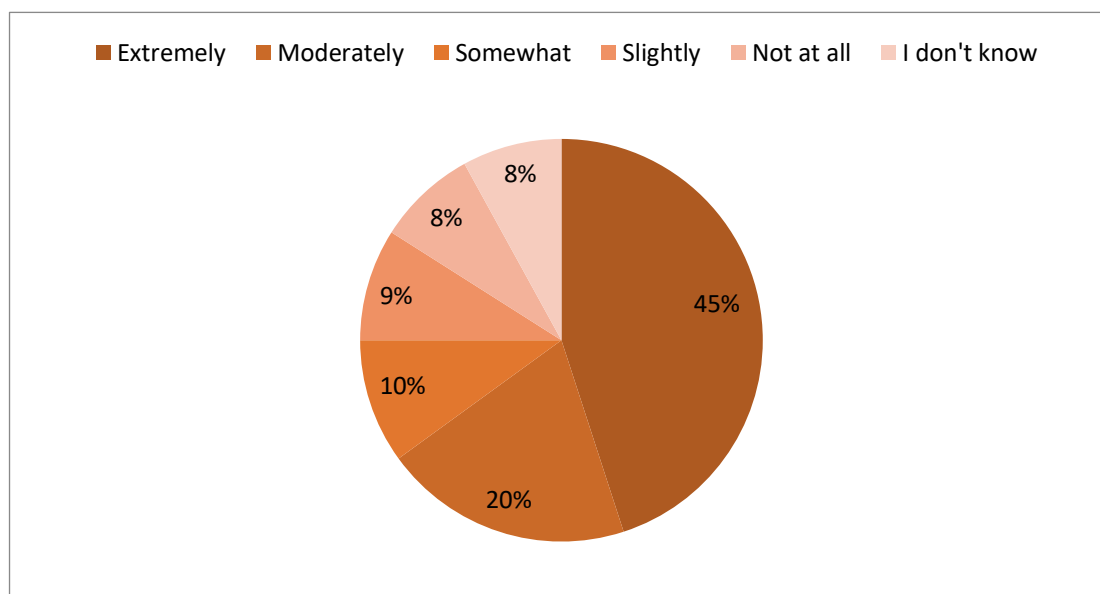


Figure 5.39. Interest in using mobile device inside the classroom

As figure above shows, it can be noticed that 45% of the respondents showed extreme interest in using mobile technology inside the classroom, 20% were moderately interested, while 8% were not at all interested, and the same percentage did not know.

- *If you are not interested at all, say why*

Only 07 respondents answered this question. Two main reasons advanced by the students were lack of technological knowledge and fear of distraction.

20- What do you like to use technology for at University?

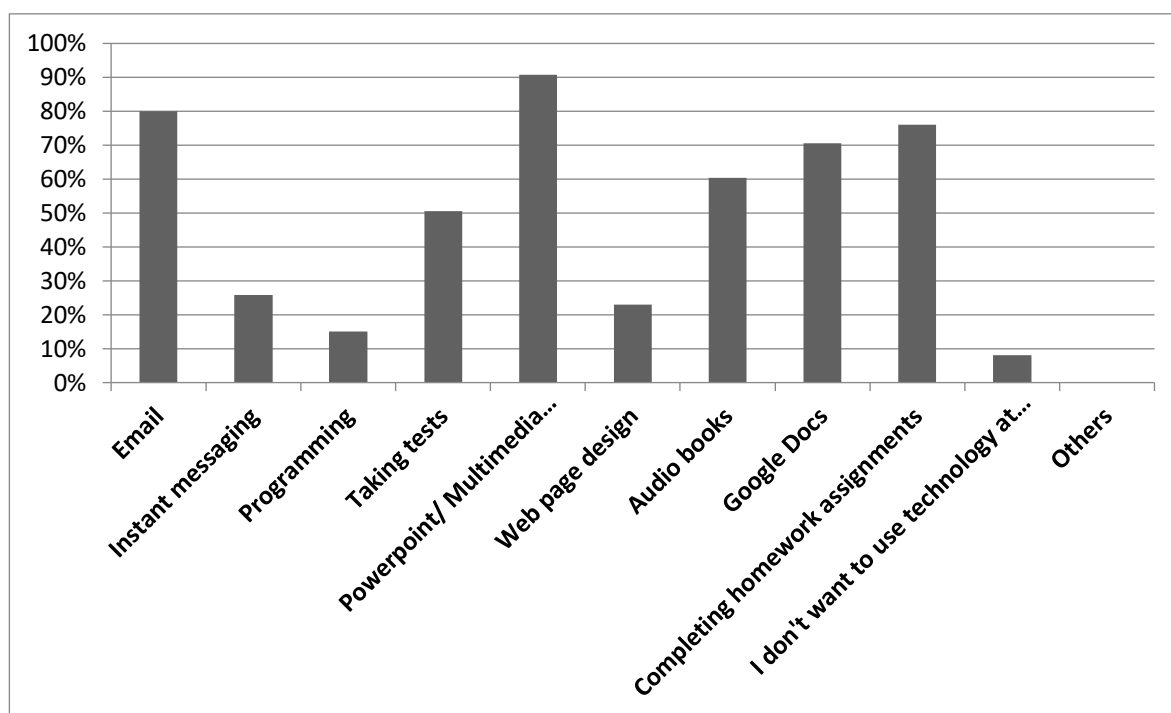


Figure 5.40. Students' opinions towards using technology at the university

According to figure 5.40, 90.82% of the participants were in favor of using technology for PowerPoint and multimedia presentations. Others (80%) claimed that they prefer using technology for emails, followed by completing homework assignments (76%), using Google docs (70.5%), and audio books (60.36%). Activities such as instant messaging, web page design, and programming, were ranked the least.

21- As for the videos and audios, how long do you prefer the video or audio clip to last?

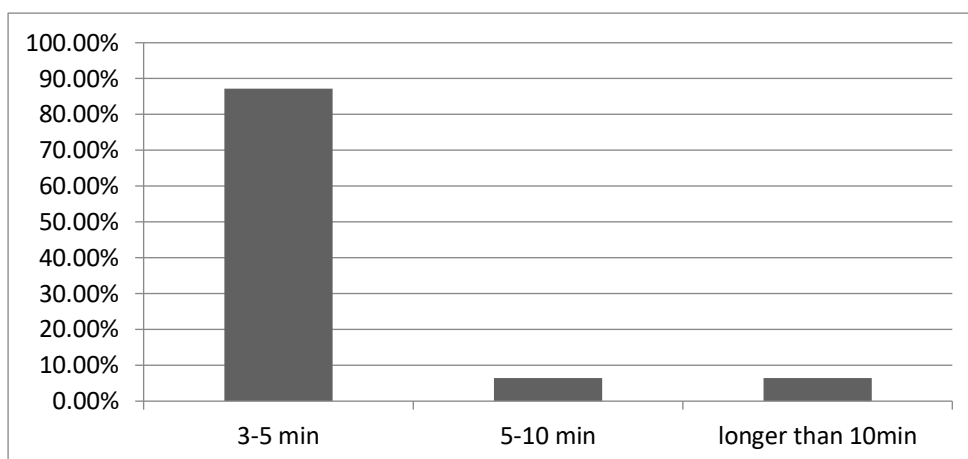


Figure 5.41. Students' opinion about duration of audio/ video recordings

As can be seen from the graph, the vast majority of the respondents prefer audio recordings and videos of 3-5 minutes.

22. What type of class work do you prefer?

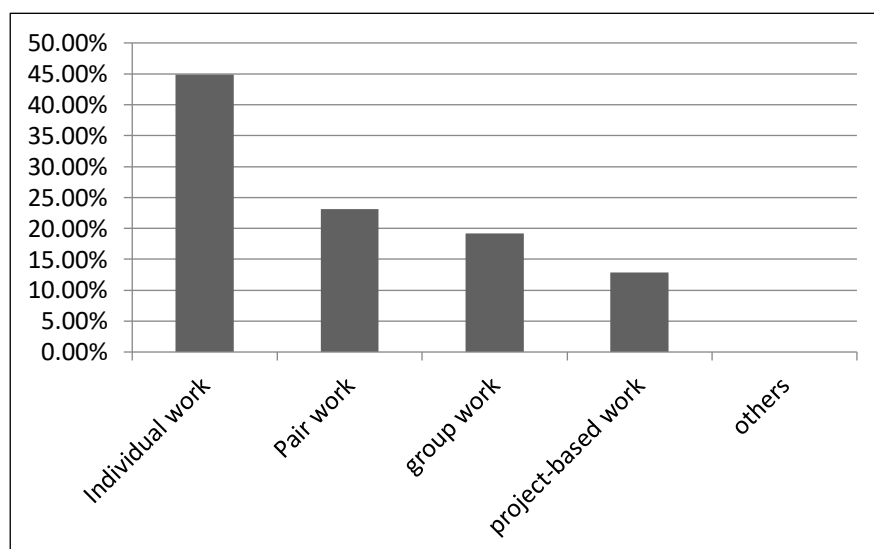


Figure 5.42. Students' preferred class work

From the above graph, it can be understood the answers vary from individual work (44.87%), to pair work (23.08%), group work (19.23%), and project-based work (12.82%).

23. What is your preferred learning style?

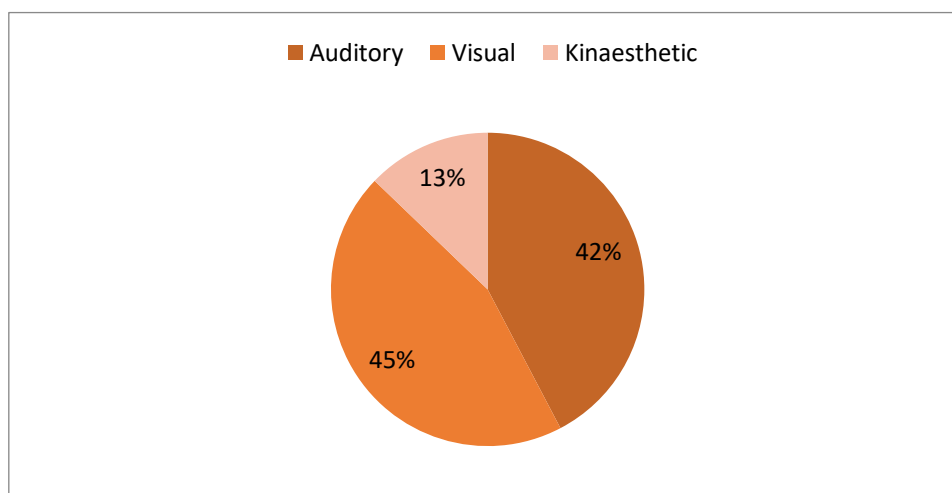


Figure 5.43. Student's preferred learning style

As can be seen from the pie chart above, the most preferred learning styles among the respondents are the auditory and visual learning styles, (44.78%, and 42.31%); respectively.

24- How do you like to be assessed in formal tests and exams in Listening and Speaking module?

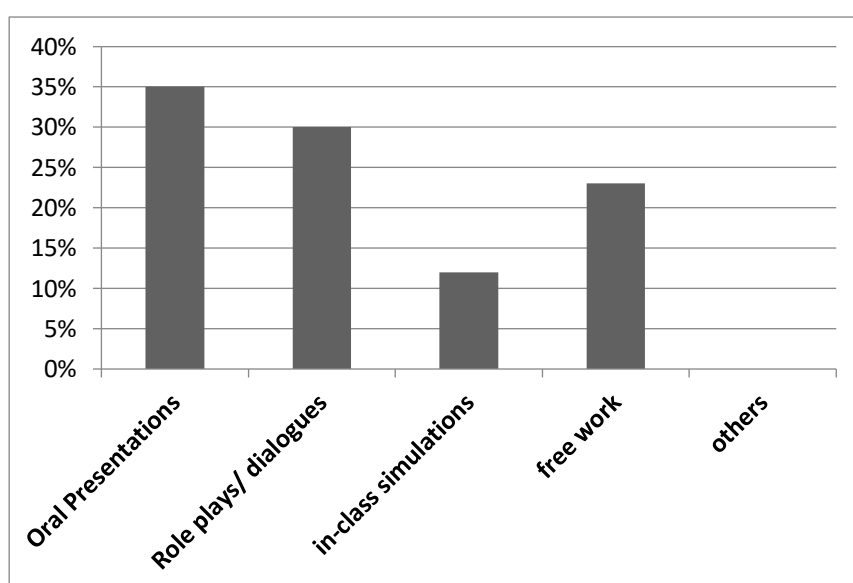


Figure 5.44. Students' preferred assessment techniques

As the graph shows, 35% of the respondents prefer to be assessed with oral presentations. Others (30%) claim that role plays and dialogues are also preferred in assessing listening and speaking skills. free work, and in-class simulations were seen as the third and the last option, respectively. The participants did not mention any other assessment technique.

25- Please, select the scale of agreement from below statements

a- Mobile-based activities will motivate me to practice listening and speaking better than traditional classroom

Response	Strongly agree	Slightly agree	Agree	Slightly disagree	Strongly disagree
N °	06	19	25	10	06
%	7.69%	24.36%	32.05%	12.82%	7.69%

Table 5. 34. Student's opinions about motivation of mobile devices

As table shows, almost half of the participants think that mobile-based activities will motivate me to practice listening and speaking better than traditional classroom.

b- Mobile-based activities will encourage me to engage in authentic communication

Response	Strongly agree	Slightly agree	Agree	Slightly disagree	Strongly disagree
N °	33	10	22	12	01
%	42.31%	12.82%	28.20%	15.38%	1.28%

Table 5.35. Students' opinions about engagement in authentic communication

The majority of the respondents claimed that they think that mobile-based activities will encourage them engage in authentic communication. However, 15.38% of them slightly disagreed, and only 1.28% strongly disagreed.

c- Mobile-based learning will develop my autonomous learning

Response	Strongly agree	Slightly agree	Agree	Slightly disagree	Strongly disagree
N °	12	01	33	22	10
%	15.38%	1.28%	42.31%	28.20%	12.82%

Table 5.36. Students' opinions about autonomous learning

Table shows slightly different responses, some students (28.20% slightly disagreed, and 12.82% strongly disagreed) said that they think that mobile-based teaching will not develop their autonomous learning. 42.31% agreed with the statement.

d- Mobile devices offer opportunities that satisfy my preferred learning style

Response	Strongly agree	Slightly agree	Agree	Slightly disagree	Strongly disagree
N °	12	12	50	02	02
%	15.38%	15.38%	64.10%	2.56%	2.56%

Table 5.37. Students' opinions about learning style

As far as the learning styles are concerned, it can be noticed from table above that the vast majority of the respondents think that the used of mobile devices will offer opportunities that satisfy their different learning styles.

e- Mobile devices offer a wide range of modalities (e.g. audio, and visual) that satisfy my needs.

Response	Strongly agree	Slightly agree	Agree	Slightly disagree	Strongly disagree
N °	14	12	52	00	00
%	17.94%	15.38%	66.67%	00%	00%

Table 5.38. Students opinions about the modalities of mobile devices

As expected, all the participants consider mobile devices as tools that may offer a wide range of modalities that satisfy their needs.

26- Do you have any further suggestions for us as we plan for the future of technology at university?

Many comments were received, where most of them were towards the novelty of the topic. Most of the students' comments shared the same idea that teachers should allow and encourage the use of mobile devices as these devices are available and motivating.

This analysis comprises gathering information to inform decisions about instructional strategies, media and technology, and evaluation of the implementation of the design. The main aim of the analysis process is to explore the context and to gather information about the participants' background. The findings that were stated above in the section of interpretation and analysis of the questionnaire proved that our sample, 1st year EFL degree students at Algiers2 University, showed readiness to use the mobile devices as learning tools. The results paved the way for the integration of the mobile-based activities during the listening and speaking skills session.. As far as the researcher got a clear vision of how Listening and Speaking Skills module is taught, and to what extent students are ready for using mobile devices, a quasi- experimental study was conducted. The next section will show the results of the experimental phase. Thus, results of the experiment are presented in the coming section that deals with the analysis of the quasi-experimental study.

5.2. Results of the quasi-experimental Study

As mentioned earlier, the foremost aim of this study is to investigate the effect of MALL on developing listening and speaking skills of first year students of English. Ergo, the researcher designed a quasi- experimental study with two groups: a control group and an experimental group. The experiment lasted six months, the first semester of the academic year 2017/2018, one session for three hours per week. In accordance with the requirement of the study, both groups, the experimental group and control group were subjected to a pretest and a posttest as already explained in Chapter 4. After administering the pretest and posttest to the participants (78 students), we obtained the following score values out of 20. For ethical reasons, the names appearing on the tables are pseudo names of students who participated in the study. The pseudo name is constructed of two parts: “ST” which stands for the word “Student”, and students’ number, for instance, “ST1”.

First, the pre-test scores of both groups in listening and speaking skills are interpreted and encoded using the descriptive statistics procedure to calculate scores frequencies; the two groups are compared using the independent samples t-test procedures to calculate the mean, standard deviation and p-values, and so does the researcher with the post-test scores. All the participants’ performances are judged based on the same rating scale. As far as speaking skills are concerned, the speaking skill test relies on band descriptors used to evaluate the participant’s speaking skills (See Appendix 8). The next two sub-points deal with the paired t-test statistics for each of the experimental group and control group.

5.2.1. Two independent Samples t-test of control and experimental groups

5.2.1.1. Results of the Listening and Speaking Pretest

As it has already been mentioned, both groups undertook a pretest in listening and speaking skills before the experiment in order to assess the participants' initial proficiency level. The scores are recorded in tables below.

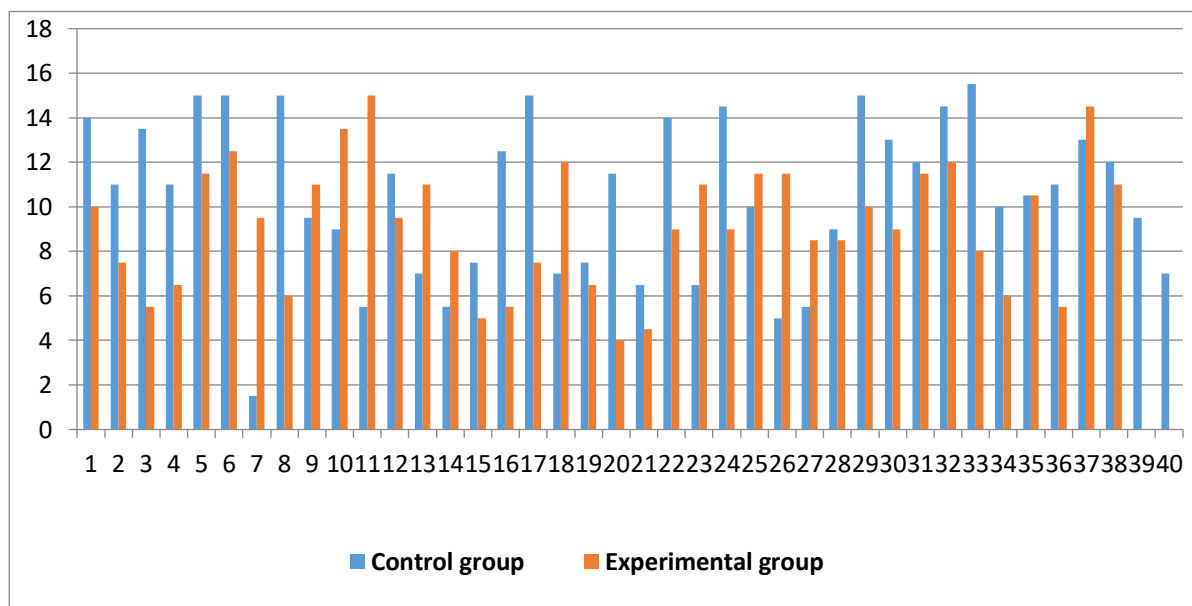
Group	Participant	Listening	Speaking
Control Group	ST1	14	12
	ST2	11	13
	ST3	13,5	14
	ST4	11	10
	ST5	15	13
	ST6	15	14
	ST7	1,5	4
	ST8	15	13
	ST9	9,5	8
	ST10	9	6
	ST11	5,5	6
	ST12	11,5	9,5
	ST13	7	5,5
	ST14	5,5	7
	ST15	7,5	6
	ST16	12,5	13
	ST17	15	12
	ST18	7	6
	ST19	7,5	6
	ST20	11,5	8
	ST21	6,5	5
	ST22	14	11
	ST23	6,5	5
	ST24	14,5	11,5
	ST25	10	10
	ST26	5	4
	ST27	5,5	3,5
	ST28	9	8
	ST29	15	12
	ST30	13	11
	ST31	12	10
	ST32	14,5	11
	ST33	15,5	13
	ST34	10	9
	ST35	10,5	8,5
	ST36	11	11
	ST37	13	10
	ST38	12	9
	ST39	9,5	8
	ST40	7	5
Sum of Scores $\sum x$		419	361.5
Mean of scores \bar{X}		10.47	9.03

Table 5.39. Pretest scores of the Control group

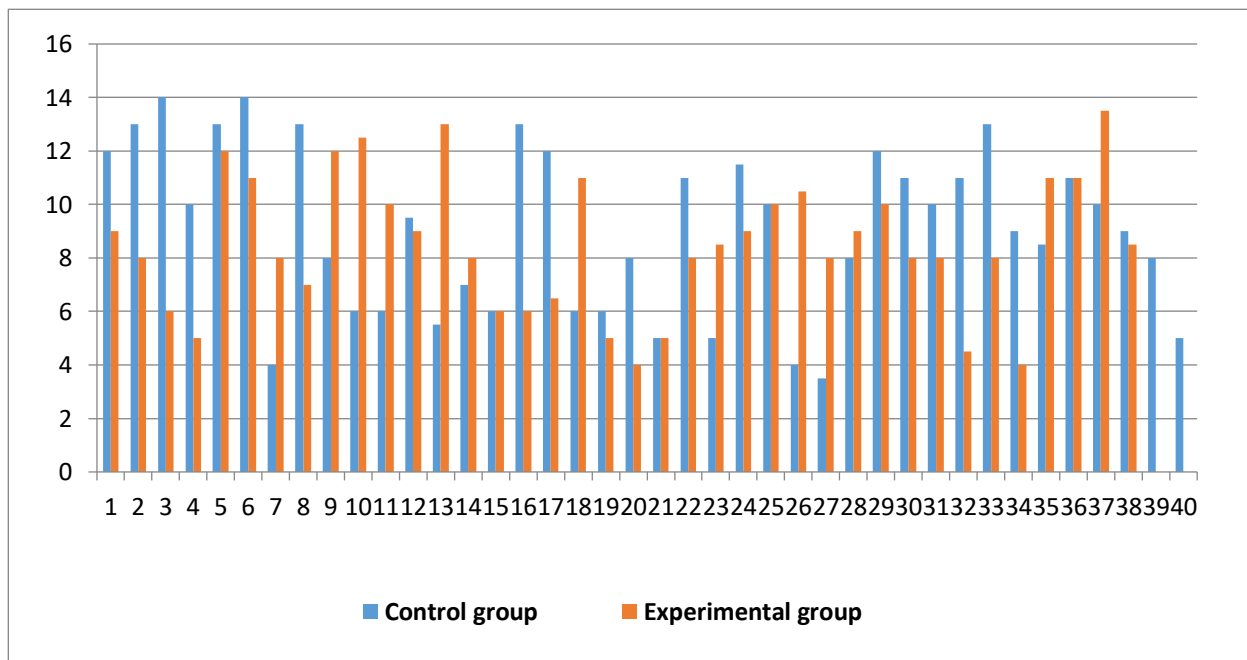
Group	Participant	Listening	Speaking
Experimental Group	ST41	10	9
	ST42	7,5	8
	ST43	5,5	6
	ST44	6,5	5
	ST45	11,5	12
	ST46	12,5	11
	ST47	9,5	8
	ST48	6	7
	ST49	11	12
	ST50	13,5	12,5
	ST51	15	10
	ST52	9,5	9
	ST53	11	13
	ST54	8	8
	ST55	5	6
	ST56	5,5	6
	ST57	7,5	6,5
	ST58	12	11
	ST59	6,5	5
	ST60	4	4
	ST61	4,5	5
	ST62	9	8
	ST63	11	8,5
	ST64	9	9
	ST65	11,5	10
	ST66	11,5	10,5
	ST67	8,5	8
	ST68	8,5	9
ST69	10	10	
ST70	9	8	
ST71	11,5	8	
ST72	12	4,5	
ST73	8	8	
ST74	6	4	
ST75	10,5	11	
ST76	5,5	11	
ST77	14,5	13,5	
ST78	11	8,5	
Sum of Scores $\sum x$		349	323,5
Mean of scores \bar{X}		9.13	8,51

Table 5.40. Pretest scores of the experimental group

To present graphically the scores, the histogram is used to present the students' scores in the listening pretest:



Graph 5.44. Histogram Representing Students' scores of the listening Pretest



Graph 5.45. Histogram Representing Students' scores of the Speaking Pretest

The instant interpretation of tables and graphs shows that the participant in the experimental group began the study at a lower baseline than the control group,

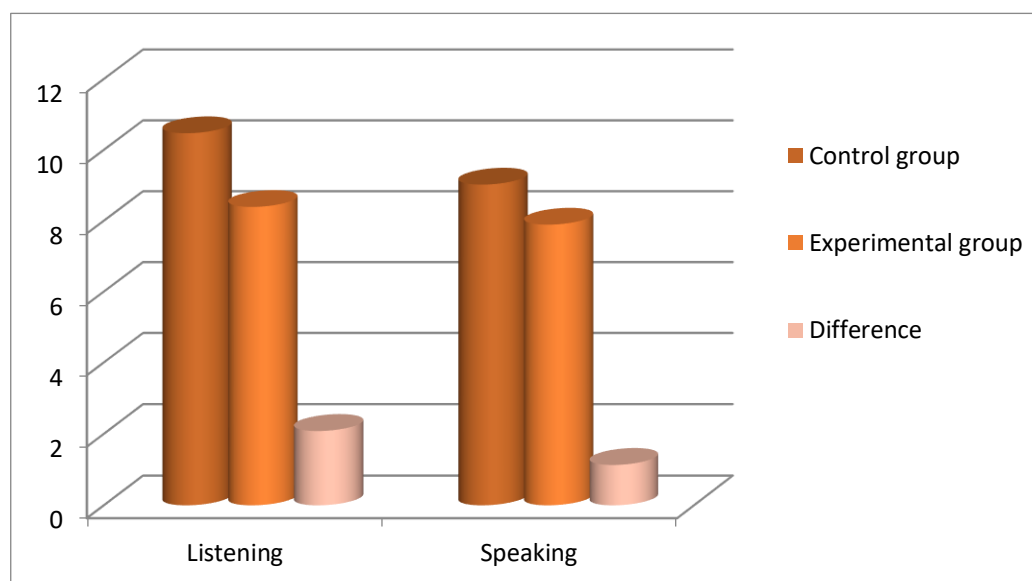
which is expressed in the sum of scores (349 vs. 419, and 323.5 vs. 361.5, in the listening and speaking pretest, respectively).

Table 5.41 depicts how the participants achieved in the pretest by comparing statistically the means of scores of both the experimental and control group.

Group	Control group	Experimental group	The difference in the means
Means (Listening)	10.47	9.18	1.29
Means (Speaking)	9.03	8,51	0.52

Table 5.41. The Pretest Means of Scores

The overall picture of the Means of Scores in the Pretest Study is represented graphically in graph 4.6.



Graph 5.46. The Pretest Means Compared

According to the results displayed in table 5.45 and graph 5.46, we notice that both groups perform well in the listening pretest compared to the speaking pretest.

5.2.1.2. Descriptive statistics and Independent Samples t-test of the Pretest

The mean scores, standard deviations, and results of the t-test of the pretest for both groups are illustrated in Table 5.42.

		Mean	SD	T-value	df	Critical value
<i>Listening</i>	Control (N=40)	10.47	3.56	-1.76	76	1.99 at alpha level= 0.05
	Experimental (N=38)	9.18	2.83			
<i>Speaking</i>	Control (N=40)	9.03	3.10	0.81	76	1.99 at alpha level= 0.05
	Experimental (N=38)	8.51	2.56			

Table 5.42. Descriptive statistics and Independent samples t-test of both groups in the Listening and Speaking pre-test

From table 5.42, it can be noticed that, in the listening pretest, the mean of the control group is 10.47 with a standard deviation of 3.56, and the mean of the experimental group is 9.13 with a standard deviation of 2.83. Besides, the calculated t-value is -1.76, hence, the absolute value of the calculated t is smaller than critical value ($1.7649 < 1.994$), so the means are not significantly different, at an alpha level of 0.05. As far as the speaking pretest is concerned, the absolute value of the calculated t is smaller than critical value ($0.8104 < 1.994$), so the means are not significantly different.

As already mentioned in Chapter4, the speaking test is based on four criteria. After the administration of the pretest, we assessed the students' speaking performance basing on the four speaking criteria (Fluency and Coherence, Lexical Resource, Grammatical Range and Accuracy, and pronunciation) using the IELTS speaking rating- scale. The results of the speaking sub-skills pretest of both groups are presented as follows:

Criteria	Experimental Group		Control Group	
	Total	Average	Total	Average
Fluency and Coherence	63	1.66	68	1.6
Lexical Resource	80.5	2.12	88	2.2
Grammatical range and accuracy	102	2.68	120.5	3.02
Pronunciation	78	2.05	85	2.12

Table 5.43. Students' speaking sub-skills in the pretest

It seems from Table 5.43 that there is a slight difference in the achievement level of the four speaking component of control and experimental groups. In fact, an obvious problem in fluency and accuracy is recorded, where the oral performance of the participants is marked by hesitation, pauses and repetition of words. We can notice that the average of Fluency level is 1.66 for the experimental group and 1.6 for the control group. In terms of Pronunciation, the students in both groups have difficulties in pronunciation. Concerning Lexical Resource, the average for the experimental group is 2.12 and for the control group is 2.2. The table clearly reveals that grammatical range and Accuracy is at the top of the criteria achieved in both groups.

5.2.1.3. Results of the Listening and Speaking Posttest

Tables below displays the results of the post-test of reading administered to both control and experimental subjects.

Group	Participant	Listening	Speaking
Control Group	ST1	13	11
	ST2	12	12
	ST3	14,5	14,5
	ST4	11,5	11
	ST5	16,5	12
	ST6	15,5	14,5
	ST7	6,75	6
	ST8	14	13
	ST9	15,5	10
	ST10	13	11
	ST11	9	8
	ST12	12	11
	ST13	8	10
	ST14	6	11

	ST15	7	8
	ST16	11	13,5
	ST17	15	13
	ST18	7,5	10
	ST19	8	11
	ST20	10	11,5
	ST21	8	8
	ST22	12	11,5
	ST23	6	6
	ST24	12	10
	ST25	11	11
	ST26	8	5,5
	ST27	6	6
	ST28	11	10
	ST29	13	12
	ST30	15	13
	ST31	12,5	11
	ST32	11	10
	ST33	11	12
	ST34	11	10,5
	ST35	10	11
	ST36	8	13
	ST37	12	11,5
	ST38	9	10
	ST39	10	11
	ST40	8	8
	Sum of Scores $\sum x$	430.25	423
	Mean of scores \bar{X}	10.76	10.57

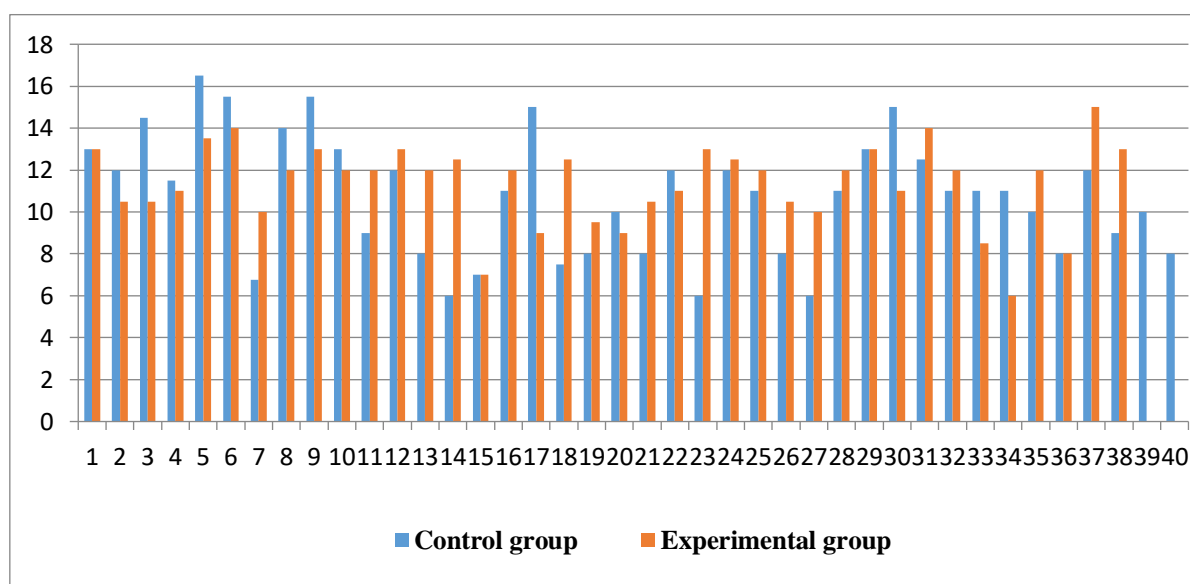
Table 5.44. Posttest scores of the Control group

Group	Participant	Listening	Speaking
Experimental Group	ST41	13	12
	ST42	10,5	13
	ST43	10,5	12
	ST44	13	10
	ST45	15	12
	ST46	14	13
	ST47	13	12
	ST48	12	10
	ST49	13	13
	ST50	14	14
	ST51	12	11
	ST52	13	13
	ST53	12	15
	ST54	12,5	13
	ST55	11,5	12
	ST56	12	12

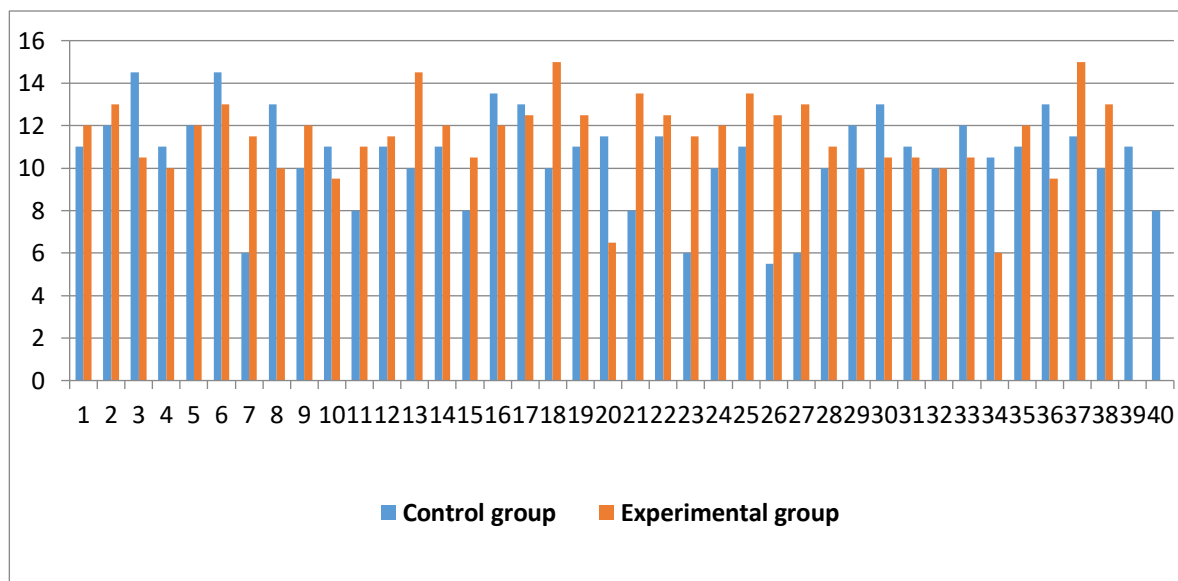
	ST57	14,5	13
	ST58	12,5	15
	ST59	9,5	13
	ST60	12,5	7
	ST61	11	12
	ST62	13,5	12
	ST63	13	12
	ST64	12,5	12
	ST65	12	14
	ST66	10,5	13
	ST67	12	13
	ST68	12	11
	ST69	13	10
	ST70	11	11
	ST71	14	12
	ST72	12	10
	ST73	8,5	11
	ST74	10	10
	ST75	12	12
	ST76	10	12
	ST77	15	15
	ST78	13	13
Sum of Scores $\sum x$		465	460
Mean of scores \bar{X}		12.24	12.10

Table 5.45. Posttest scores of the experimental group

To present graphically the scores, the histogram is used to present the students' scores in the listening pretest:



Graph 5.47. Histogram Representing Students' scores of the Listening Posttest



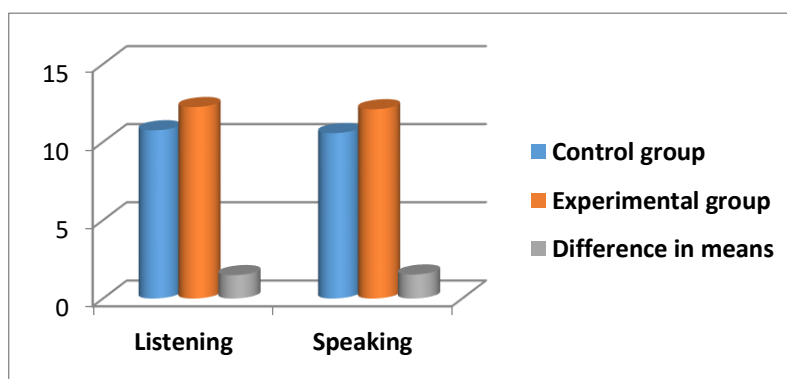
Graph 5.48. Histogram Representing Students' scores of the Speaking Posttest

Table 5.45 depicts how the participants achieved in the posttest by comparing statistically the means of scores of both the experimental and control group.

Group	Control group	Experimental group	The difference in the means
Means (Listening)	10.75	12.24	1.49
Means (Speaking)	10.57	12.10	1.53

Table 5.46. The Posttest Means of Scores

The overall picture of the Means of Scores in the Posttest results is represented graphically in graph 5.49.



Graph 5.49. The Posttest Means Compared

The results displayed in tables and graphs above suggest that multimodal mobile-based teaching (the treatment which the participants in the experimental group had gone through) has increased the participants' scores in the posttest. This is expressed in the means obtained:

- **Listening:** the Mean posttest of the experimental group (12.24 > 10.75) is higher than the Mean posttest Control group.
- **Speaking:** the Mean posttest of the experimental group (12.10 > 10.57) is higher than the Mean posttest Control group.

5.2.1.4. Descriptive statistics and Independent Samples t-test of the Posttest

The descriptive statistics and t-test calculations that are shown are the mean, standard deviation, t-value, degree of freedom, and critical value.

		Mean	SD	T-value	Df	Critical value
<i>Listening</i>	Control (N=40)	10.75	2.90	2.82	76	1.99 at alpha level= 0.05
	Experimental (N=38)	12.24	1.48			
<i>Speaking</i>	Control (N=40)	10.57	2.22	3.48	76	1.99 at alpha level= 0.05
	Experimental (N=38)	12.10	1.59			

Table 5.47. Descriptive statistics and Independent samples t-test of both groups in the Listening and Speaking posttest

Table 5.46 presents the results of descriptive statistics and independent samples t-test of experimental and control groups' mean scores in the listening and speaking post-test. From table 2, it is apparent that the calculated t value exceeds the critical value ($2.8199 > 1.994$) in the listening posttest, so the means

are significantly different. Likewise, the calculated t value exceeds the critical value ($3.4801 > 1.994$) in the speaking posttest, so the means are significantly different. These post-test total scores indicate a highly significant difference between the scores of the control group and the experimental group, for this latter proves the positive effect of the integration of multimodal mobile-based approach to listening and speaking skills module of EFL classes of Algiers2 University.

Criteria	Experimental Group		Control Group	
	Total	Average	Total	Average
Fluency and Coherence	115	3.03	105	2.62
Lexical Resource	110	2.89	100	2.5
Grammatical range and accuracy	105	2.76	98	2.45
Pronunciation	130	3.42	120	3

Table 5.48. Students' speaking sub-skills in the posttest

As depicted in the Table 5.48, the experimental group attained more progress than the control group. We recorded considerable gains in the four components, like vocabulary, grammar, fluency, and more importantly pronunciation. Even though, there are some advances among students of the control group, the participants still in need to improvement.

Table 5.47 displays statistics of the two groups in parallel. The pre-test scores of experiment group are compared to the scores of the control group, and so do the post-test scores.

Groups	N	Mean	SD	Pairwise comparison
Listening pretest scores:				Experimental group > Control group
• Control group	40	10.47	3.56	
• Experimental group	38	9.18	2.83	
Listening posttest scores:				
• Control group	40	10.75	3.10	
• Experimental group	38	12.24	2.56	

Speaking pretest scores:				Experimental group>Control group
• Control group	40	9.03	2.90	
• Experimental group	38	8.51	1.48	
Speaking posttest scores:				
• Control group	40	10.57	2.22	
• Experimental group	38	12.10	1.89	

Table 5.49. Groups statistics comparison

The researcher compares between the scores of control and experimental groups in terms of the pre-test and the post-test. Table 5.47 reveals that for the posttest total scores, the difference between the experiment and the control groups proved to be highly statistically different.

5.2.3. Paired t-test statistics of Control and Experimental Groups

The descriptive statistic and the independent samples t-test of two randomly selected groups: experiment and control group do not sufficiently test the alternative hypothesis of this study. Therefore, the researcher has implemented another procedure to test her hypotheses effectively, and to test the effectiveness of the multimodal mobile-based approach to teaching listening and speaking in EFL classes of Algiers2 University. This procedure is the dependent (paired t-test statistics) sample t-test. Paired differences each group (the control and experiment group) are compared in terms of mean, standard deviation, standard error mean, t-value and p-value.

5.2.3.1. Paired t-test Statistics of Control Group

In order to test the effectiveness of the traditional classroom setting in teaching listening and speaking skills, the researcher uses the paired t-sample procedures to compare between the pre-test scores and the post-test scores of the control group. Therefore, the listening scores and speaking scores of both

tests are compared. This comparison integrates the mean, the standard deviation and the t value in table 5.48.

		N	Mean	Difference in means	SD	T-value	Df	Critical value
<i>Listening</i>	Pretest	40	10.47	0.28	3.56	0.80	39	2.02
	Posttest	40	10.75		2.90			
<i>Speaking</i>	Pretest	40	9.03	1.57	3.10	5.77	39	2.02
	Posttest	40	10.57		2.22			

Table 5.50. Paired t-test statistics of the control group

Table 5.48 of the paired sample statistics indicates the means of both pre-test and posttest scores. The scores of the pre-test listening skills indicates an approximate mean of (M= 10.47) with a standard deviation of (SD=3,56) which indicates average level mean while the scores of the listening post-test indicates a mean of (M= 10.75) with a standard deviation of (SD=2.90) that proves a shift in mean (MD= 0.28) in control group listening level. As far as speaking is concerned, the control group made better improvement (MD= 1.57), with an approximate mean of (M= 10.57) with a standard deviation of (SD=2.22).

Statistically speaking, the control group improvement in both listening and speaking is not significant. On one hand, the calculated t value in listening is smaller than critical value ($0.803 < 2.023$), so the means are not significantly different. In other words, the difference between the average of the control group in the pretest and posttest is not big enough to be statistically significant.

As far as speaking scores are concerned, the calculated t value exceeds the critical value ($5.7719 > 2.023$), so the means are significantly different. In other words, the difference between the average of the control group in the pretest and posttest is big enough to be statistically significant.

5.2.3.1. Paired t-test Statistics of Experimental Group

in order to measure the extent to which the integration of multimodal mobile-based approach to teaching listening and speaking skills, the researcher used the paired t-sample procedures to compare between the pre-test scores and the post-test scores of the experimental group.

Table 5.49 shows difference between the scores of the pretest and the posttest of the experimental group. These differences are in terms of mean, standard deviation, t-value and critical value.

		N	Mean	Difference in means	SD	T-value	Df	Critical value
<i>Listening</i>	Pretest	38	9.18	3.06	2.83	7.67	37	2.02
	Posttest	38	12.24		1.48			
<i>Speaking</i>	Pretest	38	8.51	3.59	2.56	5.77	37	2.02
	Posttest	38	12.10		1.59			

Table 5.51. Paired t-test statistics of the Experimental group

In the table, the paired sample statistics display the means of both pre-test and posttest scores. The scores of the listening pretest indicate a mean of (M=9.18) with a standard deviation of (SD=2.83). It indicates poor level mean while the scores of the listening posttest indicate a mean of (M=12.24) with a standard deviation of (SD=1.48) that proves an average level in experimental group levels. The calculated t value exceeds the critical value ($7.6754 > 2.026$), so the means are significantly different.

Concerning pretest/ posttest speaking, the table indicates a remarkable shift in the level. The difference in the means (MD=3.59) is highly remarkable to the extent to claim that the intervention has greatly improved students' performance.

All in all, the researcher all along the experimental phase remarked that all the participants in both groups were progressing at varying speeds, a fact that explains that both teaching methods were, to some extent, successful. However, we can clearly notice that the experimental group transcend the control group. During the treatment phase, participants in the experimental group adopted multimodal mobile-based learning to enhance their listening and speaking skills. Through using mobile devices, the participants easily accessed learning authentic materials. Statistical analysis has indicated that participants who received mobile technology instructions did significantly better in the listening and speaking tests than those students who did not receive the instruction. Thus, the significant difference between the experimental and control groups on the posttest was in favour of the experimental group. Accordingly, the null hypothesis was rejected, and the research hypothesis was confirmed.

5.4. Teachers' interview Results

Part One: General Information

Item 1: Specify your gender

Option	Male	Female	Total
N	2	4	6
%	33.33%	66.67%	100%

Table 5.52. Teachers' gender distribution

As can be seen from table, the majority of the respondents were female teachers (66.67%).

Item 2: Approximately how long have you been teaching Listening and Speaking module?

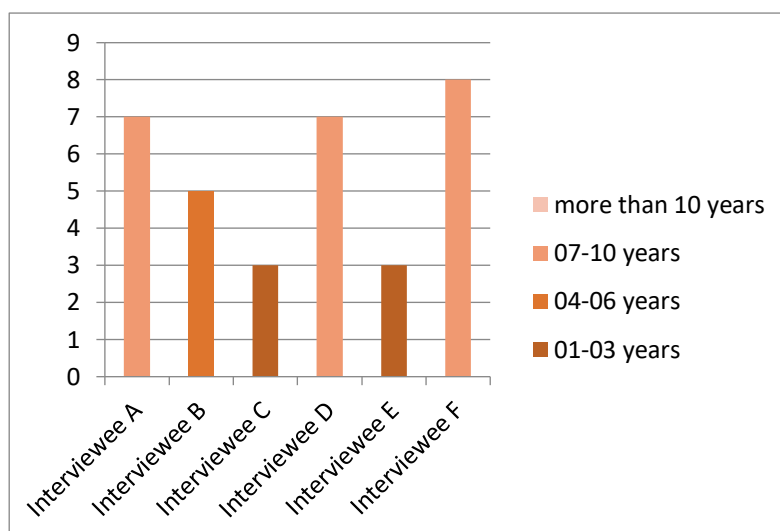


Figure 5.50. Teachers' years of teaching Listening and Speaking skills

According to the graph, half of the teachers (3 out of 6) have been teaching listening and speaking skills module for 7-10 years. 2 teachers are still novice teachers when it comes to teaching listening and speaking skills (1-3 years).

Part Two: Using Mobile Technologies as Semiotic Resources in Teaching Listening and Speaking skills

Item 3: What means do you use in teaching listening and speaking skills? PC, Speaker, etc?

The answers revealed that all the teachers used different means to teach listening and speaking skills module, including laptops, speakers, and tablets. Only one teacher added the use of Smartphone.

Item 4: To what extent do you use technology; mainly mobile devices (all sorts of mobile technology: smartphone, MP3/MP4 players, Laptops, Tablets, etc.), in teaching listening and speaking skills?

The question aims at exploring the extent to which EFL teachers are aware of the use of their mobile devices in the teaching process, and the kind of activities they use. Almost all informants agreed that technology is great medium to get information easily. All the interviewees reported positive answers. The findings revealed that teachers are familiar with mobile technologies; the six (06) teachers

used their mobile devices as tools to teach listening and speaking skills. Hence, one can conclude that mobile technologies penetrate not only students' learning process, but also teachers' teaching style.

Item 5: *To what extent do you allow your students to use their mobile devices inside the classroom?*

The question is asked to know whether EFL teachers tolerate the use of mobile devices inside the classroom, and within their courses. 5 teachers claimed that they “usually” permit their students to use their mobile devices inside the classroom for academic purposes. Only one teacher claimed that the students are not allowed at all to use their mobile devices inside the classroom. It can be concluded that the three teachers rely on the students' devices as complementary learning tools. In other words, the teachers support the use of mobile technology within the formal setting.

Item 6: *How do you consider the exploitation of mobile devices as semiotic resources that offer various modalities (audio, visual, tactile, etc) in teaching listening and speaking?*

The interviewees agreed that mobile assisted language learning is a helpful tool for teaching English. The six teachers agreed that mobile devices are beneficial educational technology tools that offer the students a wide range of opportunities to develop the four skills. However, one can remark that interviewee B used the term “smartphones” to refer to mobile devices, which is a general misconception spread among many authors.

Item 7: *In case you use mobile devices in teaching the module, are there any specific mobile-based activities you use within your course?*

The teachers are asked to identify if there are any MALL activities they usually use within their courses. As reported, interviewees, A, C, D and E implemented the use of mobile devices within their courses; however, the implementation is still restricted to an unlimited number of mobile activities such as “checking

meaning” and “definitions”. Whereas interviewees B and F do not implement the use of mobile activities within her/his courses. In both cases, this may be due to the fact that teachers are not aware of the unlimited activities that can be produced and delivered through the various mobile devices.

Part Three: Recommendations

Item 8: What challenges might face the integration of mobile devices in higher education context in general, and teaching listening and speaking skills in specific?

The opinions of the teachers towards the challenges facing the integration of mobile learning in higher education level were eclectic. Some teachers reported the challenge lies in the availability of those devices along with the appropriate environment to use them such as the equipped rooms and labs and the lack of materials. Others claimed that managing the change within the institution is the barrier to adopt these technologies. The huge number of students is a real obstacle faced by some teachers which requires a high level of classroom management.

Item 9: How do you think that Mobile-assisted Language Learning is important to teach EFL in general and listening and speaking skills in particular in the future?

In addition to measuring teachers’ attitudes towards the use of mobile devices as teaching tools, this question aims to know how EFL teachers consider the importance of MALL as a language learning approach. All of them affirmed that mobile assisted language learning has a big role for developing language skills especially listening and speaking if the teachers keep control over its use. It represents a new innovative way of teaching, and creates appropriate atmosphere for both students and teachers as well as helps learners to practice language immediately. All the interviewees share the same idea; mobile technology is very

important in teaching and learning English as a Foreign Language. Interviewees A and B reported that mobile devices are already available and motivate students, which are two advantages to exploit. On the other hand, interviewee F shed light on a significant point in using mobile technologies; that is, the importance to “know the exact use” of the devices so as to guide both teachers and students to exploit this new kind of educational technology.

To conclude, the teachers’ interview revealed significant insights concerning how EFL teachers of listening and speaking skills teach the module using MALL approach. Teachers acknowledged that technology brought benefits and challenges to the educational field especially for foreign languages teaching and learning. Therefore, the teaching principle has to appreciate the new technologies, which provide things decisively new,

5.3. Student’s evaluation Form Results

- *Evaluating the Instructor*

Statements	Strongly agree	Agree	Unsure	Disagree	Strongly disagree
a. Instructor was knowledgeable about the course.	10	24	4	0	0
	26.32%	63.16%	10.53%	0%	0%
b. Instructor encouraged participation and answers students’ questions.	24	10	4	0	0
	63.16%	26.32%	10.53%	0%	0%
c. Instructor was prepared to use mobile technologies.	23	14	1	0	0
	60.53%	36.84%	2.63%	0%	0%
d. Instructor was enthusiastic about teaching the subject and using mobile technologies as learning/ teaching	13	20	5	0	0
	34.21%	52.63%	13.16%	0%	0%

tools.					
--------	--	--	--	--	--

Table 5.53. Students' evaluation of the instructor

Table 5.51 demonstrates students' ratings of the various instructional ingredients that are directly bound to the instructor's teaching behaviour. To begin with, out of 36, participants 24 (63.16%) agree that the instructor is knowledgeable about the subject, 10 participants (26.32%) strongly agree, and 4 are unsure (10.53%) about the statement. As far as encouraging participation is concerned, the majority of students agree that their Listening and Speaking Skills teacher motivates them to demonstrate effective involvement during classroom practice. Similarly, over half of the participants agree that the instructor was prepared to use mobile technologies. The last item in the evaluation rates the instructor's enthusiasm towards teaching the subject using mobile technologies. The table shows that 13 students (34.21%) strongly agree that their teacher is enthusiastic about using mobile technologies as teaching/ learning tools, 20 students (52.63%) agree with the statement and 5 other students (13.16%) are unsure of their opinion.

- *Evaluating the Multimodal Mobile-based Materials*

Statements	Strongly agree	Agree	Unsure	Disagree	Strongly disagree
a. The instructor used a variety of mobile-based learning materials such as audio recordings, videos, pictures, mobile apps, etc.	20	18	0	0	0
	52.63%	47.37%	0%	0%	0%
b. The mobile-based materials fit the course objectives.	10	20	2	4	2
	26.32%	52.63%	5.26%	10.53%	5.26%
c. The affordances offered by the mobile	3	23	6	2	4

dictionary helped me not only acquire new vocabulary but also learn their phonological, morphological, and contextual aspects.	7.89%	60.53%	15.79%	5.26%	10.53%
d. Listening to the audio recordings via my mobile device was more effective than listening to them via a speaker.	9	21	8	0	0
	23.68%	55.26%	21.05%	0%	0%
e. The audio-visual activities helped me decipher the meaning of the tasks.	8	24	3	2	1
	21.05%	63.16%	7.89%	5.26%	2.63%
f. The use of the Pronunciation app helped me be aware and have control of the English sound system.	7	25	3	2	1
	18.42%	65.79%	7.89%	5.26%	2.63%
g. The use of the mobile recorder and the Audio Transcriber app helped me work on my speaking skills.	10	22	5	1	0
	26.32%	57.89%	13.16%	2.63%	0%

Table 5.54. Students' evaluation of learning materials

Table 5.52 indicates that most students agree with the statements related to the role of the mobile learning materials in assisting them to cope with the course requirements. Over half of the students report that the instructor used a variety of mobile-based learning materials which are multimodal in nature. In addition, the vast majority of students agree on the fact that the different mobile-based materials fit the course objectives.

- *Evaluating Lessons and Activities*

Statements	Strongly agree	Agree	Unsure	Disagree	Strongly disagree
a. Lessons prepared me to use English in academic, workplace, and daily life settings.	06	26	01	05	00
	15.79%	68.42%	2.63%	13.16%	0%
b. In-class activities were eclectic and met my preferred type of class work (working in pairs, individual work, working in groups, etc).	30	04	02	01	01
	78.95%	10.53%	5.26%	2.63%	2.63%
c. The activities helped me produce correct and relevant instances of discourse with ease and confidence.	10	20	04	02	02
	26.32%	52.63%	10.53%	5.26%	5.26%

Table 5.55. Students' evaluation of lessons and activities

As can be shown from table 5.53, there is an agreement among students with the three statements related to material and lesson development. First, the vast majority of students agree that lessons prepared them to use English in academic, workplace and daily life settings, with only 5 (13.16%) who disagree, and 1 (2.63%) who is unsure. Second, with regard to the in-class activities, over half of the students (78.95%) agree that the instructor opted for a variety of activities that met their preferred type of class work. Finally, the majority of the students agree that the activities helped them produce correct and relevant instances of discourse with ease and confidence.

- *Evaluating Course Objectives*

Statements	Strongly agree	Agree	Unsure	Disagree	Strongly disagree
a. The mobile-based activities met my preferred learning style(s).	23	11	02	02	00
	61.47%	28.95%	5.26%	5.26%	0%
b. The mobile-based activities helped me overcome my listening and speaking difficulties.	05	22	03	05	03
	13.16%	57.89%	7.89%	13.16%	7.89%
c. Mobile-based activities motivated me to practice listening and speaking better than traditional classroom.	25	09	02	02	0
	65.79%	23.68%	5.26%	5.26%	0%

Table 5.56. Students' evaluation of the course objectives

In the fourth aspect which is related to course objectives, 23 (61.47%) students strongly agree that the different mobile-based activities met their preferred learning styles, 11 (28.95) students agree so, while only 2 (5.26%) who are unsure, and 2 (5.26%) who disagree. When it comes to the listening and speaking skills difficulties faced by students, over half of the students (57.89%) agree that the mobile-based activities helped them overcome their difficulties, 5 (13.16) students strongly agree, 3 (7.89%) are unsure, 5 (13.16%) disagree, and 3 (7.89%) students strongly disagree. With regard to the extent to which the mobile-based activities are source of motivation compared to traditional

classroom, the vast majority of students (65.79%) strongly agree with the statement.

- *Evaluating the Mobile Devices Usage*

Statements	Strongly agree	Agree	Unsure	Disagree	Strongly disagree
a. Studying with my mobile device was an effective method to study language, and practise my listening and speaking skills.	03	15	07	08	05
	7.89%	39.74%	18.42%	21.05%	13.16%
b. Mobile devices offered a wide range of modalities (e.g. audio, and visual) that satisfy my needs.	15	17	05	01	00
	39.74%	44.74%	13.16%	2.63%	0%
c. Mobile-based learning helped me being autonomous student.	12	15	06	02	03
	31.58%	39.74%	15.79%	5.26%	7.89%
d. Mobile learning made learning dynamic.	20	13	03	01	01
	52.63%	34.21%	7.89%	2.63%	2.63%
e. Mobile learning provides advantages to create personalized learning.	07	12	09	04	06
	18.42%	31.58%	23.68%	10.53%	15.79%
f. Overall I felt that studying using my mobile device was a	22	12	02	02	00
	57.89%	31.58%	5.26%	5.26%	0%

positive experience and I want to study English with my mobile device again					
---	--	--	--	--	--

Table 5.57. Students' attitudes towards mobile devices usage

As can be depicted from table 5.55, 15 (39.74%) students agree that studying with mobile devices is an effective method to study language, and practise listening and speaking skills, 3 (7.89%) strongly agree, 7 (18.42%) are unsure, 8 (21.05%) disagree, and 5 (13.16%) strongly disagree. Second, with regard to the modalities offered by mobile devices, there is an agreement among students (over half of the participants) that mobile devices offer a wide range of modalities that satisfy their needs. In addition, most of the students evaluate positively mobile devices as tools that provide autonomy, dynamicity, motivation, and personalization. Finally, the vast majority of students reported that studying using their mobile device was a positive experience and they want to study English with their mobile device again.

- *Evaluating the Challenges*

Statements	Strongly agree	Agree	Unsure	Disagree	Strongly disagree
a. The use of my mobile device was challenging and uncomfortable.	00	10	02	04	22
	0%	26.32%	5.26%	10.53%	57.89%
b. The technical challenges (screen size, keyboard size, etc.) affected learning via my mobile device.	04	13	05	06	10
	10.53%	34.21%	13.16%	15.79%	26.32%
c. The use of my	00	01	05	12	20

mobile device distracted me.	0%	2.63%	13.16%	31.58%	52.63%
---------------------------------	----	-------	--------	--------	--------

Table 5.58. Students' evaluation of the challenges

The last item in the evaluation form concerns the challenges faced when using mobile devices. First of all, when asked if the use of mobile device was challenging and uncomfortable, the vast majority of the students disagree with the statement. However, there was a disagreement among the student when it comes to the technical challenges. 4 (10.53%) students strongly agree that the technical barriers affected their learning, 13 (34.21%) agree, 5 (13.16%) are unsure, 6 (15.79%) students disagree, and 10 (26.32%) strongly disagree. When asked if the use of mobile devices is a source of distraction, the vast majority of the students disagree with the statement.

The aforementioned results showed that the majority of participants had a positive attitude towards the use of mobile technologies inside oral expression classes. The students' responses confirmed that mobile technologies are significant for increasing engagement in learning tasks and projects, activating participation and motivation inside the classroom. In addition, the integration of these handheld devices are source of their enjoyment. This is not surprising, since the students are digital natives, they born with technology at hand. By contrast, some of the participants confessed that mobile technologies distracted them. The findings also showed students with opportunities for additional speaking practice outside of class can be noticeably beneficial for their overall speaking performance.

Conclusion

The chapter dealt with the analysis of the different research instruments used in this research. The obtained results are encoded and interpreted to facilitate the hypotheses testing. This chapter of data analysis and the result has mentioned that to explore the research objectives of the present study, the data were

collected from four different techniques, i.e. students' informational questionnaire, t-test, teachers' interview, and students' course evaluation form. The results of the questionnaire helped the researcher getting a clearer vision of the target participants. The t-tests, teachers' interview, and students' evaluation form are to be explored to test the hypotheses significantly. According to the results of the study, the next chapter draws conclusions, and suggests some recommendations for educators and future researches.

CHAPTER SIX
DISCUSSION AND IMPLICATIONS

Introduction

This chapter discusses the findings presented in Chapter 5. The researcher explores the results obtained to test the hypotheses and answer the research questions. It first discusses the first research question regarding students' preparedness towards using mobile devices as multimodal learning tools. Next, it examines the impact of using the devices on students' listening and speaking skills based on the results of the t-test results. The chapter then discusses students' attitudes after the quasi-experimental study of using their mobile devices to learn listening and speaking skills. It also examines the interview's results with regard to teachers' adoption of mobile devices.

6.1. Preparedness of Students towards the Adoption of Multimodal Mobile-based Learning

6.1.1. Students' device Readiness

First, the findings revealed that mobile devices ownership is widespread among EFL students at Algiers 2 University, and every student has at least one mobile device. This shows the ubiquity and availability of mobile devices as two main features to exploit. These findings are shared among various researches. For example, Sharples (2005) reported findings that indicate huge disparities in access to mobile technologies. Also, results revealed that most of the students owned mobile devices with Android mobile platform. These two factors are essential to be considered before the implementation of mobile learning activities in the educational context. This will enable students to perform a variety of activities with their mobile devices, particularly their smartphones, and tablets.

Owning mobile phones as well as having the capacity to carry out activities using the cutting-edge devices showed that the students were ready indirectly since they are familiar with the devices. As far as Internet is concerned, results indicated that more than half of the participants had internet access to their devices, specifically Wi-Fi connection followed by 4G. They claimed that they

access internet depending on their needs, while the other majority top up their subscription monthly. Due to increased capabilities of most mobile phones, the number of users using their phones to access the Internet is also increasing dramatically. In fact, in many countries, especially developing countries that often lack wired infrastructures, much of the population only uses their mobile phone for Internet access. Consequently, as reported by the vast majority of respondents, offline content is the most generally type accessed by them.

6.1.2. Students' skills with Mobile Devices

Findings in this study revealed that students classified themselves as having *Basic* technological level. According to Webber (2010), basic technology skills promote higher-order thinking skills that lead to independent learning and social responsibility, and foster conceptual skills such as the abilities to think holistically, synthesize information, and create meaning. In addition, several mobile-based activities were reportedly being used by the participants. It was discovered that frequent activities involving mobile device applications were completing homework activities, photo editing, instant messaging, online computer games, and email. Hence, the delivery of mobile-based activities to students will be easier as they are to some extent familiar with different types of activities. However, internet access was one of the considerations for the delivery of mobile learning activities for this study.

However, it must also be noted that there were some students who were not knowledgeable about the different functionalities of their mobile devices (they either did not know their technological level, or they classified themselves as having below basic technological level). Through the informational questionnaire, it was found that a quite number of participants were not sure about their mobile device operating system (Androi, iOS, etc). During the first session which was a mobile learning workshop session, it was discovered that some students did not know how to use some basic functionalities such as the microphone. During this first session workshop, the teacher attempted to provide

the participants with the necessary input concerning the usage of the mobile devices. In addition, the teacher review and clarified some terminology related to this field. Some students also indicated that they did not know how to access their received files from their mobile devices. Kennedy et al. (2008) found that the majority of students did not use their mobile phones to access the web for information or to access email for the purposes of studying. Therefore, one cannot assume that even though students do have mobile devices, that they know about all the applications and functionalities of their devices or how to use them.

Yet, even when students are aware of the different functionalities and capabilities of their mobile devices, one can question whether they actually exploit them to assist their learning. Accordingly, Kennedy et al. (2008) claimed that it cannot be assumed that since students have access to the technology that means they know how to employ technology-based tools strategically to optimize learning experiences in university settings.

6.1.3. Students' receptiveness of Mobile Learning Activities in Listening and Speaking

The results indicated that EFL students at Algiers 2 University often use their mobile devices for academic purposes; that is, to learn English. It is worth noting to add that students spend most of their time on social networks such as social media. These findings are similar to those of Kukulska-Hulme (2006) who found that 96% of her participants used their mobile phones for social interaction, 19% for entertainment, and 17% for their own learning. The questionnaire results indicate that students are currently using their mobile devices inside the classroom to perform a variety for educational tasks. For example, they reported that they had been checking their mobile dictionaries, recording lectures, and taking lecture notes. Students with internet enabled mobile devices, either through the free Wi-Fi or through their own paid broadband mobile network plans use their devices to search for information inside the classroom. This

indicates that there can be situations where students have embraced the concept of mobile learning without being introduced to the activities formally.

Students who took advantage of the “anytime-anywhere” advantage of mobile devices as a convenient and portable tools that enabled them to reach and support their learning. One can conclude that EFL students learn English through their mobile devices in a informal way more than in a forma manner; that is, they do exploit the anytime-anywhere advantage to profit from their fragmented time. These finding broadly match three main MALL approaches; (1) informal and lifelong learning; (2) communicative approach; and (3) constructivism. To elucidate, informal and lifelong learning and communicative approach appear through the use of social networks (as the majority of students do), while constructive learning appears through the handheld games. These findings are consistent with the classification of MALL approaches reviewed by Keskin and Metcalf (2011). One may add that the reason that students use MALL activities informally is that “Students often find their informal learning activities more motivating than learning in formal settings such as schools because they have the freedom to define tasks and relate activities to their own goals and control over their goals” (Sharples, 2006, p. 15). These findings are consistent with Rossing et.al’s (2012) findings that mobile devices can be utilized to facilitate adaptation of the course content to fit students’ learning styles and pace.

The participants were very receptive to mobile learning and were generally ready to accept this type of delivery mechanism. Most of the students reported that this type of learning is engaging and makes learning interesting and interactive. There are reports such as those of JISC (2005) that suggest that higher education students are accepting the idea of integration of mobile learning within the classroom setting and finding of this study confirmed this.

To further expand on this idea of sharing and collaboration among students through the use of mobile devices, a discussion regarding student creation of online communities such as Facebook groups may provide

clarification. This online resource was used uniquely by classmates to have an open forum where all cohort members could contribute and respond to posts. Posts on Facebook group pertained to assignment due dates, clarification of lecture topics, and the sharing of web-based media and videos to teach concepts. The processing speed couple with the easy access to information afforded by mobile devices facilitated the use of Facebook groups. Students would be able to monitor updates and respond to post anywhere from their mobile devices. As stated by Shuler (2009), the use of mobile devices facilitates learning 'anywhere, anytime'. Furthermore, this finding is consistent with previous studies that found mobile device use increased both speed and cohesiveness in group work (Miller, 2012; Shuler, et al. 2012). The current finding not only supports this idea, but indicates that this is also true for mobile device use outside of the classroom.

The literature on digital Students, such as Kazlaukas and Robinson (2012) depicts current higher education students as avid users of technology. However, it was found that participants need some form of introduction in order for them to realize the possibilities of mobile learning. Leaving students to discover the capabilities of their mobile devices in assisting learning alone without guidance would limit their understanding of how could mobile-based learning could facilitate and support learning. Bennett, Maton & Kervin (2008) found that everyday technologies are at times not used for learning activities by digital Students. Even though the students have access to technology and have the skills to use it, it does not mean that they use a particular application or functionality for learning. This means that students need to be exposed to the learning potential of the mobile device as a tool that assists their learning. Therefore, in the design of mobile-based activities, introduction to examples of activities that support learning is essential as part of the implementation plan in the Algerian higher education context.

Knowing that students have the tool itself and some basic knowledge of its applications, and that they are receptive to mobile learning, has paved the way

for the researcher in integrating mobile-based activities to support their listening and speaking skills course.

However, the results of the informational questionnaire showed that some students were not familiar with mobile learning and they were not fully ready to implement this technology due to the issues of the infrastructure support and the compatibility in converting courses materials to the mobile devices system.

6.2. The Impact of Multimodal Mobile-based Activities on Students' listening and Speaking Skills

The implementation of MALL in Listening and Speaking classes gives the researcher the opportunity to know whether it develops or hinders students' oral performance. The researcher has conducted an experiment with (N=78) of participants from the first year classes of English at Algiers 2 University in order to test the effects of the integration of multimodal mobile-based teaching on their listening and speaking skills. Meanwhile, there has been a comparison group (control group) who has not been exposed to the multimodal mobile-based treatment. Hence, there were two sets of results: those of the experiment group and those of the control group. In this section, the researcher evaluates the results of the experiment in comparison with the results in the control group.

The findings from Chapter 5 suggest that multimodal mobile-based learning do hold promise as a pedagogical tool for the development of listening and speaking skills. Mobile learning has significantly positive effect on the two skills compared to traditional learning in this research

Through descriptive and inferential analysis, the findings of the pre-test showed how close both groups are in terms of general scores. However, we conducted an Independent Sample T-Test, to see if there was any statistically significant difference between the performances of the participants of each group. The results of Independent Sample T-Test clearly showed that the difference between the participants' performance in the listening skill in the

experimental group ($M= 9.18$, $SD=2.83$) and control group ($M= 10.47$, $SD=3.56$) in the pretest was not statistically significant. Therefore, the null hypothesis was confirmed and it was settled that, before the beginning of the treatment, both control and experimental groups were at the same level.

However, the findings of the post-test showed that the improvement in experimental subjects' listening and speaking scores was descriptively and statistically significant as compared to the control subjects' mean scores. Hence, the null hypothesis, which presumes that there will be no significant difference between the experimental and control groups' means scores in the listening and speaking post tests, is rejected, and the alternative hypothesis, which assumes that there will be a difference between the experimental and control groups' means scores in the listening and speaking post test, is confirmed.

The participants in the experimental group showed better performance than the participants of the control group. Indeed, the students' speaking skills boosted in varied degrees. The experimental group extremely exceeds control group in lexical resource, grammatical range and accuracy, and pronunciation. As a result, the improvement of speaking and listening performances can be attributed to the inclusion of MALL in listening and speaking skills classes. In fact, the students' listening to authentic English language input, and the extensive oral practice (video and audio recordings) as well as the use of the different mobile apps during the experiment significantly contributed to the development of listening comprehension, pronunciation and fluency. Interestingly, our findings are consistent, to some extent, with the results of some researchers (Andújar-Vaca and Cruz-Martínez,2017; Aljaref 2012) who integrated mobile devices in teaching oral skill, and they found these handheld devices enhanced learners' speaking ability.

A conclusion can be drawn in which a repeated listening practice with authentic and meaningful learning resources through the mobile-based activities can be effective to improve listening and speaking skills, especially pronunciation and

lexical resources. The results of the study were consistent with the previous studies (Huang & Sun, 2010; Kang & Kim, 2007; Kukulska-Hulme, 2009; O'Malley et al., 2003) that mobile device can develop students' language skills since they practice outside of the classroom. In addition, the modality effect refers to reduced memory load when related information is presented in visual and auditory channels; and the redundancy effect refers to increased memory load when identical information is presented in visual and auditory channels simultaneously (Mayer, 2009; Sweller, 2005). The finding corroborates previous research findings that generally mobile-assisted language learning environments can have a positive effect on Students' achievement in learning English as a foreign language.

6.3. Students' attitudes towards the Use of Multimodal Mobile-based Activities

M-learning is a new concept in the Algerian educational system. Therefore, evaluating the different aspects related to the development of a mobile-based course has become necessary. Having over half of the participants considering the teacher knowledgeable about the subject (Listening and Speaking Skills) confirms the assumption that EFL teachers should use a simple language full of explanation and clarification to help students understand the given input in the correct way (Robin & Gou, 2006). In fact, teachers are considered as a primary resource of the input in the classroom; therefore, it is significant for the teacher to be knowledgeable about the course.

It is with no doubt that interaction, enthusiasm, and participation are core elements in the Listening and Speaking Skills class. In this context, teachers should be facilitators of communication tasks rather than dominant 'lecturers' to students (Hughes, 2011). The participants seemed to agree on the fact that their teacher encouraged participation and answers students' questions. As far as mobile technology integration is concerned, the majority of the participants agreed that their teacher was prepared to use mobile devices inside the classroom

which is probably due to the enough exposure and expertise in utilizing and adopting technology. Accordingly, Mahmood, Abdul Halim, Rajindra, and Mohd Ghani (2014) claim that teachers who are still fresh from universities are at the great interest and rate in using technology in the classroom because they were given ample of trainings and practice. Therefore, they have more confidence in using them. Teachers who feel comfortable with students using the technology and understand how to embed technology into the content being presented are required. These educators are vital to creating an appropriate learning environment for their students (Coley, Cradler & Engle, 1997).

As far as the mobile-based activities used in the programme are concerned, since the approach upon which the present study was based on is multimodality, the researcher opted for a variety of modes to transmit the mobile-based contents. Therefore, all the students agreed that their instructor used a variety of mobile-based learning materials such as audio recordings, videos, pictures, mobile apps, etc. This reflects the concern of the instructor to cover a wide range of content knowledge to avoid monotony and keep the course dynamic. As far as the suitability of the learning materials to the course objectives is concerned, there was an agreement among students that the diversified mobile-based materials fit their course objectives set at the beginning of the programme. Setting objectives for the course gives a guided vision of instruction for both the teacher and the student to identify priorities and make relevant decisions (Graves, 2000).

Regarding the effectiveness of each mobile-based activity used in the present study, many students consent on the advantages that each activity provides to facilitate understanding, acquisition, and production of speech. It is worth noting that the researcher opted for a variety of authentic mobile-based materials to teach listening and speaking skills, based upon a multimodal approach. Educational mobile apps have been used in this research to tackle specific aspects in the listening and speaking skills course. All in all, the responses in terms of the effectiveness of the used mobile apps revealed positive attitudes from the students.

First, a mobile dictionary app has been used, basically to teach vocabulary-related aspects. More than half of the students believed this app was useful and helped them not only acquire new vocabulary but also learn their phonological, morphological, and contextual aspects. This is supported by Kukulska-Hulme (2012) who found that among mobile apps, using dictionaries is highly regarded by students. The mobile dictionary used provides not only the definition of the word, but also its phonological transcription and pronunciation, its translation into different languages, verb conjugations, some examples, and other different features. The different modalities (visual, auditory, spatial) offered by the mobile dictionary allowed the students for better learning of new vocabulary.

Other two mobile apps that have been employed were the Pronunciation app, and the Audio Transcriber app. The former aimed at helping students be aware and have control of the English sound system, while the second helped them work on their speaking skills. The findings revealed positive attitudes in terms of usefulness of these two apps. These findings corroborate with what Soler-Urzuu (2011) found on an experiment designed to test the effects of TTS on phonological acquisition. The researcher observed a trend showing improvements in perception and production by the TTS group, a pattern that was not observed for the other two groups. Finally, the use of audio, visual, and audio-visual modes was perceived as being helpful in deciphering the meaning of the listening tasks. The amalgamation of authenticity and specificity of materials stimulates students to make sense of learning and simulates the real world in the classroom (Baghban and Pandian, 2011).

Students were also asked to evaluate the lessons and activities in which the decisions on the skills, knowledge, competencies and tasks are taken. In fact, the conceptualization of the lessons and activities content is determined by the purpose of the course and its objectives. Concerning the replies, students agreed that the lessons and activities prepared them to use English in academic and daily life settings, and they helped them produce correct and relevant instances of discourse with ease and confidence. This is due to the fact that the teacher relied

on a syllabus that covered a variety of topics and themes that are tightly related to real-life situations. In addition, the in-class activities were found very eclectic and met the preferred type of class work of the majority of the students. Indeed, the teacher varied in the type of class activities to satisfy the students' needs.

For any instruction, objectives should be set at the very beginning as one of the decisive procedures of course design that determines its success or failure. The first objective behind applying the multimodal approach to mobile learning is to meet the different learning styles. Students claimed that the use of mobile devices met their preferred learning styles. Sankey (2006) asserts that Students are more comfortable learning in an environment which reflects their predominant learning style. In addition, presenting learning materials in a variety of modes has been used to encourage students to develop a more versatile approach to learning (Morrison, Sweeney, & Heffernan, 2003) (as cited Gilakjani, Ismail, & Ahmadi, 2011). When it comes to listening and speaking skills, students perceived the usefulness of the mobile-based activities in helping them overcome their listening and speaking difficulties. The activities also motivated them to practice listening and speaking better than traditional classroom.

When expressing their overall attitudes towards the use of mobile devices as learning tools, students perceived studying with their mobile devices as an effective method to study language, and practise their listening and speaking skills. They also emphasized on the fact that mobile devices offered a wide range of modalities (e.g. audio, and visual) that satisfy their needs. Fernandez-Pacheco (2016) suggests that the development and employment of language teaching materials with suitable orchestrations of modes according to our students' needs, may favour students' language learning experience. Another advantage of mobile devices usage is helping students being more autonomous, self-regulated, and dynamic. It is worth mentioning that one aspect of mobile devices that influence students' engagement and autonomy is their multimodal feature. Mobile apps, for instance, allow EFL students to learn English through a multitude of mediums and give them opportunities to interact with, negotiate, interpret and make

meaning of texts available, whether these are orthographic, audio, audiovisual or visual texts (Murray, 2008). In his study, Jiang (2016) investigates the validity of multimodality in non-English majors' autonomous listening through an experimental study. The results indicate that multimodality could boost students' autonomous listening significantly and improve their comprehension, as well as multiliteracy capacity.

It is inevitable to address mobile learning without tackling the challenges that might face the learning experience. While implementing a new type of technology, which has not been used before in a formal setting (the classroom), students may feel uncomfortable and find it challenging to use it. As far as the present study is concerned, over half of the students claimed being comfortable while using their mobile devices. In addition, they said that the use of mobile devices did not distract them. This is due to the fact that the students are “digital natives” (Prensky, 2001, p. 1) who were exposed to the different types of digital technology from the early ages of their lives. However, results revealed statistically significant differences among the students' attitudes in terms of the technical challenges facing MALL. Unsurprisingly, the unprepared infrastructure, the device-related issues, and other issues add additional work to the instructor in order to fix any emerging problems.

6.4. Teachers' preparedness towards the Adoption of Multimodal Mobile-based Learning

Overall the utilization of technology by EFL teachers of listening and speaking skills module is a good move and reformation but due to some factors these teachers are reluctant to use them confidently in the classroom. As proved from the interview analysis, the perception of mobile learning readiness revealed that teachers intend to use mobile learning to carry out their teaching, and getting the updated information related to teaching.

It was found that EFL teachers at Algiers 2 University were aware of the mobile technology use and they perceived its importance as essential in

enhancing the students' skills, especially their listening and speaking skills. On one hand, results revealed that EFL teachers allowed and encouraged to a great extent their students to use their mobile devices inside the classroom for educational purposes, namely for assisting their vocabulary knowledge. However, some teachers showed some resistance towards using and allowing the use of mobile devices inside the classroom. This supports what Kim, Rueckert, Kim, and Seo (2013) found; in that teachers and students resist implementing new technologies in teaching and learning process. Results highlighted word searching, mobile dictionaries, and mobile apps as the main MALL activities teachers use either for their own teaching or for assisting their Students' activities. However, one can conclude that MALL activities adopted by teachers are still restricted and non-innovative; that is, teachers exploit some MALL options and neglect others. This can be because teachers are less informed about the unlimited functions and opportunities offered by MALL. This is consistent with what Kukulska-Hulme (2013) found; in that teachers are rarely aware of the different mobile devices functions that can be exploited in teaching and learning process. Although, this does not mean that teachers are completely unaware of the different MALL affordances because teachers may know them but do not use them because of different reasons. To conclude, results proved the importance of MALL in the teaching and learning process. Teachers also agreed that MALL is effective in developing the language skills, especially students' listening and speaking skills.

To conclude the discussion, findings of this study were consistent with previous research in MALL, even though, there were some points of divergence since the study findings are considered within the realm of the selected sample in a given time and period, in addition to the general methods adopted. In brief, results indicated the widespread ownership of mobile devices among both teachers and EFL students. In addition, MALL was found to be effective in enhancing EFL students' language skills, especially their listening and speaking skills. The study delivered that MALL activities penetrate both teachers' and Students' own teaching and learning process. This confirms the hypotheses and

provides answers to the research questions stated earlier in the general introduction

Research Limitations

While every attempt was made to design and conduct this study in the best, most appropriate manner possible, there are certain limitations to the study that should be addressed. First, the use of a sample of two groups of EFL degree students decreased the overall generalizability of the findings. In addition, and the research subjects are freshmen who have already got a short period of training in English listening and speaking.

Another limitation is that the research did not shed light on a specific sub-skill of listening skills or speaking skills. However, the researcher studied the impact of the multimodal mobile-based intervention on the two skills as a whole.

In spite of the limitations outlined here, the results of this exploratory study have important implications for the future design and use of mobile learning activities for the development of listening and speaking skills. While the results of this study are not broadly generalizable, they provide a base of empirical data that can be used by future researchers conducting similar studies.

Future Research

The results of this study have some implications for future lines of research. First, this research was conducted among first year EFL degree students at Algiers 2 University. Therefore, the findings of this study ought to be supported by further research in other contexts. Other research may consider different sampling frames, research designs, methodologies and analyses which could produce different outcomes. A multidisciplinary approach is needed to understand the social, cognitive, neurological, cultural and linguistic variables involved in processing multimodal discourse.

Another interesting line of research could be to focus more on the listening and speaking sub-skills. Other language skills could be investigated from both perspectives: mobile learning and multimodality.

While this study begins to lay the groundwork for a better understanding of how mobile activities can assist students in FL listening and speaking, there is still much work to be done in this area. Further studies, like those described above, are needed in order determine how mobile learning activities can best be utilized as pedagogical tools for improved learning outcomes.

Conclusion

The purpose of this study was to investigate the use of mobile learning activities, from a multimodal approach, as pedagogical tools for the development of listening and speaking skills. From the discussion above, it can be stated that designing mobile-based listening and speaking skills course necessitates a better understanding of the theory, methodology and practice of mobile learning and multimodal approach in a way that reflects students' expectations of learning. Thus, the challenge for the educators will be to find ways to ensure that this new learning is highly situated, personal, collaborative and long term; in other words, Student-centered learning.

GENERAL CONCLUSION, RECOMMENDATIONS, AND IMPLICATIONS

General Conclusion

The current status of teaching listening and speaking skills module at Algiers 2 University, exposes an exigent situation that requires immediate actions and convenient remedies in different pedagogical and administrative levels related chiefly to theory, practice and methodology to cope with the 21st Century technological shifts and needs. For that reason, the current thesis aimed at exploring the effectiveness of MALL, as a new language learning approach, in enhancing EFL students' listening and speaking skills, with a special focus on key notions such multimodality, multiliteracies, and multimedia. Hence, this study is carried out to confirm or reject the hypothesis stating that multimodal mobile-based teaching enhances students' achievements in listening and speaking skills and motivates them to make sense of learning. First year EFL degree students were chosen to be the case study representing the entire EFL degree students at Algiers 2 University.

First, it was necessary to review the related literature which was presented in the first three chapters. The thesis has attempted to shed lights on the three main variables of the study. To start with, the first chapter provided details about MALL as an emerging language learning approach that consists of using the mobile devices as educational tools. The next chapter dealt with multimodality approach in the digital age. It highlighted the newly emerging concepts related to the notion of multimodal learning such as multiliteracies and multimedia learning. The third chapter attempted to review literature related to teaching listening and speaking skills using mobile devices, from the lenses of multimodality approach.

The main objective of the study was to investigate the integration of multimodal mobile-based teaching in a listening and speaking skills module at higher education context. To do so, triangulated research method that encompasses students' informational questionnaire, Quasi-experimental study, course evaluation form and teachers' interview was utilized to gather relevant data on the subject and make fitting inferences for future recommendations. The

data collected from the research instruments were analyzed, interpreted, and discussed with regard to the previous research findings found in the literature. Therefore, the study findings revealed interesting insights into the use of MALL activities from both EFL teachers and Students.

One of our major concerns was to check the students' readiness and acceptance towards the use of mobile devices before starting the study. The informational questionnaire paved the way for the researcher by revealing some interesting aspects related to students' readiness towards the use of mobile devices as learning/ teaching tools inside the classroom. In fact, students showed an interesting level of readiness, acceptance and receptiveness of multimodal mobile-based activities. Therefore, students showed their readiness to integrate new teaching fashions as mobile-based courses.

Hence, a quasi-experiment was conducted as an intervention to integrate multimodal mobile-based course in a listening and speaking skills course in an attempt to examine its utility and investigate its significance in bettering students' aural/ oral performance. The statistical tests and results demonstrated a sound progress in their performance due to the exposure to the various mobile-based authentic materials and the application of multimodal design which consequently led to rejecting the null hypothesis and confirming the alternative one through the statistical procedures mainly the T-test.

The experiment results were strengthened by the course evaluation checklist form to gauge the success level of the multimodal mobile-based course that students had experienced through their ratings of different aspects related to the design, the materials, objectives and tests. Even though they praised some attributes of the intervention as interactivity, immediate feedback, and the usefulness and relevance of mobile-based activities to their course, they disclosed a number of limitations of mobile instruction such as the technological barriers.

As far as teachers are concerned, EFL teachers' attitudes towards the use, allowance, and implementation of mobile devices as educational tools were

positive to a great extent, which proved their awareness of the importance of being up-to-date to the newest educational technologies. Indeed, the innovative and updated teaching fashions as blended learning are highly recommended to integrate mobile-based education in higher education traditional settings due to the merits it offers in terms of making the best of both types of design and delivery. The ultimate aim is to obtain accommodating teaching implications that might help EFL practitioners make use of technology to meet the students' needs and promote their academic achievements.

It is worth noting that mobile learning does not seek to replace traditional learning and/ or computers to support learning, but rather to supplement it with the appropriate use that satisfy our different students' needs and styles. As educational technologies are rapidly evolving, teachers need to take new approaches to the use of MALL technologies. These approaches, such as multimodality and multiliteracies, needs to be based on two pillars: the first one is that mobile devices should serve a clear pedagogical purpose; the second, that it should facilitate students' attention and language processing mechanisms for better educational performance.

In summary, hopefully this research contributes to the body of knowledge by providing a rich insight into mobile learning design from a multimodal approach lenses. It also provides practical advice for educational practitioners to consider in implementing mobile learning in their own institutions. Therefore, this study attempts to enrich the field of mobile learning and multimodal theory in the Algerian context. It is also worth mentioning that this study extends conceptual benchmarks in the field of mobile learning for future studies.

Recommendations and Pedagogical Implications

As is the case with any design, there is always room for improvement. Based on the findings of the current study, this section will outline suggestions for ways in which future iterations of the game could be improved in terms of design. Previous literature clearly demonstrates that M-learning enhances university

teaching and learning and will play significant role in the future of the higher education environment. However, it remains a new technology system. The adoption and implementation of M-learning in higher education institutions needs to be investigated carefully, regarding to the capability of universities, and the perceptions and acceptance of users.

Mobile learning is based on the available technology, networks, infrastructure limitations and content. The increased involvement of technology has been implemented in just about all features of our daily routines involving learning institutions. Often, the biggest barrier to the integration of mobile technologies is the organisational infrastructure. This directly affects the quality of content for mobile learning, which discourage students. Different options for infrastructure and services imply different cost models. In general, institutions need to try and make use of their existing facilities and services in order to keep costs down.

Khaddageet al. (2015) argued that for any organization to obtain a successful mobile learning strategy there is a need to be prepared culturally and technologically. Even though in terms of Algerian higher education students are aware of the affordances of mobile learning to support instruction and learning, the infrastructure usually tends to limit both Student-Student and instructor-Student communication.

Therefore, in order to effectively execute mobile learning in Algerian higher education system, it is necessary to manage and implement these aspects effectively. Thus, it would be appropriate to create research laboratories that couple between computer specialists and applied linguists in order to create programs and mobile applications which are compatible with language curriculum.

As far as MALL activities are concerned, designers should pay enough attention to design activities that build students' language skills in an engaging way so as to satisfy the different students' needs. To help teachers conceptualize changes they can make to their pedagogical practices with technology, a number

of mobile learning integration models have been elaborated. Indeed, Puentedura's (2010) Substitution –Augmentation – Modification – Redefinition (SAMR) model could help teachers to see their potential when used in tandem with Bloom's revised taxonomy of the cognitive domain.

Instructors should encourage and assist Student' autonomy this enables Students to combine formal and informal learning. As EFL students' use of MALL activities is usually outside the classroom (informal), in an implicit manner, instructors may benefit students learning process through directing them to spend more time learning or working on activities that include mobile devices' use. Kukulska-Hulme (2013) argues that language Students need to be reskilled for a mobile world in which Student autonomy will be valued and needs to be supported.

The findings of this study can be useful for both teachers and students. Teachers can change their methods or approaches, and move toward more Student-oriented method or approaches. Students also have more opportunity to use their mobile devices as multimodal tools and improve their listening and speaking skills rather than only using their cell phones for everyday life. Students might get advantages of M-learning in the near future if a strategy is tailored to their readiness and that of their lecturers.

According to the features of mobile learning, the learning contents should be an independent part with a learning goal to be achieved in a very short period of time, so that Students will have a sense of accomplishment. Moreover, each fragments of the knowledge can be connected in the language system.

During the process of mobile learning, students' attention can be dispersed. Based on the learning environment and the needs of Students, the design of multimodal learning contents should also be highlighted: first, the theme must be interesting and able to meet the actual needs of students; second, the form of contents can be organized as games. Entertainment and enjoyment are perfect for learning a language. For instance, listening to a short story or watching an

educational video-clip; viewing a flashcard to memorize a word; learning some phrases or expressions while playing games.

The diversity of learning contents should be taken into account. In order to learn more knowledge in a limited time for students, the design of learning contents should be as various as possible, which can make students learn different kinds of knowledge. Moreover, take the students' age characteristics into consideration, selecting or making diversified learning resources to meet the needs of different Students (Wang, 2012).

The results showed that using multimedia and multimodal composing was very pleasurable for students and changed the boring instructional environment to a relaxing and interesting one for second language learning. Therefore, the findings of this study can be useful for material developers and instructional designers.

Teachers need to avoid the overloaded multimodal content. The latter should not contain too many modes at the same time. In addition, learning contents should be made according to one language point which involves a short time of studying. In addition, the learning contents in minimized form can be accepted by Students more easily. Because the Students can be easily distracted in the process of mobile learning, a large amount of knowledge is supposed to be divided into a lot of fragments.

-When combining these two leading forms of multimodal representation (i.e., traditional lesson and technology-mediated instruction) the process of language learning takes a new perspective in which multimodal communication gains great importance.

The fast-paced change from print-based to more visually oriented presentations of information involves also a quick response from language teachers and educators to take advantage of multimodality to engage students in more meaningful cognitive, social and critical understandings. In summary,

multimedia learning offers a potentially powerful way for people to understand things that would be very difficult to grasp from words alone.

It is important to consider the multiple systems of meaning – or *multiliteracies*. Therefore, teachers should think of ways they might incorporate multimodality or multiliteracy to help their students bridge the language gap. The responsibility educators have to provide students with the means to readily adapt themselves to multiple discourses is crucial.

Teachers can challenge the students to envision a presentation that does not rely on words, introducing the idea that meaning is made in multiple ways. They can ask their students to consider the different tools we use in negotiating meaning in our daily lives. Thus, this will help them consider how meaning is constructed, mitigated, or negotiated within any given context.

References

- Abimbola, O. (2013). Towards the Integration of Mobile Phones in the Teaching of English Language in Secondary Schools in Akure, Nigeria. *Theory and Practice in Language Studies*, 3(7), 1149-1153. ISSN 1799-2591.
- Abu-Al-Aish, A. (2014). *Toward Mobile Learning Deployment in Higher Education*. PhD Thesis. Brunel University: London.
- AL-Qudaimi, K. (May, 13, 2013). Mobile-assisted language learning: a literature review. Retrieved January, 12, 2015, from https://www.academia.edu/6369026/Mobile-Assisted_Language_Learning_A_Literature_Review.pdf
- Alemi, M., Sarab, M. R. A., & Lari, Z. (September, 26, 2012). Successful learning of academic word list via MALL: Mobile Assisted Language Learning. *International Education Studies*, 5(6), pp. 99–109. Retrievable from <http://www.ccsenet.org>
- Anderson, A., & Lynch, T. (1988). *Listening*. Oxford University Press.
- Andújar-Vaca, A. & Cruz-Martínez, M. (2017). Mobile Instant Messaging: Whatsapp and Its Potential to Develop Oral Skills. *Comunicar: Media Education Research Journal*, v25 n50 p43-52 . retrieved from <https://eric.ed.gov/?id=EJ1168743>

- Atwell, G. (Ed.). (2006). *Evaluating E-learning: A guide to the evaluation of E learning*. Bremen, Germany.
http://www.pontydysgu.org/wpcontent/uploads/2007/11/eva_europe_vol2_prefinal.pdf
- Beckmann, E. A., & Martín, D. M. (2013). How Mobile Learning Facilitates Student Engagement. In Zane L. & Berge, Lin Y. Muilenburg(Eds). *Handbook of Mobile Learning Routledge*, (pp. 534-544). Retrieved from
<https://www.routledgehandbooks.com/doi/10.4324/9780203118764.ch46>.
- Bennet, S., Maton, K., & Kervin, L. (2008). The Digital Natives Debate: A Critical Review of the Evidence. *BJET* Vol 39(5), pp. 775-786
- Bezemer, J., & Jewitt, C. (2010). Multimodal Analysis: Key issues. In L. Litosseliti (Ed.). *Research Methods in Linguistics* (pp. 180-197). London: Continuum.
- Bidin, S., & Abu Ziden, A. (2013). Adoption and Application of Mobile Learning in the Education Industry. *Procedia - Social and Behavioral Sciences*, 90, pp. 720 – 729.
- Bouzidi, A. (2015). *Exploring the Effectiveness of Mobile-assisted Language Learning in Enhancing EFL Students' vocabulary Acquisition*. Master Thesis. University of Biskra.
- Brantley-Dias, L., & Ertmer, P. A. (2013). Goldilocks and TPACK: Is the Construct “Just Right?”. *Journal of Research on Technology in Education*, 46 (2), pp. 103–128. Retrieved August, 13, 2018 from
https://www.researchgate.net/profile/Peggy_Ertmer/publication/261331689

[Goldilocks and TPACK/links/0046353760145ae4d4000000/Goldilocks-and-TPACK.pdf](#)

- Bryman, A. (2015) *Social research methods*. London: Oxford university press.
- Busà, M. G. (2010). Sounding Natural: Improving Oral Presentation Skills. *Language Value*, 2(1), pp. 51-67.
- Bygate, M. (1987). *Speaking*. Oxford: Oxford University Press.
- Cebeci Z, Tekdal M. (2006). Using podcasts as audio learning objects. *Interdisciplinary Journal of Knowledge and Learning Objects*, 2, 47–57.
- Chandler, D. (2002). *Semiotics: The Basics*. Routledge: London.
- Chelli, S. (2013). An Investigation of the Listening Strategies Used by Second-Year EFL Students at Biskra University. *Revue des sciences de l’homme et de la société*. 3, pp. 49-68. Retrieval from <http://dspace.univ-biskra.dz:8080/jspui/bitstream/123456789/988/1/17.pdf>
- Chinnery, G. M. (2006). Emerging technologies going to the mall: mobile assisted language learning. *Language Learning & Technology*, 10(1), 9-16. Retrieved February, 21, 2015 from <http://llt.msu.edu/vol10num1/emerging/>
- Cohen, L., Manion, L., & Morrison, K. (2005). *Research Methods in Education* (5th ed). Taylor & Francis e-Library.
- Coley, R. L., Kuo, F. E., & Sullivan, W. C. (1997). Where does community grow? The social context created by nature in urban public housing. *Environment and Behavior*, 29, 468–492.
- Cope, B. & Kalantzis, M. (2009). ‘Multiliteracies’: New Literacies, New Learning. *Pedagogies: An International Journal*, 4, pp. 164-195.
- Crompton, H. (24 Apr 2013). Mobile Learning. In Zane L. Berge, Lin Y. Muilenburg (Eds). *Handbook of Mobile Learning Routledge*, (pp. 46-57).

Retrieved March, 13, 2018

<https://www.routledgehandbooks.com/doi/10.4324/9780203118764.ch5>

Crompton, H. (24 Mar 2015), A Theory of Mobile Learning. In Zane L. Berge, Lin Y. Muilenburg (Eds). *International Handbook of E-learning. Theoretical Perspectives and Research* Routledge (pp. 308-317).

Retrieved March, 13, 2018 from

<https://www.routledgehandbooks.com/doi/10.4324/9781315760933.ch22>

Dawson, C. (2009). (4th ed). *Introduction to Research Methods: a practical guide for anyone undertaking a research project*. Spring Hill House.

Derakhshan, A., & Kaivanpanah, S. (2011). The impact of text-messaging on EFL freshmen's vocabulary learning. *EUROCALL*, pp. 39-47. Retrievable from http://eurocall.webs.upv.es/index.php?m=menu_00&n=news_19#derakhshan

Derrington, C., Groom, B., & Chapman, P. (2004). Different types of listening. A Team Approach to Behaviour Management, 42-45.

Dörnyei, Z. (2003). *Questionnaires in second language research: Construction, administration, and processing*. Mahwah, NJ: Lawrence Erlbaum Associates.

Eco, U. (1976). *A theory of Semiotics*. Indiana University Press.

Eisenlauer, V. (2014). Multimodality in Mobile-assisted Language Learning. In M. Kalz, Y. Bayyurt, M. Specht. (Eds.). *Mobile as a Mainstream – Towards Future Challenges in Mobile Learning. mLearn 2014. Communications in Computer and Information Science*, 479, (pp. 328-338).

- El-Hussein, M. O. M., & Cronje, J. C. (2010). Defining Mobile Learning in the Higher Education Landscape. *Educational Technology & Society*, 13 (3), 12–21.
- Elsom-Cook, M. (2001). *Principles of Interactive Multimedia*. McGraw-Hill, London.
- Fernandez-Pacheco, N. N. (2016). *The Orchestration of Modes and EFL Audio-Visual Comprehension: A Multimodal Discourse Analysis of Vodcasts*. PhD Thesis. University of Alicante.
- Fleishman, H. L. and Williams, L. (1996). *An introduction to programme evaluation for classroom teachers*. Arlington, Massachusetts, USA. Developments Associates, Inc
- Forsythe III, E. M. (October, 2017) *A Qualitative Case Study of Japanese University Students and Personal Smartphone Use in English as a Foreign Language Classes*. PhD Thesis. Northcentral University. San Diego, California.
- Ge, X., Huang, D., Zhang, H., & Bowers, B. B. (24 Apr 2013). Three-Dimension Design for Mobile Learning. In Zane L. & Berge, Lin Y. Muilenburg (Eds). *Handbook of Mobile Learning* Routledge, (pp. 328-345). Retrieved March, 13, 2018 from <https://www.routledgehandbooks.com/doi/10.4324/9780203118764.ch29>
- Ghrieb, B. (2015). *Teachers' and Students' Attitudes Towards the Use of Mobile Assisted Language Learning*. Master Thesis. University of Biskra.

- Gilakjani, A. & Ahmadi, A. (2011). A study of factors affecting EFL learners' English listening comprehension and the strategies for improvement. *Journal of Language Teaching and Research*, 2(5), 977-988.
- Goh, C. C. (2002). *Teaching listening in the language classroom*. Singapore: SEAMEO Regional Language Centre, RELC Portfolio Series 4.
- Goh, C. (2017). Language Awareness and the Teaching of Listening and Speaking. In P. Garret & J. M. Cots (Eds). *The Routledge Handbook of Language Awareness*, pp. 92-107. Retrieved from <https://www.routledgehandbooks.com/doi/10.4324/9781315676494.ch7>
- Graves, K. (2000). *Designing Language Courses: A Guide for Teachers*. (D. Freeman, Ed.) Boston: Heinle Cengage Learning.
- Gravestock, P. & Gregor-Greenleaf, E. (2008). "Student Course Evaluations: Research, Models, Trends." Higher Education Quality Council of Ontario. 2008. pp. 13-14.
- Halliday, M. A. K. (1978). *Language as Social Semiotic: The Social Interpretation of Language and Meaning*. London: Edward Arnold.
- Hamm, S., Saltsman, G., Jones, B., Baldrige, S., & Perkins, S. (24 Apr 2013). A Mobile Pedagogy Approach for Transforming Students and Faculty. In Zane L. Berge, Lin Y. Muilenburg (Eds). *Handbook of Mobile Learning Routledge*. (pp. 175-186). Retrieved 13 March 2018 from <https://www.routledgehandbooks.com/doi/10.4324/9780203118764.ch16>
- Hamilton, E. R., Rosenberg, J. M., & Akcaoglu, M. (2016). The Substitution Augmentation Modification Redefinition (SAMR) Model: a Critical

- Review and Suggestions for its Use. *Association for Educational Communications & Technology*. 60, pp. 433–441. DOI 10.1007
- Harmer, J. (1991). *The practice of English language teaching*. Essex: Longman Group UK Ltd.
- Hedge, H.T. (2000). *Teaching and learning in the language classroom*. Oxford University Press.
- Hockly, N. (2013a). Designer learning: The teacher as designer of mobile-based classroom learning experiences. Monterey, CA: The International Research Foundation for English Language Education. Retrieved February, 21, 2015 from <http://www.tirfonline.org/english-in-the-workforce/mobile-assisted-language-learning/>
- Hockly, N. (2013b). Technology for the language teacher: Mobile learning. *ELT Journal*, 67(1), 80–84. doi:10.1093/elt/ccs064
- Hoffman, B. (2006). *The Encyclopedia of Educational Technology*. San Diego, CA: Montezuma Press.
- Holdcraft, D. (1991). *Saussure Signs, System, and Arbitrariness*. Cambridge University Press.
- Hood, S. (2010). Body language in face-to-face teaching: A focus on textual and interpersonal meaning. In S. Dreyfus, S. Hood & M. Stenglin (Eds.). *Semiotic margins: Meaning in multimodalities*(pp. 31-52). London: Continuum.
- Howell, S. (2005). *Teaching listening comprehension*. Japan.

- Huang, C., & Sun, P. (2010). *Using mobile technologies to support mobile multimedia English listening exercises in daily life*. Paper presented at the international conference on Computer and Network Technologies in Education, Beijing. Retrieved August 2, 2010, from the World Wide Web <http://nhcuer.lib.nhcue.edu.tw/bitstream/392440000Q/649/1/120.pdf>
- Hwang, W., Shih, T. K., Ma, Z., Shadieva, R., & Chen, S. (2016). Evaluating Listening and Speaking Skills in a Mobile Game-based Learning Environment with Situational Contexts. *Computer Assisted Language Learning*, 29(4), pp. 639-657, DOI: 10.1080/09588221.2015.1016438
- Hymes, D. H. (1972). On communicative competence. In J. B. Pride & J. Holmes (Eds.), *Sociolinguistics* (pp.269-293). London: Penguin.
- Idrissova, M., Smagulova, B., & Tussupbekova, M. (2015). Improving listening and speaking skills in mixed level groups (on the material of *New English File*). *Procedia: Social and Behavioral Sciences*, 199, pp. 276 – 284.
- Jawarneh, A. Y. (2017). *Improving Effectiveness of Mobile Learning Technology for Use in Higher Education: A Comparative Study of the UK And Jordan*. PhD Thesis. The Cardiff Metropolitan University.
- Jewitt, C. (2008). Multimodality and literacy in school classroom. *Review of Research in Education*, 32, pp. 241-267.
- Jewitt, C. (2009a). Different Approaches to Multimodality. In C. Jewitt (Ed.). *The Routledge Handbook of Multimodal Analysis* (pp. 28-39). London and New York: Routledge.

- Jewitt, C. (2009b). Introduction: Handbook rationale, scope and structure. In C. Jewitt (Ed.). *Handbook of Multimodal Analysis* (pp. 1-8). London and New York: Routledge.
- Jewitt, C. (2013). Multimodal Methods for Researching Digital Technologies. In S. Price, C. Jewitt, & B. Barry (Eds.) *The SAGE Handbook of Digital Technology Research* (pp. 250-265). SAGE: Los Angeles.
- Jewitt, C. (2014). An Introduction to Multimodality. In C. Jewitt (Ed.). *The Routledge Handbook of Multimodal Analysis* (2nd ed) (pp. 15-30). London and New York: Routledge.
- Jiang, K. (2016). Validity of Multimodality in Autonomous Learning of Listening and Speaking. *Journal of Language Teaching and Research*, 7 (2), pp. 352-357. DOI: <http://dx.doi.org/10.17507/jltr.0702.14>
- JISC. (2005). *innovative practice with e-learning*. Bristol, UK: Joint Information Services Committee
- Jonker, J., & Pennink, B. (2010). *The Essence of Research Methodology: A Concise Guide for Master and PhD Students in Management Science*. Springer.
- Johnstone, A. (September 2005). Evaluation of teaching: a physical sciences practice guide. Hull, UK. Higher Education Academy Physical Sciences Centre.
- Kadar, A. B., & Zoraini, W. A. (2015). A Framework for Mobile Learning for Enhancing Learning in Higher Education. *Malaysian Online Journal of Educational Technology*, 3 (3).

- Kang, T. (2016). *Effectiveness of Strategy Instruction Using Podcasts in Second Language Listening and Speaking*. PhD thesis. Northern Arizona University.
- Kang, N-H., & Kim, J-Y. (2007). Mobile contents for teaching and learning English listening skills and vocabulary using TV Drama. *English Language Teaching, 19*(1), 113-134
- Karsono, P. (2014). Using pictures in improving the speaking ability of the grade eight-A students of SMP negeri 1 Anggana. *DinamikaIlmu, 14*(2), 190-213.
- Kazlauskas, A., & Robinson, K. (2012). Podcasts are not for everyone. *british Journal of Educational technology, Vol 43*(2), pp. 321-330.
- Kennedy, G.E., Judd, T.S., Churchward, A., Gray, K., & Krause, K. L. (2008). First year students' experiences with technology: Are they really digital natives? *Australian Journal of Educational Technology, Vol 24*(1), pp 108-122.
- Kern, R., & Schultz, J. M. (2005). Beyond Orality: Investigating Literacy and the Literary in Second and Foreign Language Instruction. *Modern Language Journal 89*(3), pp. 381–392.
- Keskin, N. O., & Metcalf, D. (2011, April). The current perspectives, theories and practices of mobile learning. *The Turkish Online Journal of Educational Technology, 10*(2), 202-208.
- Khaddage, F. Christensen, R. Lai, W. Knezek, G. Norris, C. and Soloway, E. (2015) A model driven framework to address challenges in a mobile learning environment. *EducInfTechnol, 20*(4), pp.625-640.

- Kim, H-S. (2011). Effects of SMS text messaging on vocabulary learning. *Multimedia-Assisted Language Learning*, 14(2), 159–180. Retrievable from <http://www.dbpia.co.kr>
- Kim, D., Rueckert, D., Kim, D.J., & Seo, D. (2013). Students' perceptions and experiences of mobile learning. *Language, Learning and Technology*, 17(3), 52-73.
- Kline, J.A. (1996). *Listening Effectively*. Alabama: Air University Press.
- Koehler, M. J., & Mishra, P. (2009). What is technological pedagogical content knowledge? *Contemporary Issues in Technology and Teacher Education*, 9(1), 60-70.
- Kress, G. (2005). *Literacy in the new media age*. London: Routledge
- Kress, G., & van Leeuwen, T. (2001). *Multimodal Discourse: The modes and media of contemporary communication*. London: Edward Arnold.
- Kress, G., & van Leeuwen, T. (Ed.). (2006). *Reading Images: The Grammar of Visual Design*. London: Routledge.
- Kress, G., & van Leeuwen, T. (2010). Multimodality, Literacy and School English. In D. Wyse, R. Andrews, & J. Hoffman (Eds.). *The Routledge International Handbook of English Language, and Literacy Teaching* (pp. 342-353).
- Kukulka-Hulme, A., Norris, L., & Donohue, J. (2015). *Mobile Pedagogy for English Language Teaching: a guide for teachers*. British Council. ISBN 978-0-86355-763-7

- Kukulska-Hulme, A. & Shield, L., (2008a). An overview of mobile assisted language learning: From content delivery to supported collaboration and interaction. *Recall*. doi:10.1017/S0958344008000335.pdf
- Kukulska-Hulme, A. & Shield, L., (2008b). Special issue of ReCALL on Mobile Assisted Language Learning. Cambridge University Press.pdf
- Kukulska-hulme, A. (2006). Mobile language learning now and in the future. In: Svensson, Patrik ed. *Från vision till praktik: SpråkutbildningochInformationsteknik (From vision to practice: language learning and IT)*. Sweden: Swedish Net University (Nätuniversitetet), pp. 295–310.
- Kukulska-Hulme, A., & Traxler, J. (2005). *Mobile Learning: a Handbook for Educators and Trainers*, USA: Taylor & Francis.
- Kukulska-Hulme, A. (2009). Will mobile learning change language learning? *ReCALL*, 21(2), 157-165.
- Kukulska-Hulme, A. (2012). Language learning defined by time and place: A framework for next generation designs. In: Díaz-Vera, Javier E. ed. *Left to My Own Devices: Learner Autonomy and Mobile Assisted Language Learning*. Innovation and Leadership in English Language Teaching, 6. Bingley, UK: Emerald Group Publishing Limited, pp. 1–13.
- Kukulska-Hulme, A. (2013). *Re-skilling Language Learners for a Mobile World*. The International Research Foundation for English Language Education (TIRF), Monterey, USA.

- Kurum, E. Y. (2016). Teaching Speaking Skills. Retrieved from <https://www.researchgate.net/publication/312538107>
- Ladico. M. G, Spaulding. D. T., & Voegtle. K. H. (2006). *Methods in educational research: from theory to practice*. San Fransisco. USA. Jossey-Bass. A Wiley Imprint.
- Laouris, Y., &Eteokleous, N. (2005). We need an educationally relevant definition of mobile learning. *Proceedings of the 4th World Conference on Mobile Learning*, 290-294.pdf
- Lee, C. B. (2013). Exploring the relationship between intention to use mobile phone as a visualization tool and regulation of cognition. *Computers & Education*, 60, 138–147.
- Liakin, D., Cardoso, W., &Liakina, N. (2014). Learning L2 pronunciation with a mobile speech recognizer: French /y/. *CALICO*, 32(1), 1–25.
- Lin, C., & Yu, Y. (2017). Effects of presentation modes on mobile-assisted vocabulary learning and cognitive load. *Interactive Learning Environments*, 25(4), 528-542, DOI: 10.1080/10494820.2016.1155160
- Littlewood, W. (1998). *Communicative Activities*. Cambridge: Cambridge University Press.
- Little, O., Goe, L., & Bell, C. (2009). *A practical guide to evaluating teacher effectiveness*. Naperville, U.S.A. Learning Point Associates

- Mayer, R. E. & Sims, K. V. (1994). For Whom is a Picture Worth a Thousand Words? Extensions of a Dual-coding Theory of Multimedia Learning. *Journal of Educational Psychology*, 86 (3), pp. 389-401.
- Mayer, R. E. (2001). *Multimedia Learning*. Cambridge University Press. Retrieved from <https://doi.org/10.1017/CBO9781139164603>
- Mayer, R. E. (2009). *Multimedia learning* (2nd ed.). New York, NY: Cambridge University Press.
- Mead, N. A. & Rubin, D. L. (1985). Assessing Listening and Speaking Skills. ERIC Clearinghouse on Reading and Communication Skills Urbana IL. ED263626. Retrieved from <https://www.ericdigests.org/pre-923/speaking.htm>
- Meddour, M. (2014). *Integrating Web-Based Teaching in Esp: A Case Study of Computer Science Students at Biskra University*. Phd Thesis. University of Biskra.
- Mehdipour, Y., & Zerehkafi, H. (2013, June). Mobile Learning for Education: Benefits and Challenges. *International Journal of Computational Engineering Research*, 3(6), 93-101.
- Mobithink Mobile Statistics. (2011). Mobithinking. Retrieved March 5, 2011, from MobiThinking. <http://mobithinking.com/mobile-marketing-tools/latest-mobile-stats>.
- MODE (2012). Glossary of Multimodal Terms. Retrieved from <https://multimodalityglossary.wordpress.com/>

- Moore, R.W. & Sutman, F.X. (1970). The development, field test and validation of an inventory of scientific attitudes. *Journal of Research in Science Teaching*, 7, p. 85–94.
- Murray, D. 2008, "From Marginalisation to Transformation: How ICT is Being Used in ESL Learning Today", *International Journal of Pedagogies and Learning*, vol. 4, no. 5, pp. 20-35.
- Nada Mansour F Aljuaid [1], Mohammed Ali Rajab Alzahrani [2] , A.Y.M. AtiquiIslam [3]. Assessing Mobile Learning Readiness in Saudi Arabia Higher Education: An Empirical Study. *The Malaysian Online Journal of Educational Technology*, 2(2).
- Naismith, L., Lonsdale, P., Vavoula, G., & Sharples, M. (2004). Literature Review in Mobile Technologies and Learning.
- New London Group. (1996). A Pedagogy of Multiliteracies: Designing social futures. *Harvard Educational Review*, 66(1), pp. 60-92.
<http://dx.doi.org/10.17763/haer.66.1.17370n67v22j160u>
- Novak, D., & Wang, M. (2015). Mobile Literacies: Learning in the Mobile Age. In Y. Zheng (Ed). *Encyclopedia of Mobile Phone Behavior*, (pp. 383-398).
- Nunan, D. (1999). *Research methods in language learning*. Cambridge: Cambridge University Press.
- O'Malley, C., Vavoula, G., Glew, J. P., Taylor, J., Sharples, M., & Lefrere, P. (2003). MOBIlearn WP4- Guidelines for learning/teaching/tutoring in a mobile environment. Retrieved December 20, 2009, from the World Wide Web <http://www.mobilelearn.org/download/results/guidelines.pdf>

- Omari, F. I. (2015). *An Evaluation of the Teaching of the Speaking Skill in EFL Classrooms within the Framework of the CBA: The Case of 3rd Year Pupils in 3 Secondary Schools in Tlemcen*. Unpublished PhD Thesis. University of Tlemcen.
- Parsons, D. (27 Apr 2016). *Theories of Mobile Learning and their Applications*. Seminar - The Open University of Hong Kong.
- Pollara, P. C. (2011). Mobile learning in higher education: a glimpse and a comparison of student and faculty readiness, attitudes and perceptions. *LSU Doctoral Dissertations*. 2349.
https://digitalcommons.lsu.edu/gradschool_dissertations/2349
- Prensky, M. (2001), "Digital Natives, Digital Immigrants Part 1", *On the Horizon*, Vol. 9 No. 5, pp. 16. <https://doi.org/10.1108/10748120110424816>
- Puentedura, R. (2006). Transformation, technology, and education [Blog post]. Retrieved August, 14, 2018 from <http://hippasus.com/resources/tte/>.
- Puentedura, R. R. (2013). *SAMR—Beyond augmentation: Methods for reaching modification and redefinition*. Retrieved September, 1, 2013, from http://www.hippasus.com/rrpweblog/archives/2013/08/26/SAMR_BeyondAugmentation.pdf
- Puentedura, R. R. (2014, December, 11). *SAMR and TPCK: A hands-on approach*. Retrieved from http://www.hippasus.com/rrpweblog/archives/2014/12/11/SAMRandTPCK_HandsOApproachClassroomPractice.pdf

- Rahimi, M., & Miri, S. S. (2014). The impact of mobile dictionary use on language learning. *Procedia - Social and Behavioral Sciences*, 98, 1469 – 1474.
- Rahman, S. (2014). Difficulties Teachers and Students Face in EFL/ESL Listening Classroom at Secondary Level Education in Bangladesh. Unpublished Master Thesis. BRAC University.
- Riley, H. (2004). Perceptual Modes, Semiotic Codes, Social Mores: A Contribution towards a Social Semiotics of Drawing. *Visual communication3* (3), pp. 294-315.
- Richards, J.C. (1990). The language teaching matrix. Cambridge University Press
- Richards, J. C. (2005). Second Thoughts on Teaching Listening. *RELC Journal* 36 (85), pp. 85-92. Retrieved from <http://rel.sagepub.com/content/36/1/85>
- Richards, J. C. (2008). *Teaching Listening and Speaking: Form Theory to Practice*. Cambridge University press.
- Robin, W. & Gou, N. (2006). An Investigation of Factors Influencing English Listening Comprehension and Possible Measures for Improvement. Australia: University of Tasmania
- Rocío, S. A. (2012). *The importance of teaching listening and speaking skills*. Unpublished Master Thesis. Complvtensis University.
- Rossing, J.P., Miller, W., Cecil, A.K., Stamper, S.E. (2012). iLearning: the future of higher education? students perceptions on learning with

- mobile tablets. *Journal of Scholarship of Teaching and Learning*, 12(2), 1-26. Retrieved from <http://josotl.indiana.edu/article/view/2023/1985>
- Rost, M. (1994). *Introducing Listening*. London Penguin.
- Rost, M. (2011). *Teaching and Researching Listening*. (2nd ed.). United Kingdom : Pearson Education Limited.
- Saidouni, K., & Bahloul, A. (2018). Mobile-Assisted Language Learning and Motivation: Can the Use of Mobile Devices Promote Students' Motivation in EFL Classes? *El-ihyaa journal*, 21, pp. 545-576.
- Sankey, M. (2006). A neomillennial learning approach: Helping non-traditional learners studying at a distance. *International Journal of Education and Development using ICT* 2 (4), 82-99
- Savignano, M. A. (2017). *Educators' Perceptions of the Substitution, Augmentation, Modification, Redefinition Model for Technology Integration*. Doctoral Dissertation. University of Northern Colorado. Published by ProQuest : 10623033.
- Schnotz, W. (2002). Towards an Integrated View of Learning from Text and Visual Displays. *Educational Psychology Review*, 14(1), pp. 101-120.
- Schnotz, W. & Bannert, M. (2003). Construction and interference in learning from multiple representation. *Learning and Instruction*, 13 (2), pp. 141-156.
- Schnotz, W. (2005). An Integrated Model of Text and Picture Comprehension. In R. Mayer (Ed.). *The Cambridge Handbook of Multimedia Learning* (Cambridge Handbooks in Psychology, (pp. 49-70). Cambridge: Cambridge University Press. doi:10.1017/CBO9780511816819.005

- Shuler, C. (2009). *Pockets of Potential: Using Mobile Technologies to Promote Children's Learning*. New York: The Joan Ganz Cooney Center at Sesame Workshop. Retrieved on March 18th, 2012 from www.joanganzcooney-center.org/pdf/pockets_of_potential.pdf
- Shuler, P., Hutchins, G., Lashell, B. (2012). Student perceptions of tablet computers in a cooperative learning experiment. *North American Colleges and Teachers of Agriculture*, 11-17. Retrieved from http://www.nactateachers.org/attachments/091_Shuler_June%202010%20NACTA%20Journal-2.pdf
- Sebeok, A.T. (2002). *Signs: An Introduction to Semiotics* (2nd ED). London: University of Toronto Press.
- Senani, D. (2015). *Developing EFL Students' Listening Comprehension through Mobile Assisted Language Learning. A Case Study of First Year Master Students of English at Mohamed Kheider University of Biskra*. Unpublished Master Thesis. Biskra University.
- Smith, C., Carter, R. & Adolphs, S. (2012). Using multimodal corpus resources in mobile learning environments. Research Report. University of Nottingham.pdf
- Soler-Urzua, F. (2011). The acquisition of English /ɪ/ by Spanish speakers via text-to-speech synthesizers: a quasi-experimental study. Master's Thesis. Concordia University, Montreal, Canada
- Stanley, G. (2006). Podcasting: Audio on the Internet comes of age. *TESL-EJ*, 9(4), pp. 1-7.

- Stockwell, G. (2010). Using mobile phones for vocabulary activities: examining the effect of the platform. *Language Learning & Technology*, 14(2), 95-110. Retrieved from <http://llt.msu.edu/vol14num2/stockwell.pdf>
- Stockwell, G., & Hubbard, P. (2013). *Some emerging principles for mobile-assisted language learning*. Monterey, CA: The International Research Foundation for English Language Education. Retrieved from <http://www.tirfonline.org/english-in-the-workforce/mobile-assisted-language-learning>
- Stockwell, G.(23 Mar 2016). Mobile language learning. In Farr, F., & Murray, L. (Eds). *The Routledge Handbook of Language Learning and Technology* Routledge, (pp. 297-307). Retrieved March, 13, 2018 from <https://www.routledgehandbooks.com/doi/10.4324/9781315657899.ch21>
- Stufflebeam, D. L. (July, 2000). *Guidelines for evaluating checklists: the checklist development checklist (CDC)*. Retrieved December 16, 2012 from www.wmich.edu/evalctr/checklists/
- Sweller, J. (2005). Implications of cognitive load theory for multimedia learning. In R. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (pp. 19–30). New York, NY: Cambridge University Press
- Taylor, J. (2006). Evaluating mobile learning: What are appropriate methods for evaluating learning in mobile environments? In M. Sharples (Ed.), *Big issues in mobile learning: report of a workshop by the kaleidoscope network of excellence mobile learning initiative*, (pp. 25-27). University of Nottingham.

- Thornton, P., & Houser, C. (2004). Using mobile phones in education. doi:10.1109/WMTE.2004.1281326
- Tomei, L. A. (2008). *Encyclopedia of information technology curriculum integration*. Hershey, PA: Information Science Reference
- Traxler, J. (2007). Defining, discussing, and evaluating mobile learning: The moving finger writes and hav-ing writ. *International Review of Research in Open and Distance Learning*, 8(2), 1–12.
- Traxler, J. (2009). [Learning in a mobile age](http://www.academia.edu/171500/Learning_in_a_Mobile_Age). *International Journal of Mobile and Blended Learning*, 1(1), 1-12, Retrieved September 21, 2014, from http://www.academia.edu/171500/Learning_in_a_Mobile_Age
- Underwood, M. (1989). Teaching listening. Longman.
- Uzunboylu, H., & Ozdamli, F. (2011). Teacher perception for m-learning: scale development and teachers' perceptions. *Journal of Computer assisted learning*, 27(6), 544-556.
- Vaismoradi, M., Turunen, H. and Bondas, T. (2013) Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & health sciences*, 15(3), pp.398-405.
- Valarmathi, K. E. (2011). *Mobile assisted language learning*. Journal of Technology for ELT. Retrieved September 27, 2014 from <https://sites.google.com/site/journaloftechnologyforelt/archive/april2011/mobileassistedlanguagelearning>
- Vandergrift, L. (1999). Facilitating second language listening comprehension: acquiring successful strategies. Oxford University Press, 53(3), 168-176.

- Vandergrift, L. (2007). "Recent developments in second and foreign language listening comprehension research", in *Language Teaching* 40: 191-210.
- Vandergrift, L. & Goh, C. (2009). Teaching and Testing Listening Comprehension. *The Handbook of Language Teaching*, pp. 395-411.
- Vandergrift, L., Tafaghodtari, M.H. (2010). Teaching L2 Students How to Listen Does Make a Difference: An Empirical Study. *Language Learning: A journal of research in language studies*, 60(2), 470-497.
- Van Leeuwen, T. (2005), *Introducing Social Semiotics*. London: Routledge.
- Van't Hooft, M. (2009). Researching informal and mobile learning: Leveraging the right resources. In G. Vavoula, N. Pachler & A. Kukulska-Hulme (Eds.), *Researching Mobile Learning: Frameworks, tools and research designs*. (pp. 169-180). Oxford: Peter Lang.
- Vavoula, G. & Sharples, M. (2009). Meeting the Challenges in Evaluating Mobile Learning: A 3-level Evaluation Framework. *International Journal of Mobile and Blended Learning*, 1(2), pp. 54-75.
- Walsh, M. (2005). Reading visual and multimodal texts: how is 'reading' different? Retrieved from <https://www.researchgate.net/publication/266184461>
- Wang, H. (2018). A Case Study of English Language Students' Multimodal Compositions and Identity Representations. PhD Dissertation Georgia State University. Retrieved from https://scholarworks.gsu.edu/mse_diss/60
- Webber, C. F. (2010). Leadership and Technology. *International Encyclopedia of Education (Third Edition)*, pp. 120-127

- Wingstedt, J., Brändström, S. & Berg, J. (2010). Narrative Music, Visuals and Meaning in Film. Retrieved from <https://www.diva-portal.org/smash/get/diva2:985329/FULLTEXT01.pdf>
- Winters, N. (2006). What is mobile learning? In M. Sharples (Ed.), *Big issues in mobile learning: report of a workshop by the kaleidoscope network of excellence mobile learning initiative*. (pp. 5-9). University of Nottingham.
- Wolf, R. A. (1973). *A Curriculum Guide for the Teaching of Listening and Speaking Skills to the Primary Grades in the Public Schools of Madison, Connecticut*. MA Thesis. Southern Connecticut State College.
- Yassine, S. (2012). *Culture Issues, Ideology and Otherness in EFL Textbooks: A Social Semiotic Multimodal Approach*. PhD Thesis. University of Tizi-Ouzou.
- Yount, R. (2006). *Research design and statistical analysis in Christian ministry (4th ed)*. Retrieved September 10, 2012 from [www.napce.org/documents/research designyount/00_Front_4th .pdf](http://www.napce.org/documents/research%20designyount/00_Front_4th.pdf)
- Zhang, F. (2012). *Computer-enhanced and mobile-assisted language learning: Emerging issues and trends*. Hershey, PA: Information Science Reference.

Appendices

Appendix1:Students' informational questionnaire

Questionnaire to EFL Degree Students

This questionnaire is part of a research work whose aim is to gather the necessary information which will pave the way for the appropriate integration of mobile-based activities in teaching Listening and Speaking module.

Please read all of the questions before answering. Be sure, your identification is kept anonymous. So, please put pen to paper without any delay or hesitation.

May I thank you in advance for your collaboration.

Part One :

1. Specify your Gender: Male Female

2. Age:.....

Part Two:

3. What kind of mobile devices do you have? (*you may tick more than one option*)

a- Basic-phone (no camera/video, no applications, etc.) b- Smartphone

c- PDA (Personal Digital Assistant) MP3/MP4 Players

e- Tablet Computer f- Laptop computers

g- Other:

.....

4. What is your mobile operating system?

a- Android b- iOS

c- Other:.....

5. Do you have internet access to your mobile device? a- Yes b- No

If yes;

- What type of internet do you generally use?

a- Wireless internet access (Wi-Fi) b- 3G

d- Other :

- How often do you activate the internet to your mobile device ?

a- Daily b- Weekly c- Monthly d- it depends on my needs

6. How do you evaluate your level of technological knowledge ?

a- Below basic b- Basic c- Proficient d- Advanced

e- I do not know

Part three:

7. What do you often use technology for ? (you may tick more than one option)

a- Completing homework assignments b- Email c- Internet messaging

d- Programming e- Logging f- Online computer games

g- Photo Editing h- Movie Making

i- Web page design j- Watching Movies (Streaming Videos)

k- Social Networking (My Space, Facebook, etc.)

l- Other:.....

8. Do you use your mobile device to learn English? a- Yes b- No

If you do not use your mobile device to learn English, say why:

.....

If yes, how often ?

a- Always b- Often c- Rarely d- Never

9. When do you often use your mobile device to learn English?

a- Free time b- While waiting (e.g. for a bus)

c- Before sleeping d- Whenever the opportunity arises

10. Where do you often use your mobile device to learn English?

a- Inside the classroom b- Outside the classroom c- Wherever the opportunity arises

In case it's used inside the classroom, it is for what purpose? (you may tick more than one option)

a- Checking the dictionary b- Researching information on the internet

c- Taking notes d- Recording the lecture

e-Others:

.....

14. What kind of content do you generally use on your mobile device?

a- Online content *b*- Offline content

15. Which aspects of English Language do you intend to improve by using mobile activities? (*you may tick more than one option*)

a- Listening Speaking *c*-Writing *d*-Reading

e-Others

.....

16. As far as Listening and Speaking skills are concerned, how often do the following happen to you?

		always	often	sometimes	never	N/A
A- Listening	<i>a-</i> Have trouble understanding lectures.					
	<i>b-</i> Have trouble taking effective notes.					
	<i>c-</i> Have to ask staff questions to clarify material you have been taught.					
	<i>d-</i> Have trouble understanding lengthy descriptions in English.					
	<i>e-</i> Have trouble understanding spoken instructions.					
	<i>f-</i> Have trouble understanding informal language.					
	<i>i-</i> Have trouble understanding the subject matter of a talk, i.e., what is being talked about.					
	<i>g-</i> I also have difficulty with (please specify):					
B- Speaking	<i>a-</i> Have difficulty giving oral presentations.					
	<i>b-</i> Have trouble wording what you want to say quickly enough.					
	<i>c-</i> Worry about saying something in case you make a mistake in your English.					
	<i>d-</i> Not know how to say something in English.					
	<i>e-</i> Not know the best way to say something in English.					
	<i>f-</i> Have difficulty with your pronunciation of words.					
	<i>g-</i> Find it difficult to enter discussion.					
	<i>h-</i> Other (please specify):					

17. According to you, what factors do affect learning listening and speaking?

		Often	Sometimes	Never
A- Listening	<i>a-</i> speakers talk very fast			
	<i>b-</i> the speakers' accents or			

.....

20. What do you like to use technology for at University ?(you may tick more than one option)

- a-* Email *b-* Instant messaging *c-* Programming
d- Taking Tests *e-* PowerPoint / Multimedia Presentations *f-* Web page design
g- Audio Books *h-* Google Docs *i-* Completing homework assignments
j- I do not want to use technology at University
k- Other:.....

21. As for the videos, how long do you prefer the video or audio clip to last ?

- a-* 3-5 minutes *b-* 5-10 minutes *c-* longer than 10 minutes

22. What type of class work do you prefer?

- a-* Individual work *b-* Pair work *c-* Group work *d-* Project-based work
e- Other:

23. What is your preferred learning style?

- a-* Auditory *b-* Visual *c-* Kinaesthetic

24. How do you like to be assessed in formal tests and exams in Listening and Speaking module ?

- a-* Oral Presentations *b-* Role play/ dialogues *c-* in-class simulations
d- Free work
e- Others :

25. Please, select the scale of agreement from below statements.

Statement	<i>Strongly agree</i>	<i>Slightly agree</i>	<i>Agree</i>	<i>Slightly disagree</i>	<i>Strongly disagree</i>
<i>a-</i> Mobile-based activities will motivate me to practice listening and speaking better than traditional classroom.					
<i>b-</i> Mobile-based activities will encourage me to engage in authentic communication.					
<i>c-</i> Mobile-based learning will develop my autonomous learning.					
<i>d-</i> Mobile devices offer opportunities that satisfy my preferred learning style.					
<i>e-</i> Mobile devices offer a wide range of modalities (e.g. audio, and visual) that satisfy my needs.					

26. Do you have any further suggestions for us as we plan for the future of technology at university? (your comments are most welcome)

.....
.....
.....
.....
.....
.....
.....
.....
.....

Appendix2: Teachers' interview

The Teacher's Interview

Dear teachers,

This interview aims to gather the necessary information which will pave the way for the appropriate integration of mobile-based activities in teaching Listening and Speaking module.

Your most appreciated contribution is expected to be honest and straightforward.

Your answers will be kept confidential.

May I thank you in advance for your collaboration.

Part One: General Information

1. Specify your gender: Male Female

2. Approximately how long have you been teaching Listening and Speaking module?

Part Two: Using Mobile Technologies as Semiotic Resources in Teaching Listening and Speaking skills

3. What means do you use in teaching listening and speaking skills? PC, Speaker, etc. ?

.....

4. To what extent do you use technology; mainly mobile devices(*all sorts of mobile technology: smartphone, MP3/MP4 players, Laptops, Tablets, etc.*), in teaching listening and speaking skills?

.....

5. To what extent do you allow your students to use their mobile devices inside the classroom?

.....

6. How do you consider the exploitation of mobile devices as semiotic resources that offer various modalities (audio, visual, tactile, etc) in teaching listening and speaking?

.....

7. In case you use mobile devices in teaching the module, are there any specific mobile-based activities you use within your course?

.....

.....

Part Three: Recommendations

8. What challenges might face the integration of mobile devices in higher education context in general, and teaching listening and speaking skills in specific?

.....
.....

9. How do you think that Mobile-assisted Language Learning is important to teach EFL in general and listening and speaking skills in particular in the future?

.....
.....

Appendix3: Course Evaluation Form

Dear students,

Please complete this course evaluation form by assigning each statement a number which corresponds to your opinion. Place an (X) in the column that corresponds to your choice.

Rating system

1- Strongly Agree 2-Agree 3-Unsure 4-Disagree 5- Strongly Disagree

The Instructor	1	2	3	4	5
a. Instructor was knowledgeable about the course.					
b. Instructor encouraged participation and answers students' questions.					
c. Instructor was prepared to use mobile technologies.					
d. Instructor was enthusiastic about teaching the subject and using mobile technologies as learning/ teaching tools.					
The Mobile-based Activities					
a. The instructor used a variety of mobile-based learning materials such as audiorecordings, videos, pictures, mobile apps, etc.					
b. The mobile-based materials fit the course objectives.					
c. The affordances offered by the mobile dictionary helped me not only acquire new vocabulary but also learn their phonological, morphological, and contextual aspects.					
d. Listening to the audio recordings via my mobile device was more effective than listening to them via a speaker.					
e. The audio-visual activities helped me decipher the meaning of the tasks.					
f. The use of the Pronunciation app helped me be aware and have control of the English sound system.					
g. The use of the mobile recorder and the Audio Transcriber app helped me work on my speaking skills.					
Lessons and Activities					
a. Lessons prepared me to use English in academic, workplace, and daily life settings.					

b. In-class activities were eclectic and met my preferred type of class work (working in pairs, individual work, working in groups, etc).					
c. The activities helped me produce correct and relevant instances of discourse with ease and confidence.					
Objectives					
a. The mobile-based activities met my preferred learning style(s)					
b. The mobile-based activities helped me overcome my listening and speaking difficulties.					
c. Mobile-based activities motivated me to practice listening and speaking better than traditional classroom.					
Attitudes					
a. Studying with my mobile device was an effective method to study language, and practise my listening and speaking skills.					
Mobile devices offered a wide range of modalities (e.g. audio, and visual) that satisfy my needs					
b. Mobile-based learning helped me being autonomous Student.					
c. Mobile learning made learning dynamic					
d. The mobile-based materials motivated me to engage more effectively in the course.					
e. Mobile learning gave advantages to create personalized learning					
f. Overall I felt that studying using my mobile device was a positive experience and I want to study English with my mobile device again					
Challenges					
a. The use of my mobile device was challenging and uncomfortable.					
b. The technical challenges (the lack of infrastructure, screen size, keyboard size, etc.) affected learning via my mobile device.					
c. The use of my mobile device distracted me.					

What do you recommend to improve this course?

.....
.....
.....
.....
.....
.....
.....

Appendix4: Listening skills Pretest

Test 1

LISTENING

SECTION 1 Questions 1–10

Questions 1 and 2

Choose the correct letter, **A**, **B** or **C**.

Example

In the library George found

- A a book.
- B a brochure.
- C a newspaper.

- 1 In the lobby of the library George saw
 - A a group playing music.
 - B a display of instruments.
 - C a video about the festival.
- 2 George wants to sit at the back so they can
 - A see well.
 - B hear clearly.
 - C pay less.

Listening

Questions 3–10

Complete the form below.

Write **NO MORE THAN TWO WORDS AND/OR A NUMBER** for each answer.

SUMMER MUSIC FESTIVAL BOOKING FORM			
NAME:	George O'Neill		
ADDRESS:	3, Westsea		
POSTCODE:	4		
TELEPHONE:	5		
Date	Event	Price per ticket	No. of tickets
5 June	Instrumental group – <i>Guitarrini</i>	£7.50	2
17 June	Singer (price includes 6 in the garden)	£6	2
22 June	7 (Anna Ventura)	£7.00	1
23 June	Spanish Dance & Guitar Concert	8 £	9
NB Children / Students / Senior Citizens have 10 discount on all tickets.			

Test 1

SECTION 2 Questions 11–20

Questions 11–15

Complete the sentences below.

Write **NO MORE THAN TWO WORDS AND/OR A NUMBER** for each answer.

The Dinosaur Museum

- 11 The museum closes at p.m. on Mondays.
- 12 The museum is not open on
- 13 School groups are met by tour guides in the
- 14 The whole visit takes 90 minutes, including minutes for the guided tour.
- 15 There are behind the museum where students can have lunch.

Questions 16–18

Choose **THREE** letters, **A–G**.

Which **THREE** things can students have with them in the museum?

- A food
- B water
- C cameras
- D books
- E bags
- F pens
- G worksheets

Listening

Questions 19 and 20

Choose **TWO** letters, **A–E**.

Which **TWO** activities can students do after the tour at present?

- A build model dinosaurs
- B watch films
- C draw dinosaurs
- D find dinosaur eggs
- E play computer games

Test 1

SECTION 3 Questions 21–30

Questions 21–24

Choose the correct letter, **A**, **B** or **C**.

Field Trip Proposal

- 21** The tutor thinks that Sandra's proposal
- A** should be re-ordered in some parts.
 - B** needs a contents page.
 - C** ought to include more information.
- 22** The proposal would be easier to follow if Sandra
- A** inserted subheadings.
 - B** used more paragraphs.
 - C** shortened her sentences.
- 23** What was the problem with the formatting on Sandra's proposal?
- A** Separate points were not clearly identified.
 - B** The headings were not always clear.
 - C** Page numbering was not used in an appropriate way.
- 24** Sandra became interested in visiting the Navajo National Park through
- A** articles she read.
 - B** movies she saw as a child.
 - C** photographs she found on the internet.

Listening

Questions 25–27

Choose **THREE** letters, **A–G**.

Which **THREE** topics does Sandra agree to include in the proposal?

- A climate change
- B field trip activities
- C geographical features
- D impact of tourism
- E myths and legends
- F plant and animal life
- G social history

Questions 28–30

Complete the sentences below.

Write **ONE WORD AND/OR A NUMBER** for each answer.

- 28 The tribal park covers hectares.
- 29 Sandra suggests that they share the for transport.
- 30 She says they could also explore the local

Test 1

SECTION 4 Questions 31–40

Complete the notes below.

Write **ONE WORD ONLY** for each answer.

Geography

Studying geography helps us to understand:

- the effects of different processes on the 31 of the Earth
- the dynamic between 32 and population

Two main branches of study:

- physical features
- human lifestyles and their 33

Specific study areas: biophysical, topographic, political, social, economic, historical and 34 geography, and also cartography

Key point: geography helps us to understand our surroundings and the associated 35

What do geographers do?

- find data – e.g. conduct censuses, collect information in the form of 36 using computer and satellite technology
- analyse data – identify 37, e.g. cause and effect

Listening

- publish findings in form of:
 - a) maps
 - easy to carry
 - can show physical features of large and small areas
 - BUT a two-dimensional map will always have some **38**
 - b) aerial photos
 - can show vegetation problems, **39** density, ocean floor etc.
 - c) Landsat pictures sent to receiving stations
 - used for monitoring **40** conditions etc.

Appendix5: Speaking skills pretest

Test 1

SPEAKING

PART 1

The examiner asks the candidate about him/herself, his/her home, work or studies and other familiar topics.

EXAMPLE

Neighbours

- How well do you know the people who live next door to you?
- How often do you see them? [Why/Why not?]
- What kinds of problem do people sometimes have with their neighbours?
- How do you think neighbours can help each other?

PART 2

Describe a time when you were asked to give your opinion in a questionnaire or survey

You should say:

**what the questionnaire/survey was about
why you were asked to give your opinions
what opinions you gave
and explain how you felt about giving your opinions in this questionnaire/survey.**

You will have to talk about the topic for one to two minutes. You have one minute to think about what you are going to say. You can make some notes to help you if you wish.

PART 3

Discussion topics:

Asking questions

Example questions:

What kinds of organisation want to find out about people's opinions?

Do you think that questionnaires or surveys are good ways of finding out people's opinions?

What reasons might people have for not wanting to give their opinions?

Questionnaires in school

Example questions:

Do you think it would be a good idea for schools to ask students their opinions about lessons?

What would the advantages for schools be if they asked students their opinions?

Would there be any disadvantages in asking students' opinions?

Appendix6: Listening skills Posttest

Test 3

LISTENING

SECTION 1 Questions 1–10

Questions 1–3

Complete the form below.

Write **ONE WORD AND/OR A NUMBER** for each answer.

Rented Properties Customer's Requirements	
Name:	Steven Godfrey
<i>Example</i> No. of bedrooms:	<i>Answer</i> four.....
Preferred location:	in the 1 area of town
Maximum monthly rent:	2 £
Length of let required:	3
Starting:	September 1st

Listening

Questions 4–8

Complete the table below.

Write **ONE WORD AND/OR A NUMBER** for each answer.

Address	Rooms	Monthly rent	Problem
Oakington Avenue	living/dining room, separate kitchen	£550	no 4
Mead Street	large living room and kitchen, bathroom and a cloakroom	£580	the 5 is too large
Hamilton Road	living room, kitchen-diner, and a 6	£550	too 7
Devon Close	living room, dining room, small kitchen	8 £	none

Test 3

Questions 9 and 10

Choose **TWO** letters, **A–E**.

Which **TWO** facilities in the district of Devon Close are open to the public at the moment?

- A museum
- B concert hall
- C cinema
- D sports centre
- E swimming pool

Listening

SECTION 2 Questions 11–20**Questions 11–16**

Complete the notes below.

Write **NO MORE THAN TWO WORDS AND/OR A NUMBER** for each answer.

THE NATIONAL ARTS CENTRE	
Well known for:	11
Complex consists of:	concert rooms
	theatres
	cinemas
	art galleries
	public library
	restaurants
	a 12
Historical background:	1940 – area destroyed by bombs
	1960s–1970s – Centre was 13 and built
	in 14 – opened to public
Managed by:	the 15
Open:	16 days per year

Test 3

Questions 17–20

Complete the table below.

Write **NO MORE THAN THREE WORDS AND/OR A NUMBER** for each answer.

Day	Time	Event	Venue	Ticket price
Monday and Tuesday	7.30 p.m.	'The Magic Flute' (opera by Mozart)	17	from £8.00
Wednesday	8.00 p.m.	18 '.....' (Canadian film)	Cinema 2	19 £
Saturday and Sunday	11 a.m. to 10 p.m.	20 '.....' (art exhibition)	Gallery 1	free

SECTION 3 Questions 21–30*Questions 21–26*

Choose the correct letter, **A**, **B** or **C**.

Latin American studies

- 21 Paul decided to get work experience in South America because he wanted
- A to teach English there.
 - B to improve his Spanish.
 - C to learn about Latin American life.
- 22 What project work did Paul originally intend to get involved in?
- A construction
 - B agriculture
 - C tourism
- 23 Why did Paul change from one project to another?
- A His first job was not well organised.
 - B He found doing the routine work very boring.
 - C The work was too physically demanding.
- 24 In the village community, he learnt how important it was to
- A respect family life.
 - B develop trust.
 - C use money wisely.
- 25 What does Paul say about his project manager?
- A He let Paul do most of the work.
 - B His plans were too ambitious.
 - C He was very supportive of Paul.
- 26 Paul was surprised to be given
- A a computer to use.
 - B so little money to live on.
 - C an extension to his contract.

Test 3

Questions 27–30

What does Paul decide about each of the following modules?

Write the correct letter, **A**, **B** or **C**, next to questions 27–30.

- | |
|---|
| A He will do this.
B He might do this.
C He won't do this. |
|---|

Module

- | | |
|---|-------|
| 27 Gender Studies in Latin America | |
| 28 Second Language Acquisition | |
| 29 Indigenous Women's Lives | |
| 30 Portuguese Language Studies | |

SECTION 4 Questions 31–40*Questions 31–34*

Choose the correct letter, **A**, **B** or **C**.

Trying to repeat success

- 31** Compared to introducing new business processes, attempts to copy existing processes are
- A** more attractive.
 - B** more frequent.
 - C** more straightforward.
- 32** Most research into the repetition of success in business has
- A** been done outside the United States.
 - B** produced consistent findings.
 - C** related to only a few contexts.
- 33** What does the speaker say about consulting experts?
- A** Too few managers ever do it.
 - B** It can be useful in certain circumstances.
 - C** Experts are sometimes unwilling to give advice.
- 34** An expert's knowledge about a business system may be incomplete because
- A** some details are difficult for workers to explain.
 - B** workers choose not to mention certain details.
 - C** details are sometimes altered by workers.

Test 3

Questions 35–40

Complete the notes below.

Write **ONE WORD ONLY** for each answer.

Setting up systems based on an existing process

Two mistakes

Manager tries to:

- improve on the original process
- create an ideal **35** from the best parts of several processes

Cause of problems

- information was inaccurate
- comparison between the business settings was invalid
- disadvantages were overlooked, e.g. effect of changes on **36**

Solution

- change **37**
- impose rigorous **38**
- copy original very closely:
 - physical features of the **39**
 - the **40** of original employees

Appendix 7: Speaking skills Posttest

Speaking

SPEAKING

PART 1

The examiner asks the candidate about him/herself, his/her home, work or studies and other familiar topics.

Speaking

SPEAKING

PART 1

The examiner asks the candidate about him/herself, his/her home, work or studies and other familiar topics.

EXAMPLE

Newspapers and Magazines

- Which magazines and newspapers do you read? [Why?]
- What kinds of article are you most interested in? [Why?]
- Have you ever read a newspaper or magazine in a foreign language? [When/Why?]
- Do you think reading a newspaper or magazine in a foreign language is a good way to learn the language? [Why/Why not?]

PART 2

Describe a restaurant that you enjoyed going to.

You should say:

where the restaurant was

why you chose this restaurant

what type of food you ate in this restaurant and explain why you enjoyed eating in this restaurant.

You will have to talk about the topic for one to two minutes.

You have one minute to think about what you are going to say.

You can make some notes to help you if you wish.

PART 3

Discussion topics:

Restaurants

Example questions:

Why do you think people go to restaurants when they want to celebrate something?

Which are more popular in your country: fast food restaurants or traditional restaurants?

Why do you think that is?

Some people say that food in an expensive restaurant is always better than food in a cheap restaurant – would you agree?

Producing food

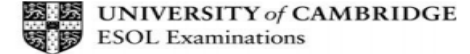
Example questions:

Do you think there will be a greater choice of food available in shops in the future, or will there be less choice?

What effects has modern technology had on the way food is produced?

How important is it for a country to be able to grow all the food it needs, without importing any from other countries?

Appendix8: IELTS Speaking Assessment Criteria



IELTS Speaking band descriptors (public version)

Band	Fluency and Coherence	Lexical Resource	Lexical Resource	Pronunciation
9	<ul style="list-style-type: none"> speaks fluently with only rare repetition or self correction; any hesitation is content-related rather than to find words or grammar speaks coherently with fully appropriate cohesive features develops topics fully and appropriately 	<ul style="list-style-type: none"> uses vocabulary with full flexibility and precision in all topics uses idiomatic language naturally and accurately 	<ul style="list-style-type: none"> uses a full range of structures naturally and appropriately produces consistently accurate structures apart from 'slips' characteristic of native speaker speech 	<ul style="list-style-type: none"> uses a full range of pronunciation features with precision and subtlety sustains flexible use of features throughout is effortless to understand
8	<ul style="list-style-type: none"> speaks fluently with only occasional repetition or self-correction; hesitation is usually content-related and only rarely to search for language develops topics coherently and appropriately 	<ul style="list-style-type: none"> uses a wide vocabulary resource readily and flexibly to convey precise meaning uses less common and idiomatic vocabulary skilfully, with occasional inaccuracies uses paraphrase effectively as required 	<ul style="list-style-type: none"> uses a wide range of structures flexibly produces a majority of error-free sentences with only very occasional inappropriacies or basic/non-systematic errors 	<ul style="list-style-type: none"> uses a wide range of pronunciation features sustains flexible use of features, with only occasional lapses is easy to understand throughout; L1 accent has minimal effect on intelligibility
7	<ul style="list-style-type: none"> speaks at length without noticeable effort or loss of coherence may demonstrate language-related hesitation at times, or some repetition and/or self-correction uses a range of connectives and discourse markers with some flexibility 	<ul style="list-style-type: none"> uses vocabulary resource flexibly to discuss a variety of topics uses some less common and idiomatic vocabulary and shows some awareness of style and collocation, with some inappropriate choices uses paraphrase effectively 	<ul style="list-style-type: none"> uses a range of complex structures with some flexibility frequently produces error-free sentences, though some grammatical mistakes persist 	<ul style="list-style-type: none"> shows all the positive features of Band 6 and some, but not all, of the positive features of Band 8
6	<ul style="list-style-type: none"> is willing to speak at length, though may lose coherence at times due to occasional repetition, self-correction or hesitation uses a range of connectives and discourse markers but not always appropriately 	<ul style="list-style-type: none"> has a wide enough vocabulary to discuss topics at length and make meaning clear in spite of inappropriacies generally paraphrases successfully 	<ul style="list-style-type: none"> uses a mix of simple and complex structures, but with limited flexibility may make frequent mistakes with complex structures, though these rarely cause comprehension problems 	<ul style="list-style-type: none"> uses a range of pronunciation features with mixed control shows some effective use of features but this is not sustained can generally be understood throughout, though mispronunciation of individual words or sounds reduces clarity at times

Appendix9: Teachers' interview results

Item 3: What means do you use in teaching listening and speaking skills? PC, Speaker, etc?

Interviewee A: "A speaker and sometimes a pc".

Interviewee B: "Laptop and speakers"

Interviewee C: "I use a pc only".

Interviewee D: "I usually rely on my tablet and speakers, especially in teaching listening"

Interviewee E: "I use my speaker, Pc, smartphone, and tablet. Well, this usage depends on the course needs"

Interviewee F: "my pc and a speaker"

Item 4: To what extent do you use technology; mainly mobile devices (all sorts of mobile technology: smartphone, MP3/MP4 players, Laptops, Tablets, etc.), in teaching listening and speaking skills?

Interviewee A: "In every listening session I use those types of devices".

Interviewee B: "I use laptops very often"

Interviewee C: "I often use mobile technology, especially smartphones and tablets in teaching the module".

Interviewee D: "my usage of mobile technology is restricted to the listening session only"

Interviewee E: "I am a techno addict, so I tend to vary the use of the different technological devices (which are available of course) in every session of my course. The use varies and depends on the course objectives"

Interviewee F: “I use them all the time. I need it to check for the meaning, spelling, pronunciation of a given language item. I use it for internet application, too”

Item 5: To what extent do you allow your students to use their mobile devices inside the classroom?

Interviewee A: “I usually permit the use of mobiles inside the classroom in order to check their e-dictionaries, check irregular verbs lists, etc”.

Interviewee B: “I don’t allow them because I guess that it’s difficult to check what they are doing with their devices”

Interviewee C: “I sometimes ask students to use their mobile devices to check pronunciation, to listen to conversations, or songs, etc”

Interviewee D: “they are allowed to use electronic dictionaries only”

Interviewee E: “To a great extent; that is, whenever they need it they are tolerated to use it even without asking me as long it doesn’t disturb the smooth flow of the session”.

Interviewee F: “I let them use their mobile devices, except while explaining the lesson”

Item 6: How do you consider the exploitation of mobile devices as semiotic resources that offer various modalities (audio, visual, tactile, etc) in teaching listening and speaking?

Interviewee A: “It is a very useful device; the students even download e-books to read. E-dictionaries, vocabulary applications, etc. are used in producing language in written or oral manner. These devices offer a wide range of modalities”.

Interviewee B: “Smartphones are very important technological tools nowadays for enhancing and motivating EFL students. Listening and speaking skills may be developed when using those devices positively”.

Interviewee C: “It allows students to deal with language as a part of everyday practice, since they are very attached to their devices”

Interviewee D: “It is very beneficial because it offers students opportunities to check for the appropriateness of a given item in terms of meaning, formality, and appropriateness in a given context”.

Interviewee E: “Mobile devices are very helpful and “already-existing” gadgets that can be exploited to satisfy the students’ different learning styles (visual, auditory, etc), thanks to their various modalities. However, teachers should be able to select the activities that best fit the academic purposes”.

Interviewee F: “It can be helpful, but not that necessary. It is undeniable that in teaching listening, we badly need speakers but not in teaching speaking”

Item 7:*In case you use mobile devices in teaching the module, are there any specific mobile-based activities you use within your course?*

Interviewee A: “Most of the time questions and answers. Others to do a summary on specific topics they have listened to. Also to have a look on the definitions of different words they find difficult”.

Interviewee B: “No, I don’t have any specific activities.”

Interviewee C: “Well, I use activities such as listening to songs’ lyrics to be used in exercises like gap filling. I also use activities related to word pronunciation”

Interviewee D: “All types of listening activities. Listening comprehension, fill in the gaps, theme discussions, etc.”

Interviewee E: “I tend to rely on the students’ mobile devices in listening activities (using their headphones), I use them for word searching, definitions, etc”.

Interviewee F: “No. I meant I let them use the dictionary, checking the pronunciation, etc. but not to the extent to prepare mobile-based activities.”

Part Three: Recommendations

Item 8: What challenges might face the integration of mobile devices in higher education context in general, and teaching listening and speaking skills in specific?

Interviewee A: “Among the challenges that may face the integration of mobile devices in higher education is certainly the number of students which is actually between 60 to 70 students who will face difficulties to listen appropriately because the classes are overcrowded without forgetting the noise outside the classrooms also which will have an impact on the sound itself”.

Interviewee B: “Managing the change within the institution is the barrier to adopt these technologies”.

Interviewee C: “the majority of the students are very attached to their devices and they use them all the time. The challenge is about designing activities that meet the needs of education”.

Interviewee D: “The challenge lies in the availability of those devices along with the appropriate environment to use them”.

Interviewee E: “the poor infrastructure (for instance, internet connection) and policy issues are two of the most challenging issues”.

Interviewee F: “I think that the main challenge would be human. The presence of the teacher will no longer be required to teach this module and the module in itself would cease to exist”

Item 9: How do you think that Mobile-assisted Language Learning is important to teach EFL in general and listening and speaking skills in particular in the future?

Interviewee A: “Time is changing, we are no more using the chalk and talk method, teaching foreign languages has moved to the era of technology which is frequently used by students so it is better to induce them to mobile assisted language learning since in the near future whiteboards will disappear leaving place to mobile devices. Another argument is that students feel comfortable with the use of those devices which will enhance their motivation and therefore their learning”.

Interviewee B: “Personally, I don’t use it to a great extent in teaching, but I encourage its use in learning by asking my students to employ it to acquire new vocabulary. Mobiles are used very often by students; therefore, they can use them to develop their English language by listening to songs, conversations, etc.”

Interviewee C: “they are of great importance because they make classes more interesting for this generation of students. In speaking and listening classes, they are even more important because they provide the teacher with a lot of materials and expose the students to native speakers and different situations”.

Interviewee D: “Mobile-assisted Language Learning appeals better to listening and speaking students. It provides the possibility of a direct contact not only with native speakers but also with different accents of English, with a deep insight of the cultural background of the language”

Interviewee E: “the world has become more and more technologically-driven so there is no escape from using educational technology; especially mobile devices in teaching in general, and in teaching listening and speaking in specific’.

Interviewee F: “Technology is a double-edged sword; we have to be careful in using it in a moderate way. I think we need many workshops dealing with this issue if we would like to introduce Artificial Intelligence (using technology in

teaching). As we have to take into consideration the impacts, be it positive and negative it might have both on the student and the teacher.”

Appendix 10:
First year Listening and Speaking Skills Syllabus
LISTENING/SPEAKING : 1ST YEAR

Course Outline: Semester I

Week by week	Topics and activities
Week 1	Socializing : Listening to (first meeting)conversations+ practicing appropriate language forms.
Week 2	Living away from home. Listen to input, extract specific information then use it to discuss topic
Week 3	Sightseeing : listening for specific information(words, idioms), using them to discuss topic
Week 4	Shopping : Listening and understanding details and talk exchange.Ask about items, negotiate and get a good deal
Week 5	Meetings : listening and extracting details, participating actively at a meeting, expressing ideas/opinions tactfully.
Week 6	On the phone : Listening to phone calls and responding through specific tasks ; Tae and leave messages
Week 7	Attending lectures and talks : listening to both and highlighting differences, focus on discourse organisation and use of specific information. Listening and inferring
Week 8	Mid-term test
Week 9	Study management : Understand detailed course requirements/library services, talk about study plans in detail.Ask for opinion and recommendation.
Week 10	Hobbies/leisure : Class discussion, listening and recalling specific information, practicing new language, speaking about own experience
Week 11	Requesting services : Exposure to real life like situations, commenting and practising making polite requests and interrupting politely
Week 12	Exposure to different varieties of English + focus on phonetic and phonological features
Week 13	Listening to different accents , understanding speech and responding
Week 14	Features of connected speech : recognizing features of connected speech and producing them
Week 15	Revision
Week 16	Exam

Course Outline: Semester II

Week by week	Topics and activities
Week 1	Giving lectures and talks : understanding detailed information, describing information in charts and graphs
Week 2	Participating in seminars : listening and understanding ideas and themes,

	following development of a discussion, expressing opinions and polite disagreement
Week 3	Interviews : listening for details and responding, describing self and requesting clarification
Week 4	Bureaucracy :listening and understanding topics and official processes, Asking about official procedures
Week 5	At work : understanding topics/customer complaints.Confirm and check important information
Week 6	Health care : listening for gist, understanding a doctor's diagnosis ; talking about pain/illness expressing physical pain
Week 7	Sports : Listening to people on a playground : understanding talk exchange ; discussing players'(low and high)performances
Week 8	Mid-term test
Week 9	Travelling : Understanding travel plans, listening for specific information ; Making and talking about travel plans
Week 10	Sitting for examinations : talking about study scheme , planning ahead, avoiding cramming
Week 11	Scientific research : Listening to and understanding expert talking about research, Using scientific terms to discuss a piece of research
Week 12	The world today : listening to a news bulletin ; understanding headings and main information ; reporting and commenting
Week 13	Weather forecast : understanding essential information and making decisions about what to wear and what to do
Week 14	Weather forecast : understanding essential information and making decisions about what to wear and what to do
Week 15	Revision
Week 16	Exam

دمج الأنشطة القائمة على الهاتف المحمول في تدريس مهارات الاستماع والتحدث لطلاب درجة اللغة الإنجليزية كلغة أجنبية في جامعة الجزائر 2: مقارنة متعددة الوسائط

الملخص

شهدت العقود القليلة الماضية، تطورا تكنولوجيا من خال عرض وسائل رقمية جديدة و كذا لغة جديدة التي أصبحت أكثر شعبية وسط الجيل الحالي. ومع ذلك، فإن استخدام الأجهزة المحمولة عادة ما يحدث بطريقة غير رسمية مما يؤثر على الحياة الأكاديمية للطلاب في الواقع، تعد مهارات الاستماع و التحدث مجالين رئيسيين يتأثران بالأشكال المختلفة للتفاعلات القائمة على الهاتف المحمول. لذلك، أصبح من الضروري دمج طرق التدريس المبتكرة. تعتبر الأجهزة المحمولة موارد وسائط متعددة ومتعددة الوسائط تدعم التعليمات المستندة إلى الهاتف المحمول من خلال التمثيل متعدد الوسائط. لذلك، فإن الدراسة الحالية هي محاولة للتحقيق في فعالية استخدام تعلم اللغة بمساعدة الهاتف المحمول (MALL) في تطوير مهارات الاستماع و التحدث لطلاب السنة الأولى من درجة اللغة الإنجليزية كلغة أجنبية في جامعة الجزائر 2. ركزت الدراسة على كيفية قيام الباحث بتنسيق الموارد الرقمية أثناء الفصل الدراسي لتطوير مهارات الاستماع و التحدث لطلاب درجة اللغة الإنجليزية كلغة أجنبية. ومن ثم، افترضنا أن الطلاب الذين يستخدمون الأجهزة المحمولة سيظهرون أداءً شفهيًا / سمعيًا أفضل من أقرانهم الذين لا يستخدمونها في عملية تعلم مهارات الاستماع و التحدث. من خلال اعتماد مزيج من الأساليب التجريبية و الوصفية المختلفة تم إجراء هذه الدراسة على فوجي نسنة أولى من قسم اللغة الانجليزية جامعة الجزائر 2. كانت النتائج مرضية ليس فقط في تعزيز قدرات الطلاب على الاستماع و التحدث، ولكن أيضًا في تعزيز تحفيز الطلاب الذين عبروا عن مواقفهم الإيجابية تجاه التكامل مع MALL في النهاية، سلطت نتائج الدراسة الحالية الضوء على حقيقة أنه عند دمج أشكال التمثيل متعدد الوسائط، تأخذ عملية تعلم اللغة منظورًا جديدًا يكتسب فيه الاتصال متعدد الوسائط أهمية كبيرة.

الكلمات المفتاحية:

اللغة الانجليزية كلغة أجنبية في التعليم العالي الجزائري، دمج، مهارة الإستماع، التعلم بالنقل، تعدد الوسائط، مهارة التحدث.