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**Investigating the Preferred Learning Styles among  
Four Am Middle School Learners**

*Dissertation Submitted in Partial Fulfillment of the Requirements  
For The Degree of Magister in Educational Psychology*

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## **DEDICATIONS**

My deepest respect and appreciation to my parents; my wife; my daughters, Khadidja , Rozaina and my son Mohamed Dhiaa, for their help, patience, and support while I undertook this long journey.

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## **Abstract**

Identifying and adapting students' preferred learning styles in perceiving learning has been of great inquiry for educational psychologists and teachers over the past decades .The present study is trying to investigate the most adequate preferred learning styles , among a sample of thirty eight (38) in 4AM pupils at Omar Racem middle shool in El Attaf Wilaya of Ain Defla . A survey questionnaire was designed for pupils adapted, from David Kolb learning styles inventory (LSI) , and a classroom-based observations were implemented to support Data collection. They were analysed and discussed to uncover the positive correlations of pupils' preferences and their teachers' strategies in teaching as well as the classroom atmosphere . The findings of the study will help to draw some generalizations and implications .

The study consists of four main chapters : The first chapter is about the Algerian curriculum and the contemporary methods which are contributed to foster the adolescents' outcomes. The second chapter involves the literature review related to learning styles and factors that affect them , particularly the influence of the cognitive process in the light of the experiential learning theory .The third chapter focuses on the data analysis and interpretations of results according to pupils' performance and gender. The fourth chapter deals with a discussion of the three highlighted hypotheses and some recommendations provided to promote pupils' outcomes through recognisable learning styles.

## **List of Abbreviations/ Acronyms**

**AAL:** Assessment as Learning.

**AFL:** Assessment for Learning.

**AOL:** Assessment of Learning.

**BEM:** Brevet d'Enseignement Moyen.

**CAT:** Classroom Assessment Techniques.

**CBA:** Competency Based Approach.

**DCF:** Deficient Cognitive Functions.

**DNA:** Deoxyribo Nucleic Acid .

**EFL:** English as a Foreign Language.

**ICT:** Information and Communication Technologies.

**LSI:** Learning styles Inventory.

**TS:** Tutorial Session.

## **List of tables**

Table 1. 1: The distribution of Learning Styles according to the Inventory ( LSI) .....	26
Table.3.1: The Components of each Learning Style.....	63
Table 3.2: Sample of Learning Styles' Distribution of according to the Inventory ( LSI) .....	63
Table 3.3:Pupils' Age and Gender.....	66
Table.3.4.Pupils Males and Female Preferred Learning Styles .....	68
Table.3.5. Detailed results of Pupils Preferred Learning Styles.....	69
Table.3.6. Pupils' averages in the first trimester ( scientific and literary subjects).....	71
Table.3.7. Pupils' Averages in Literary and Scientific Subjects.....	72
Table.3.8.Teachers' and Pupils' Complaining.....	80
Table.3.9.Factors Affecting Pupils' Preferences and Classroom Observations.....	81
Table3.10.The Major Observations found in the Scientific and Literary Subjects.....	83
Table.3.11.Training Sessions' Schedules.....	84
Table4.1.Higher Level Questions .....	90
Table n 4.2. Modern and ancient Classrooms Differences.....	95
Table.4.3 .Gender Preferred Learning Styles.....	102
Table.4.4. Learning Styles and Gender Differences.....	104

## List of figures

Fig. 2.1: The Mediating Factors that Influence Learning Styles. ....	36
Fig .2.2: Processing Information System.....	41
Fig. 2.3 : Learning Styles and Individual Differences.....	46
Fig.2.4: Kolb’s Learning Styles.....	52
Fig 2.5: Strategies to foster Pupils’ Learning Styles.....	54
Fig 3.1:Learning Styles’ Cycle.....	65
Fig.3.2:Pupils Preferred Learning Styles.....	67
Fig.3.3:Pupils Preferred Learning Styles and their Values.....	67
Fig.3.4: Chart Bar shows Pupils Preferred Learning Styles.....	69
Fig 3.5: Males and Females Preferred Learning Styles.....	70
Fig 3.6 : Males and Females Preferred Learning Styles.....	71
Fig.3.7: Pupils’ Averages Less and More than 10.....	73
Fig.3.9: Gender’s’ Averages Less than 10.....	74
Fig .3.10 : Males’ and Females’ Rate of Success.....	75
Fig.4.1:Bloom’s Taxonomy.....	91
Fig.4.2 Strategies of Assessment for Learning.....	101
Fig.4.3.Process Categories.....	108

## Table of contents

Dedications .....	i
Acknowledgements.....	ii
Abstract.....	iii
List of Abbreviations.....	iv
List of tables.....	V
List of figures.....	vi
Table of Contents.....	xii
General Introduction.....	01
<b>Chapter One Educational Setting and Investigation Plan.....</b>	<b>04</b>
1.1.Introduction. ....	05
1.2.Teaching and Learning in Algeria. ....	07
1.2.3.The Educational System at Middle Schools in Algeria. ....	08
1.2.3.A Historical Background of the Algerian System in Algeria. ....	08
1.2.4.The Development of the Algerian Education System at Middle Schools. ....	09
1.3.The Algerian Curriculum for Middle School year Four. ....	11
1.3.1. The Curriculum. ....	11
1.3.1.2. The Syllabus . ....	12
1.3.1.2.1. The Fourth Year Programmes . ....	12
1.3.1.3.The Textbook. ....	13
1.3.2.The Objectives of the Algerian Curriculum at Middle Schools. ....	13
1.3.5.Teachers Tools and Teaching Strategies . ....	14
1.3.5.1.The Competency Based Approach .....	<b>15</b>
1.3.5.2.Differentiation and Learning Situations . ....	16
1.3.5.2.1.Teaching Large Classes. ....	17
1.3.5.2.2.Collaborative Learning. ....	18



1.3.5.2.3.Assessment and Learning Styles . . . . .	19
1.3.5.2.3.1.Assessment for Learning. . . . .	20
1.3.5.2.3.2.Assessment OF Learning. . . . .	20
1.4.Adolescent Characteristics. . . . .	20
1.5.Problems facing Fourth year Curriculum. . . . .	22
1.6 Research Design and Methodology. . . . .	23
1.6.1 The Setting and Population of the Study. . . . .	23
1.6.1.1.Sample Population. . . . .	24
1.6.1.2. Data Collection Instruments. . . . .	24
1.6.1.2.1. Description of the Questionnaire. . . . .	25
1.6.1.2.1.1. Pupils' Questionnaire. . . . .	25
1.6.1.2.1.2.Classroom Observations. . . . .	27
1.6.2. Data Collection Procedure. . . . .	27
1.6.3.Data Analysis . . . . .	27
1.5.Conclusion. . . . .	28
<b>Chapter two Review of Literature. . . . .</b>	<b>29</b>
2.1.Introduction. . . . .	31
2.2.Learning Styles and the Stylistic Abilities. . . . .	31
2.3. The Historical background of Learning Styles. . . . .	32
2.4.Major Theories of Learning . . . . .	33
2.4.1.Behaviourism Theory. . . . .	33
2.4.2.Cognitive Theory. . . . .	33
2.5. Learning Styles and Mediating Factors. . . . .	34
2.5.1.Learning Theory. . . . .	37
2.5.2.Learning Strategies. . . . .	38
2.5.3.Thinking Styles. . . . .	38
2.5.4.Cognitive Style. . . . .	38
2.5.5. Meta-cognition. . . . .	39

2.5.6. Teaching Styles.....	39
2.6. Examples of Models of Learning Styles.....	40
2.6.1. Kolb’s Experiential Learning Model.....	40
2.6.2. Honey and Mumford Model.....	40
2.6.3. Gregorc’s Model.....	40
2.6.4. Dunn and Dunn Learning Styles Model.....	40
2.7. Processing Information and Learning Operations.....	41
2.7.1. Learning Styles and the Way of Processing Information.....	42
2.7.1.1. Definitions of Learning Styles.....	42
2.7.2. Kolb Cognitive Learning Styles Sample.....	44
2.7.2.1. Perception Continuum.....	44
2.7.2.2. Processing Information Continuum.....	44
2.8. Factors That affect Learning Styles.....	45
2.8.1. The Individual Differences.....	45
2.8.2. The Environment.....	46
2.8.3 Inheritance.....	47
2.8.4. Gender differences.....	47
2.8.5. Age Influence.....	47
2.8.6. Learning Styles and Teaching Styles.....	47
2.9. Learning Styles and types of Learning.....	49
2.9.1. Cooperative Learning.....	50
2.9.1.1. The Individual Responsibility.....	50
2.9.2. The Individual Learning.....	50

2.10.The Capabilities of Learning according to Kolb.....	50
2.11.David Kolb Theory (Experiential Learning).....	51
2.11.1.Kolb’s Definition of Learning.....	51
2.12.Characteristics of the Learning Styles.....	52
2.12.1.Diverger.....	53
2.12.2.Assimilator.....	53
2.12.3.Converger.....	54
2.12.4.Accommodator.....	54
2.13.Conclusion.....	55
<b>Chapter three                      practical Field and Data Analysis.....</b>	<b>56</b>
3.1.Introduction.....	57
3.1.The current Study in its Practical part.....	57
3.1.1.The Initial method Experiment.....	57
3.2.1.Description of the Classroom Observation.....	57
3.2.2.Description of the Questionnaire.....	58
3.3.2. Administering the Questionnaire.....	59
3.3.3 The Fulfilment of the Questionnaire.....	61
3.4.The Procedures of the final Experiment.....	61
3.5. Learning styles Inventory.....	61
3.6.Calculating Pupils’ Learning Styles.....	62
3.7. The Statistical Results of the Study.....	64
3.8.Results’ Analysis.....	66
3.8.1. Pupils’ preferred Learning Styles and Gender.....	66
3.8.2.Learning Styles and Pupils’ Outcomes.....	71

3.8.3.Pupils’ Preferred Learning Styles and Outcomes.....	72
3.9.Learning Outcomes and Gender.....	73
3.9.1.The Rate of Success and Gender.....	74
3.9.2.Preferred Learning Styles At Omar Racem School.....	76
3.10.Interpretations of Results.....	76
3.10.1.Classroom Atmosphere and Pupils’ Learning Styles.....	76
3.10.2.Classroom Observations (Teaching and Learning in the Algerian Context).....	78
3.10.3.Teachers and Pupils Major Complaining .....	79
3.11.Conclusion.....	86
<b>Chapter four      Recommendations and Pedagogical upshots.....</b>	<b>87</b>
4.1.Introduction .....	88
4.2.Discussing the Result of the first Hypothesis .....	88
4.2.1.Teachers and Competency Based Approach .....	89
4.2.2. Bloom’s Taxonomy in Classrooms and Learning Styles .....	89
4.2.3.The CBA Approach and Classroom Management .....	91
4.2.3.1. The Benefits of Grouping Learners .....	92
4.2.4.Classroom Management.....	94
4.2.6.Learning Styles and Differentiation.....	95
4.2.7. Motivation and learning styles .....	96
4.3.Discussing the Second Hypothesis.....	97
4.3.1. Formative Assessment and Learning Styles.....	99
4.3.2.Learning Styles and Learning Strategies.....	101
4.4.Discussion the Third Hypothesis .....	102
4.4.1.Classroom Atmosphere and Learning Styles.....	103
4.4.2.Learning Styles and Pupils Differences.....	103

4.4.3.Learning Styles and Teaching S.trategies.....	105
4.4.3.1.Strategies to booster Pupils’ Preferred Learning Styles.....	105
4.4.3.Pupils and Teachers Correlations.....	106
4.6.Recommendations for further Discussions.....	109
4.7.Conclusion.....	111
General Conclusion.....	112
Bibliography.....	115
Appendices.....	120
Appendix A Questionnaire fop Pupils.....	121
Appendix B Kolb Learning Style Inventory (LSI).....	122

## **General Introduction**

Educational psychologists through last decades tried to create an appropriate atmosphere for learning, by establishing suitable methods and approaches that lead to success .

Some contemporary studies confirmed that providing an appropriate environment to the learners ,through selecting what they prefer as learning styles, has a positive effects on the adolescent learners, with regard to their behaviours and psychological security . A positive improvement is observed through the academic success ,if the preferred learning styles are met .The middle school learners are threatened to show negative achievement and low self esteem, if their learning styles are not identified. The reasons of that are the new learning situations where they face new regulations and different atmospheres in teaching and learning . This latter may encourage some negative behaviours to appear.

To overcome these short comings , it is needed to identify learning styles that learners prefer and give the opportunity to apply them in collaboration with their teachers , developing appropriate learning tools, strategies, methods and materials to help them succeed . Therefore, the self-esteem will be higher and learners' motivation will increase .

For this purpose, the study considers the Algerian curriculum and its impact on teaching and learning as an important key to bring change to the Algerian context , followed by an overview of teacher's and pupil's roles as important components in shaping the classroom situations . After that , the current study , highlights the values of differentiation and assessment tools and their effects to booster learning styles in the light of competency based approach and the cooperative learning strategies. Since the fourth year pupils are adolescents , their characteristics need to be taken into consideration when planning teaching and learning . It is useful to the current study to understand that the degree to which the pupils recognize

their preferred learning style, enable them to cope with the modern ways of teaching to foster their academic achievements and preparing them for the future employment.

This study aims to understand differences between learning styles and the individual differences . It also investigates the relation between the individual characteristics and learning styles which relate to the cognitive characteristics, social environment and the reaction of the individual towards them.

The researcher attempts to explain the preferred learning style via the individual differences and their effects in learning, in the light of Kolb experiential learning theory. The following questions are reformulated to guide this study:

- 1- What is the effect of the preferred learning style on the individual cognitive processes?
- 2- To what extent can the learners cope with the new learning situations?
- 3- Do pupils share the same learning styles ?

Therefore, out of these questions the following hypotheses are highlighted:

- 1- There is a positive effect of the preferred learning style on the cognitive process.
- 2- Pupils at Omar Racem school can cope easily with difficult situations if they recognize and identify their preferred learning styles.
- 3- Each pupil at Omar Racem school has his /her own preferred learning style.

The difference in learning styles does not exist only between pupils whose ages and abilities are different but also between pupils who have the same age and abilities. In the Algerian contest , it is found that learning subjects and teaching methods fit only some learners and they do not fit others .

This study aims to highlight the importance of the preferred learning styles in the Algerian context to help both pupils and teachers to identify the learning styles to use them in the Algerian curriculum . It is the only way to understand the pupils' links between the abstract

learning and the learning situations .The Algerian decision makers in education try to equip schools with appropriate materials ( Audio-visual materials ,the Internet and the manuals), however, there is a missing point which is very important to transmit the knowledge ; It is training those teachers to manage their classes adequately and help them to meet their pupils' needs.

To achieve such aims , the sample is made from the fourth year pupils who were studying at Omar Racem middle school<sup>1</sup>, in 2015-2016. The researcher chose randomly two groups composed of 38 pupils .This study focussed on the first term. The questionnaire is composed of 12 questions to test the different learning styles (Divergers /Assimilators / Convergents / Accommodators ) according to Kolb learning styles inventory in the light of cooperative and individual learning .

Among the objectives of this study is to know the correlation between pupils and their learning styles to solve problems and their effects in learning .

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<sup>1</sup> It is a middle school which was built in 1987 in Sidi Bouabida, situated near the national road number 4 in the eastern part of El Attaf.



<b>Chapter One</b>	<b>Educational Setting and Investigation Plan</b>	<b>04</b>
1.1.	Introduction.	05
1.2.	Teaching and Learning in Algeria.	07
1.2.3.	The Educational System at Middle Schools in Algeria.	08
1.2.3.A	A Historical Background of the Algerian System in Algeria.	08
1.2.4.	The Development of the Algerian Education System at Middle Schools.	09
1.3.	The Algerian Curriculum for Middle School year Four.	11
1.3.1.	The Curriculum.	11
1.3.1.2.	The Syllabus .	12
1.3.1.2.1.	The Fourth Year Programmes .	12
1.3.1.3.	The Textbook.	13
1.3.2.	The Objectives of the Algerian Curriculum at Middle Schools.	13
1.3.5.	Teachers Tools and Teaching Strategies .	14
1.3.5.1.	The Competency Based Approach	15
1.3.5.2.	Differentiation and Learning Situations .	16
1.3.5.2.1.	Teaching Large Classes.	17
1.3.5.2.2.	Collaborative Learning.	18
1.3.5.2.3.	Assessment and Learning Styles .	19
1.3.5.2.3.1.	Assessment for Learning.	20
1.3.5.2.3.2.	Assessment OF Learning.	20
1.4.	Adolescent Characteristics.	20
1.5.	Problems facing Fourth year Curriculum	22
1.6	Research Design and Methodology	23
1.6.1	The Setting and Population of the Study	23
1.6.1.1.	Sample Population	24

1.6.1.2. Data Collection Instruments.....24

1.6.1.2.1. Description of the Questionnaire.....25

1.6.1.2.1.1. Pupils' Questionnaire.....25

1.6.1.2.1.2. Classroom Observations.....27

1.6.2. Data Collection Procedure.....27

1.6.3. Data Analysis .....27

1.5. Conclusion. ....28

## 1.1.Introduction

The most important goal of the middle school teachers is to guide their pupils to succeed in the BEM by teaching them the contents of the curriculum. However, many pupils score below their abilities and face sets of handicaps that interrupt them to follow up their middle school and secondary education learning. Those difficulties are related to some influencing factors that dominate classroom situations. Among these problems, teacher's classroom centred which led to pupils' passivity. This latter, discourages pupils to cooperate their efforts and share their learning outcomes. This traditional teaching method in the Algerian context urged for other pedagogical changes. By the coming of competency based approach, the new curriculums tend to guide teachers to be facilitators and foster pupils to be learner-centred. The identification of pupils' preferred learning styles is considered as a stepping stone to encourage pupils to be more autonomous relying on their efforts and working with their peers.

This chapter will shed light on the Algerian curriculum as an important element in the Algerian educational system. Differentiating learning according to the mixed ability levels and giving effective feedback through formative assessment will lead adolescent pupils to raise their potentials. On the other hand, reaching the standards depend on teachers' readiness to keep in touch with the contemporary methods and strategies that encourage pupils to be in the center of the learning process. These affecting factors will enable pupils to be responsible and more aware about their preferred learning styles.

Pupils' psychological and pedagogical needs are deeply regarded as far as the age and gender are concerned. The chapter will end with a short presentation of the research tools and the methodology.

## 1.2. Teaching and Learning in Algeria

Throughout the world development in different fields ,the educational system in Algeria is obliged to provide new strategies to face the threatening dangers and coping with the globalization .The experts of education confirm that the development of the nation is accompanied with education. More than that , education ranks first because of its importance in making and building good citizens . For that reason, the developed countries started making reforms each period of time to better and highlight the benefits of good curriculums which aim to equip learners with appropriate tools in the field of learning and providing them with necessary materials to reach the expected objectives.

The system means the unity that appears in the relations between tools and ways to do a work. It is also social , because it includes groups of people who use and manipulate those tools. Therefore ,the society is affected by those interactive and interrelated systems .

- **Values and Objectives:** It means the variety of values that belong to the history and present time of any nation .
- **The Artistic Part:** It means the modern and technological tools used by those people .It includes machines and programmes .
- **The Humanistic Side:** It tackles behaviours and disciplines of the working individual and their interactions.
- **The Framework:** It means the form and the structure which shape the organisation .
- **The Executive Side:** It is the functions done by the administration in setting the objectives , planning , guiding , organising and controlling the work and the workers.( castle&Rozenzitch ) . These sides or partial systems are used to make an effective organisation . This latter , tends to produce and reach its objectives . It is the same thing found in education where teachers , learners, administration , the learning

situations and the curriculum make an organisation that aims to equip and qualify learners to be good citizens in their societies .

### **1.2.3.The Educational System at Middle Schools in Algeria**

It is the principal and interactive components that belong to the Algerian references and found in the legislations . It is also affected by the national policies and the economic ,social and political orientations of Algeria .It aims at building the identity and values of the Algerian citizens in the light of globalization. It is also the amount of tools and structures that enable teachers to work taking into account curriculums and syllabuses .

#### **1.2.3.A Historical Background of the Algerian Educational System**

After its independence , Algeria found itself facing very difficult situations in different fields of life. The Algerian government tried to build appropriate policies to fulfil the needs of the Algerians and develop the educational system which represents the stepping stone of the Algerian progress . It was a must to keep the society tied to its culture and identity . The Algerian decision makers planned to generate an independent generation that will start the construction and work . At the end of sixties , the educational system witnessed new reforms to foster learning .Between 1970 and 1980 , new projects emerged to organize teaching and training the teachers ,like the one appeared in April 1976.Those directives aimed to initiate the fundamental education , unifying the three cycles and making education compulsory .

#### 1.2.4. The Development of the Algerian Educational System at middle schools<sup>2</sup>

Although four decades in a life of the Algerian nation, it would not be enough to build a strong generation, because we inherited a massive destruction in economy and millions of illiterate people who could not read and write. Therefore, the educational and economical development did not reach the probable expectations. This development passed through four main stages which have been determined by the major events from the independence till now.

##### A - The First Stage ( 1962-1970)

The educational system witnessed some changes that happened at that time such as; the Arabization and the provided orientations to foster the importance role of the scientific streams. The middle school during this period was divided into two types; The public education. It lasted for four years and it was done either in the public schools or in the secondary schools ( the first cycle of secondary school) .It ended by getting a certificate called “ Public education certificate” and the technical education which lasted for three years and it was done in the Agricultural middle schools. After finishing studying there, pupils got a certificate called “ Agricultural competency certificate”. During this period, the programmes delivered focussed on using the Arabic language broadly and translating the different subjects into the Arabic. Besides of that, the Arabisation covered the cultural and ideological fields. The ministry of education headed to import Arabic programmes from different Arab countries.

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<sup>2</sup> Translated and adapted from the Arabic version; (*The Algerian Educational System, 2004*).

**B - The Second Stage (1970-1980)**

During this period , the Algerian government started new reforms which aimed to bring new pedagogical contents and methods . In addition , there was starting points to generalize technical learning and supply schools with tools and materials. Education in middle schools became independent and the technical learning was cancelled . The ministry of education designated some schools to apply the new reforms for three years .Also, a new official exam was created called the “fundamental learning certificate “ .

**C - The Third Stage (1980-1990)**

During this period , Education characterised by the foundation of the fundamental learning where the government started generalizing the new system year after year .It was considered as a basic cycle for the compulsory education . During that decade, all the text books and programmes of the three years designed and published by Algerian experts .Those programmes were distributed in a form of booklets in all subjects in the beginning of May 1981 .

**D - The Fourth Stage (1990 )**

The hard work to cope with globalisation did not stop , the Algerian decision makers tried to bring new reforms that fit the changes on the level of the society and serve the economic development .During the school year (1993-1994) , new curriculums emerged and witnessed new programmes in middle school cycle. The fundamental school was divided into two cycles , the first cycle from the first year primary school till the sixth year joined with the second cycle . This latter ended by an official exam called the brevet exam ( BEM) .

**E - The Fifth Stage ( 2003-2015 )**

The ministry of education started new reforms to modernize the Algerian national education .The first generation programmes appeared in all subjects . These new contents aimed to globalise learning and building new generation opened to other cultures . The competency based approach (CBA) applied in the Algerian curriculums . Programmes designed to help pupils being learners centred to build up their knowledge. It aimed at making their needs within and outside school to learn how to listen, read and re-use the knowledge in new situations. The noticeable notions occurred in this stage showed lack training of the trainers , because most of teachers did not grasp the principles of this competency based approach . Therefore , schools could not reach their standards.

**F - The Second Generation Reforms ( 2016)**

This reform is considered as a second version of the first generation . It aims to fit different pupils' needs ;intellectual emotional, physical and social development .During the four years at middle school . Pupils gradually obtain competencies and continue learning out of schools . One of the main concerns is to build an Algerian pupils who feel confident , autonomous and conscious about their environment .

**1.3.The Algerian Curriculum for Fourth Year Middle School**

The fourth year middle school Curriculum is done to support teachers to understand and implement new methods and strategies . It describes the approaches used to teach and learn .It deals with the competencies and objectives for the final year of middle school . it also provides discussions and examples of pedagogy and assessment that aim to meet pupils' needs .



### 1.3.1. The Curriculum :

It is designed and authorized according to the government's policy which adapts and adopts the textbooks and pedagogical documents according to the social and political standards.

*“It is a national level document and compulsory , reflecting goals and values for society and citizens but not usually dealing in details with content or delivery ; usually broad based but may not may have a local , optional element , allowing for attention for the needs of linguistic .”*

( curriculum of middle school education,2016)<sup>3</sup>.

This curriculum tends to transmit sets of principals and concepts that shape the Algerian policies towards the national education . It also tries to build pupils who can participate in the development of their country and making them aware of good and bad effects of globalisation. This curriculum looks like the locomotive of the train which draws the wagons . This latter, represents the syllabuses . That is to say, the curriculum is composed of sets of syllabuses .

#### 1.3.1.2. The Syllabus .

It contains the number of lessons and knowledge that pupils learn through the school year .

*“It is subject specific , with objectives , outcomes , assessment points etc, It is a document that describes what the content of a course will be and the order in which they will be taught .”*

( curriculum of middle school education,2016).

It is the quality and quantity of lessons that pupils acquire using their textbooks during the school year . Those textbooks determine and contain the objectives of the syllabus .

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<sup>3</sup> This new curriculum is implemented for the middle school classes. It contains new methods and techniques .

#### 1.3.1.2.1. The Fourth year Programmes :

In the last year of middle school cycle , pupils study twelve(12) subjects where they acquire knowledge and information that enable them to get social and moral values . Pupils study almost thirty six weeks (36) . They have four principal subjects ( Maths, Arabic ,French , English) among twelve subject .By the end of the fourth year, pupils pass an official exam called Brevet Exam .

#### 1.3.1.3. The Textbook:

It consists of files or units which are divided into sequences . Each one contains sets of designed lessons included in a learning objective .This latter, contains provided grammatical, lexical and phonological items that build and enrich pupils' learning.

*“It is the most common basis for delivery of a syllabus . It may be consciously planned to meet syllabus requirements or may be adopted as a good ‘ fit’ with syllabus objectives . the teacher ‘s role is to deliver the syllabus , with or without the course book ( as in the case of many developing countries ) . A teacher may draw up a scheme of work or create their own course book based on the syllabus , to ensure that, the time available is spent in proper measure towards the achievement objectives .”*

( curriculum of middle school education,2016).

The textbook is a reference used by the teacher , where he can adopt and adapt lessons according to the needs of pupils . So, reaching the outcomes means how much pupils can learn with regard to the quality and quantity of knowledge .

#### 1.3.2. The Objectives of Algerian Curriculum at Middle Schools:

A successful curriculum includes a clear educational plan which leads to an educational practice and effective evaluation. The educational plan defines the educational purposes,

objectives, and outcomes. Classroom practice is guided by the educational purposes, which aim to fulfill the objectives toward the outcomes. Evaluation both measures attainment of outcomes and provides data for adjusting planning and teaching to better promotion of learning.

The educational purposes of the Algerian Curriculum tend to reach sets of Objectives which belong to the social and educational context in Algeria.

*“A curriculum is the interplay of planning, classroom teaching and learning, and evaluation in a specific context. It is the interplay of planning, classroom teaching and learning, and evaluation in a specific context “*

*(Graves ,2008).*

An effective curriculum is aimed at student learning. It also provides guidelines for what teachers need to know and be able to do in order to help learners reach those outcomes through classroom experiences. Learning in the Algerian Curriculum aims to develop the different competencies. The second generation reforms brought some news pedagogical resources such as :

**A- The Entry Profile :**

It describes what students should know and be able to do with respect to each competency at the beginning of the fourth year of middle school.

**B - The Exit Profile :**

It describes what students should know and be able to do by the end of the fourth year of middle school. The pedagogy Aims to enable learners to develop the target competencies.

There is also a typology of task types for teachers to consider as they plan their lessons.

**1.3.4. Teachers Tools and Teaching Strategies:**

Materials were developed to facilitate and support education. It is meant to help teachers to become better at teaching all pupils together regardless to their abilities, disabilities or

background experiences, suggestions, strategies, and learning activities are here to choose what teachers like to try in their classrooms. Teaching and learning are effectively progressed when collaboration and working together are implemented in the right way. It is about the personal growth of teachers of all ages and experiences It includes. Teacher has to be courageous to share and receive criticism. It is important to create a safe environment for the new teaching experimentation. Schools that create an environment where experimentation and sharing is encouraged can begin a crucial change. Experiences show that even a single teacher or a small group of teachers can start the process and then it gradually spreads over the school through collaboration and sharing. Developing teaching and learning is not an easy task. It is a learning experience that comes over a period of time.

#### **1.3.4.1.The Competency Based Approach:**

This approach came to focus on each individual's competencies . It aims to develop teachers' and pupils' relationship into partnership contract through interactive, interpretative and productive teaching and learning strategies. The competency based approach is learners' centred which encourages them to be more autonomous and active rather than passive and dependent .

*“A competency is know-how-to-act process which integrates and mobilises a set of capacities, skills and an amount of knowledge that will be used effectively in various problem-solving situations or in circumstances that have never occurred before .It calls upon knowledge coming from various sources and requires a selection and an organisation of the sources according to the learning situations. It continues throughout and beyond the school curriculum”*

(ELT Algeria ,2013)

When applying the Competency-Based Approach, the programme is to be centred on the pupil and on building up his/ her knowledge. It aims at making him / her needs within and outside school. This programme will help pupils learn to listen, read and re-use what he knows in original and new situations. These skills are integrated rather than taught in a behavioural way. According to the general objectives done to the teaching of the subjects in the Algerian educational system, a socio-constructive and efficient cognitive design has been set out with the purpose in mind till install competencies in the learner. It helps the pupil to Play an active role in his learning and Making himself feel responsible for his training by giving him opportunity to find answers to questions resulting from his daily experiences. It also encourages him to adopt an autonomous conducts and responsible behaviours. The competency based approach aims to identify the problem and finding the solution in a learning situations .It is the final stage of a cycle which determines the intermediate and long terms of pupil's development . For several decades, competencies have been used in the educational field. It was aimed to emphasise on the learner's social and personal development, and making him reuse his knowledge while performing tasks at school level and social .The Educationists have always been interested in developing general "know- how" processes and in applying knowledge acquired in class. The CBA approach allows the Algerian pupils to develop their abilities to think and act by teaching them how to make appropriate use of it. This learning must be exposed not only in school contexts but also in contexts outside the school.

#### **1.3.4.2.Differentiation and Learning Situations**

It simply means teaching people differently according to their needs, their capabilities or even their preferred 'learning styles'. We need to make sure that teachers use a variety of teaching approaches capable of accommodating the different abilities and learning preferences of their pupils.

*“Teachers who only group according to ability are limiting the learning of many pupils in their classes, particularly those with special educational needs. The best way to meet pupils’ different learning needs is to deliver the curriculum in a number of different ways; to differentiate the way skills, knowledge and concepts are delivered, as well as by presenting a range of tasks designed to support learning”*

( Gererd Dixie 4/5/2011)

Since learning is a continuous process that fits learners’ according to their abilities , differentiation remains an effective strategy to reach learning objectives. In the same idea Carol Ann Tomlinson says ,

*“ It is thinking about teaching and learning in new and different ways. There is no beginning or end. It is a process, and as such it continually develops. Therefore, there is no one correct way to do it. There is no cookbook, recipe, and ingredient that will work all the time. What there is, however, is a philosophy about students, teaching and learning. Supporting this are effective teaching and learning strategies that contribute to curriculum differentiation.”*

It needs also to focus on how the materials are presented as well as the assessment process. It is concerned with the process, the product and the outcome. Visser (1993) suggests that

*“ differentiation is the process where teachers meet the need for progress through the curriculum by selecting appropriate teaching methods to match an individual child’s learning strategies within a group situation”.*

#### **1.3.4.2.1. Teaching Large Classes:**

Most teachers agree that teaching a small group of pupils is easier, more enjoyable, and less time consuming than teaching a large group. many Middle schools only offer large classes, because of lack of teachers or space. In some schools, large classes may consist of up to 50 or

more pupils. Just like teaching a small class, teachers must come up with engaging activities that keep all of pupils interested and participating with the goal of improving their skills. While there are challenges when it comes to teaching large classes, there are many coping skills and activities that can help teachers make teaching easier.

#### **1.3.4.2.2.Collaborative Learning**

Collaborative learning is a method of teaching and learning in which students work together to explore a significant question or create a meaningful project. A group of students discussing a lecture, analysing and synthesising ideas, are examples of collaborative learning. In collaborative learning, pupils work together in small groups on a structured activity. They are individually accountable for their work, and the work of the group. Cooperative groups work face-to-face and learn to work as a team. In small groups, pupils can share their learning and also develop their weaker skills. They develop their interpersonal skills. They also learn to deal with conflicts. When cooperative groups are guided by clear objectives, pupils engage in activities that improve their understanding of subjects.

In order to create an environment in which cooperative learning can take place, three things are necessary. First, pupils need to feel safe, but also challenged. Secondly, groups need to be small enough that everyone can contribute. Thirdly, the task pupils work together on, must be clearly defined.

In Collaborative Learning :

- ✓ learners actively participate, get involved and should feel responsible of their learning.
- ✓ teachers monitor, guide and become co-learners when pupils provide new information.

- ✓ respect is given to every member; and all contributions are valued .
- ✓ projects and questions interest and challenge students;
- ✓ Pupils are invested in their own learning.

In addition to the advantages mentioned before, learning collaboratively helps pupils to work hand in hand. It means if one is not strong in a subject, or does not understand the concept of an idea, a partner can help him understand. In other words, when listening, interacting, asking questions, responding and exchanging ideas, pupils learn a lot from each other. collaborative learning enables pupils to see the different angles of the problem. Two minds or more solving problems or bring up new ideas are better than one.

More than this, Collaborative learning fosters pupils to work together . It means that pupils learn to work together to achieve a common goal and try to solve the problem collaboratively.

Pupils also can learn to express their ideas , concerns and accept others' ideas . (Slavin, ,1991) said that there is a belief that cooperative learning strategies improve pupils' interpersonal relationships and help them develop skills more effectively. (Mosher, 1996, p. ii). Confirmed the importance of collaborative learning when he said :

*“ Cooperative or collaborative learning “involves students working together with other students or a facilitator, in groups of two or more, looking for understanding, solution, or creating a product”*

#### **1.3.4.2.3. Assessment and Learning Styles**

Once we determine what we want our students to learn ,we need to determine how we will evaluate their learning at the end and assess their progress by making their ways through the content .



*“ quality in assessment is the provision of information of the highest validity and optimum reliability suited to a particular purpose and context”*

(Harlen 1994, p13)

It is an efficient tool that enables teachers to know about their pupils’ needs and also helping them to set the learning objectives based on the learning styles. It is divided into two parts:

#### **1.3.4.2.3.1.Assessment for Learning**

It is the formative and diagnostic assessments. It is the use of a task or an activity for the purpose to determine pupils’ progress during a unit. Teachers adjust their classrooms instruction based on the needs of their pupils. At the same time, pupils receive an effective feedback in their learning . If we compare the (AFL) to a plant ,the farmer pays his attentions to water and grow up it . The same thing teachers should do .They concentrate on the deep understanding of pupils’ weaknesses and needs.

#### **1.3.4.2.3.2.Assessment Of Learning**

It is the use of a task or an activity to measure, record and report on a pupil's level of achievement with regard to the specific learning expectations. It is named summative assessments which also focuses on pupils’ grades that teachers give by the end of each test , lesson or exam. The (AOL) tends to measure pupils’ outcomes regardless to their needs .

### **1.4.Adolescent Characteristics**

Young adolescents are 10 to 15 years old and are in the transitional period between childhood and young adulthood. The majority of young adolescents are still concrete thinkers who need to touch, feel, and manipulate objects to understand them. Pupils at this age learn more by

doing than by just seeing or hearing. Since much of the curriculum at middle school is symbolic and abstract, middle school educators teach abstract content through physical activity as much as possible. Planning and delivering effective learning experiences to middle school pupils is easier when educators understand the developmental characteristics and needs of their adolescents. For example, researches demonstrates pupils' perceptions about their abilities when they say that Adolescence is a time of rapid growth and inconsistent change that varies widely among individuals. In general, the approximate ages of 10 through 15 are characterized by:

- ✓ Physical growth and hormonal development: bone, muscle, brain, sexual characteristics, stature.
- ✓ A growing ability to use abstract thoughts.

Recent brain research explains more about how adolescents learn. One recent finding shows that the human brain does not finish maturing until about age 25. Related studies indicate that the adolescent prefrontal cortex is not fully developed. This section of the brain is responsible for complex thinking. The prefrontal cortex allows the mind to organize, perform abstract thinking, prioritize, anticipate consequences, control impulses, and adjust behaviour accordingly.

The National Middle School Association (1995) in United States of America identifies these important areas as:

Young adolescent<sup>4</sup> pupils are curious, motivated to achieve when challenged, and capable of critical and complex thinking. They have an intensive need to belong and be accepted by their peers while finding their own place in the world. They are engaged in forming and questioning their identities on many different levels. These young adolescent learners mature

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<sup>4</sup> “*At the Turning Point: The Young Adolescent Learner, Center for Collaborative Education*”

at varying rates and go through rapid and irregular physical growth, with changes that can cause uncoordinated movements. They are also vulnerable and self-conscious, and often experience unpredictable mood swings. With their new sense of the larger world around them . They are idealistic and want to have an impact on making the world a better place. In short, pupils need to learn to think critically, solve complex problems, and do well with a wide variety of tasks .schools must challenge them to practise complex tasks and strengthen the brain's capacity to engage in those thinking activities.

### **1.5.Problems Facing Fourth Year Curriculum**

The previous principles consist the basic elements of a successful curriculum where teachers and pupils play a prominent role to improve the quality and quantity of learning through sets of strategies and approaches . Identifying the preferable learning styles as a component of the learning process , wouldn't be recognised without establishing a clear educational policy in which differentiation and assessment should be given an extreme consideration as far as the adolescent stages have to be taken into account when planning the educational policy. In parallel to this, sets of classroom short comings are still occurring in the fourth year classes :

**A - Large classes:** Teaching large classes have a negative impact on pupils' motivation and development .For that , pupils are not given the same opportunities to learn because teachers are still misusing how to teach large classes .

**B - The mixed ability levels:** Pupils learn differently according to their mixed abilities . However, pupils are not given the variety of choices in doing activities which lead them to face many difficulties .Therefore , they will fail to learn in many circumstances.

**C - Teacher centered classroom:** One of the challenging problem is to monitor and encourage pupils to be more autonomous in their learning , however , teachers are still spoon-feeding their pupils and guide them to rely on what teachers prepare and teach .

**D - Lack of training sessions:** Most of teachers do not participate in adapting the new approaches in teaching (competency based approach) and they do not know in many cases how to group pupils and planning tasks according to pupils' needs .More than that , the formative assessment is approximately ignored .

**E - Lack of materials:** The use of materials ( computers, projectors, electronic boards) is not well spread inside classrooms because many teachers cannot manipulate and use appropriately those materials.

**F - Lack of teachers' coordination:** Many teachers plan their lessons and teach without any coordination among them . Therefore , they will have a misunderstanding concepts in planning their ways of teaching .

These influencing factors in fourth year classrooms do not help pupils to be engaged and motivated in the learning process. Hence , they are still being as slaves of their teachers' teaching styles

### **1.6. Research Design and Methodology**

This study is proceeded to identify fourth year middle school pupils' preferred learning styles and their impact on their academic performance. In order to reach this objective , a survey questionnaire and classroom-based observations, are selected to describe and report how pupils prefer to learn .

### 1.6.1 The Setting and Population of the Study

This study is proceeded at Omar Racem middle school in Sidi Boubida<sup>5</sup> – El Attaf wilaya Ain Defla<sup>6</sup>. Sidi Bouabida is famous of her hospital which was built in the beginning of last century . The school was built in 1987 and I used to be one of the pupils who studied in the fundamental system . It is consisted of 25 divisions . in each class there is more than 35 pupils . There are more than 46 teachers most of them are experienced and others are novice teachers. Omar Racem usually rank among the firsts in the brevet exam (BEM). The school is suffering of the huge number of pupils (900) which leads to discipline problems and the difficulty to conduct them . The school is lacking appropriate materials to reach the objectives of the curriculums such as , books , projectors . Leisure is one of the debating issues that needs more visions and materials. The target participants are the fourth year pupils who study in the academic year 2014 – 2015 . They constitute the final year in middle school cycle .

#### 1.6.1.1. Sample Population

It is made of thirty six (38) pupils divided into two groups .Each group belongs to a class . Among them , there are twenty two male (22) and sixteen (16) females their ages are between 14 -16 years old. This selection is because the researcher is their teacher of English which provides him with better understanding of pupils' issues.

#### 1.6.1.2. Data Collection Instruments

Both quantitative and qualitative data are of equal importance to this work. Quantitative design has provided the researcher with numerical data which can be measured, and qualitative method has helped the researcher to get a deeper insight into teaching and learning situations by which a more or less a clearer picture of the situation can be finally established.

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<sup>5</sup> It is a small village in the east of El Attaf

<sup>6</sup> It is the wilaya number 44 .It is 170 Km in the north of Algeria.

Therefore, a mixed-method approach seems to be most appropriate to this study. This has been reflected in the combination of both the quantitative and qualitative method within a single research project for the sake of providing answers to the research questions.

For the purpose of validity and reliability of the case study, two different data collection instruments are chosen: A survey questionnaire for the fourth year middle school pupils and classroom observations. These tools are selected to collect the necessary quantitative and qualitative data for a better understanding .

#### **1.6.1.2.1. Description of the Questionnaire**

A questionnaire is a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents. It permits the analysis of a large sample of information in a relatively short period of time.

##### **1.6.1.2.1.1. Pupils' Questionnaire**

Kolb's Learning Style Inventory (LSI), Version 3 is used to identify pupils' preferred learning style (see the Appendix A). 3.5.1. David Kolb made this inventory for the American context ( David Kolb,1976) . It is composed of twelve (12) questions and it was accepted in the foreign contexts in a constant and valid degree .In 1985, Kolb learning styles inventory was modified into twelve questions (12) , each question contains four answers . Participants answer according to the following instructions:

- Number four (4) for the answer that fits best the participant.
- Number three (3) for the one which is less preferred and so on.

(Kolb learning styles inventory. version 3 . (LVSI v 3 .1) is considered as a personal confirmation to measure the learning styles of the individual. It measures learners' behaviours and the cognitive processes that are used during pupils' interactions within the learning situations. This learning styles inventory is built on the experiential theory (learning cycle) where the learning style is determined by defining the results of the tested pupils on the

perception continuum ( Abstract Conceptualisation – Concrete Experience ) and on the processing continuum ( Active Experimentation – Reflective Observation ) . The total marks for each pupil equals 120 in all cases when we calculate the marks of pupils’ choices in the inventory (LSI).

According to Kolb, the ideal learner copes with the living concrete experience ( C.E ) and reflects on through reflective observation ( R.O ) . After that, he / she develops his / her abstract conceptualisation (A.C ) through thinking. Later, he /she uses the (A.C ) in the active experimentation (A.E) to make decisions and solve problems by doing .

(David Kolb in 1976), supposed that both concrete experience and abstract conceptualisation ( C.E / A.C ) are on the same continuum and (reflective observation , active experimentation ) are also on the same continuum .Both continuums are perpendicular.

The following table shows the distribution of learning styles according to questions’ meanings.

	1	2	3	4	5	6	7	8	9	10	11	12
A	CE 3	RO 2	AC 1	CE 4	CE 3	RO 1	RO 4	AE 2	RO 1	RO 2	CE 4	AC 2
B	AC 4	AC 1	AE 3	AE 2	RO 2	AE 4	CE 3	AC 3	CE 2	CE 1	RO 2	CE 3
C	AE 2	CE 3	RO 2	RO 1	AC 4	CE 2	AC 2	RO 1	AE 3	AE 4	AC 1	RO 4
D	RO 1	AE 4	CE 4	AC 3	AE 1	AC 3	AE 1	CE 4	AC 4	AC 3	AE 3	AE 1

*Table 1. 1.shows the distribution of learning styles according to the inventory ( LSI) .*

1. CE = Concrete Experience.
2. AC = Abstract Conceptualisation.
3. AE = Active Experimentation.
4. RO = Reflective Observation.

This inventory was used to test the correlation between learning styles ,the age and Gender (Kolb ,1971, 1976 ) . It aims to measure pupils' preferences .

#### **1.6.1.2.1.2.Classroom Observations**

It is a tool used to observe and assess the different circumstances that happen in the class. The researcher will apply it to investigate pupils ways of learning comparing to their teachers' teaching styles. He will attend sessions of different subjects in order to find the correlation between the preferred learning styles and the other components of the classroom. It is an important tool to keep in touch with pupils. The concerned subjects are; English ,French , Arabic, Maths , Physics and Natural Sciences . He will attend two whole classes sessions and one tutorial session in each subject .The procedure will be as follow:

The researcher will sit down at the back of the class and observe lesson's stages till the end of the session. The researcher prefers to use the unstructured observation .

#### **1.6.2. Data Collection Procedure**

The questionnaire will be distributed to the pupils at middle school .The researcher will collect the forms by the end of the first term. For better understanding of the surveys' statements ,they will be explained in the mother tongue Arabic. Concerning the classroom observations, the researcher will attend many sessions in different subjects where he will record and observe both teachers and pupils throughout different stages of the lessons . By the end of the first trimester pupils' scores will be registered and analysed later .

#### **1.6.3.Data Analysis**

After collecting the surveys' data , the researcher will calculate the results of each pupil using the learning style inventory (LSI). It is prepared by David Kolb to facilitate the measurement . pie charts , graphs , and charts will be used as quantitative tools to analyse the preferred



learning styles and evaluating the correlation between pupils' preferred learning styles and their achievement as well as to assess gender differences on the pupils' preferred learning styles and achievement . The recorded observations will be analysed and discussed as a qualitative descriptive tool with regard to pupils and teachers correlation and the influencing classroom climate .

### **1.7.Conclusion**

This chapter starts with an emphasis on the Algerian curriculum that draws the learning process with regard to the Algerian context .This latter, has an immense impact on both teachers, learners and the classroom atmosphere .These smooth changes aim to catch up with the international reforms that influence gradually teaching and learning year after year. In the new pedagogical, curriculums emphasise on learner centered classes which make them autonomous and guide teachers to be facilitators .Besides of that , many teaching approaches and strategies have emerged accordingly such as ; the competency based approach , differentiation ,cooperative learning and formative assessment which tend to supply learners with sufficient competencies and skills considering pupils as prominent factors in any learning process. In the new Algerian educational reforms (2016) , these principles dominate the pedagogical act that is intended to meet the needs of the Algerian pupils and enable them to establish clear links between what they, actually, learn at school and their daily life. The chapter also stresses on the fourth year middle school adolescents who are supposed to cope effectively with different learning situations using their preferred learning styles . It Summarises the impact of learning situations and their influences on pupils preferences . For that , a research design and methodology were implemented to gather data and proofs that support the highlighted research questions and postulated hypotheses .

<b>Chapter two</b>	<b>Review of Literature.....</b>	<b>29</b>
2.1.	Introduction.....	31
2.2.	Learning Styles and the Stylistic Abilities.....	31
2.3.	The Historical background of Learning Styles.....	32
2.4.	Major Theories of Learning.....	33
2.4.1.	Behaviourism Theory.....	33
2.4.2.	Cognitive Theory.....	33
2.5.	Learning Styles and Mediating Factors.....	34
2.5.1.	Learning Theory.....	37
2.5.2.	Learning Strategies.....	38
2.5.3.	Thinking Styles.....	38
2.5.4.	Cognitive Style.....	38
2.5.5.	Meta-cognition.....	39
2.5.6.	Teaching Styles.....	39
2.6.	Examples of Models of Learning Styles.....	40
2.6.1.	Kolb's Experiential Learning Model.....	40
2.6.2.	Honey and Mumford Model.....	40
2.6.3.	Gregorc's Model.....	40
2.6.4.	Dunn and Dunn Learning Styles Model.....	40
2.7.	Processing Information and Learning Operations.....	41
2.7.1.	Learning Styles and the Way of Processing Information.....	42
2.7.1.1.	Definitions of Learning Styles.....	42
2.7.2.	Kolb Cognitive Learning Styles Sample.....	44
2.7.2.1.	Perception Continuum.....	44
2.7.2.2.	Processing Information Continuum.....	44
2.8.	Factors That affect Learning Styles.....	45
2.8.1.	The Individual Differences.....	45
2.8.2.	The Environment.....	46

2.8.3 Inheritance.....	47
2.8.4. Gender differences.....	47
2.8.5.Age Influence.....	47
2.8.6.Learning Styles and Teaching Styles.....	47
2.9.Learning Styles and types of Learning.....	49
2.9.1. Cooperative Learning.....	50
2.9.1.1.The Individual Responsibility.....	50
2.9.2. The Individual Learning.....	50
2.10.The Capabilities of Learning according to Kolb.....	50
2.11.David Kolb Theory (Experiential Learning).....	51
2.11.1.Kolb’s Definition of Learning.....	51
2.12.Characteristics of the Learning Styles.....	52
2.12.1.Diverger.....	53
2.12.2.Assimilator.....	53
2.12.3.Converger.....	54
2.12.4.Accommodator.....	54
2.13.Conclusion.....	55

### **2.1.Introduction:**

The field of educational psychology has witnessed the emergence of learning style in the last three decades, as crucial criterion in taking part in the learning curriculum to bridge the gap between the learners' needs and other variables such as; classroom atmosphere and teaching belongings. Many studies have been raised in this field to investigate and measure the existence and booster the value and reliability of learning styles in the learning process. However, a large amount of educators do not take into consideration the importance of learning styles while implementing the curriculums.

This chapter explores the most significant theories and approaches that tackled the domain of learning styles as an essential elements that affect learning outcomes. It also shows the different tools which indicate the prominence role of inducting measurements that examine the correlation between the different types of learning styles and the academic achievement. Hence, the researcher insists to highlight the experiential learning as a cognitive theory that relates to the brain and reflects on the psychological perspectives.

### **2.2.Learning Styles and the Stylistic Abilities**

Since the learning is a cognitive process which deals with the affective situation to store and reuse the information in new situations, it differs from a person to another in the way how learners process, analyse and recognize the learning situation. The stylistic abilities have a great impacts on how the individuals develop their styles and their preferred ways to learn. So, learning style is a particular behaviour of the individual that incorporates styles in learning. The individuals differ in the way they understand the situation and how to practise it. Therefore, the stylistic abilities of each individual have a strong relation with the knowledge, the interaction and the behaviour. As a consequence of this, each individual has his/her own style to learn. Besides, each individual has different cognitive characteristics

which lead him/her to be different than others. It is considered as a type of learning and solving problems by understanding and guessing things . Those characteristics are related to the consciousness of each person . It is difficult to experiment how each individual learns, simply because the learning processes are abstract and complicated . Moreover, they depend on many factors such as ; the way of thinking , analysing and processing .The learning styles in educational psychology aim to understand deeply the behaviours and the activities that we always do.

### **2.3. The Historical Background of Learning Styles**

The use of learning styles as it is known goes back to the nineteenth Century, precisely, in 1950's. Among those studies (Hill,1964) , He succeeded to make maps and planning for the learning styles.( Edler , 1991) in his study ( the life style) proved that each individual has his/her own style of living which differs him/her from the others . Learning styles were influenced by some theories like cognitive styles and the dominance of the brain theories .During the historical development of the learning styles , there was clear difference between the cognitive and behaviourist theory In dealing with cognitive processes and behaviours.(Solso,1996) showed that the cognitive processes (thinking and feeling) have direct relations with the behaviours. In parallel, they are ways which help to understand the nature of the brain of the human being and lead to understand the behaviour. The cognitive researches focus on the ways how learners store and process information while the behaviourists focus on how the behaviour changes according to the situation. The learning theories discussed many individual characteristics which led to many different findings. This latter , resulted different learning styles inventories. Some other studies proved that differences in styles exist and affect learning and teaching .

## **2.4. Major Theories of Learning**

Many theories have emerged and influenced learning situations. Piaget, Kurt, Freud and others attempted to support the educational fields with theories that work best in learning to reach learners' needs.

### **2.4.1. Behaviourism Theory :**

It is built on the stimulus and response. It aims to explain how learners learn with regard to their behaviours. The American behaviourist Pavlov was among the first ones who tried to study the stimulus and response when he made a lot of experiments on animals' behaviours and the possibility to apply them in the field of education. This theory tends to shed light to the stimulus and response as primary factors that guide learners to learn. At the meanwhile, it neglects other psychological issues. In fact, learning may happen in different ways even though the learning situations are the same. That is to say, human beings differ from animals in learning. The application of this theory in education should consider the stimulus and response just as a part of teaching and learning. For that, other psychological factors should be taken into consideration; such as self esteem, motivation, autonomy and learning styles. Human beings are given the brain that leads them to learn using their mental capacities whereas, animals follow strictly their appetencies to fit their needs.

### **2.4.2. Cognitive Theory:**

The cognitive learning happens when learners use their senses to understand things through analysing and reflecting by relying on their mental processes which lead to knowledge. Piaget and others do not believe that learning comes from the environment, but it comes from learner's ideas and concepts towards the environments. According to this theory the measurement of learning can be done through the repetition of the learning experiences. The external factors do not have a big role in learning. According to Piaget, learning occurs within the social environment and learner's stages of growth when he copes with learning

situation in well processed and organized information . After that , he uses them in new experiences. Piaget believes that learner learns through building his knowledge when he interacts with his environment.

## **2.5. Learning Styles and Mediating Factors**

This chapter will provide a summary of the background literature on learning styles. Although there are a number of studies supporting the different theoretical and practical positions relating to learning styles, the research field is still characterised by controversy and in many instances by its criticism of the use of learning styles .(Coffield et al., 2004) said that the use of learning styles in the classroom can help teachers deal with many of the challenges they face in inclusive schools.

Given and Reid (1999) suggested that :

*” there are at least 100 instruments designed to identify individual learning styles”*

A recent study by Coffield et al. (2004) identified 70 learning styles instruments. Attempts have been done to categorize these instruments to show the background of the psychological and cognitive perspectives of the different styles. ( Given and Reid ,1999) suggested that these instruments usually focus on factors that have some influence over the learning process.

These factors include:

- modality preference: the preference for visual, auditory, tactual or kinaesthetic input
- personality types: such as intuitive, risk-taking, cautious and reflective.
- social variables: including the need to work alone or with others.
- cognitive processes: such as memory, comprehension and methods of information processing.
- active learning and left- and right hemispheric activities.

- emotional factors which can be incorporated in many of the above categories such as personality and social preferences.

Coffield et al. attempted to group 71 learning styles models into some form of classification in order to make sense of the range of instruments that contribute to these models. They developed a continuum of models based on the extent to which the developers of these models believed that learning styles represented a fixed features. At one end of the continuum, (Coffield et al.) placed theorists who believed that learning styles were fixed by inherited features, and at the other end they placed those theorists who focused more on personal factors such as motivation and environmental factors as well as those theorists who proved the influences of curriculum design and culture. Throughout the continuum , (Coffield et al. ) placed models, like Dunn and Dunn’s model that is focussed on the external factors, particularly the immediate environment and models that are based on the idea of the dynamic interaction between self and experience. It is suggested that learning styles could be grouped in the following ways :

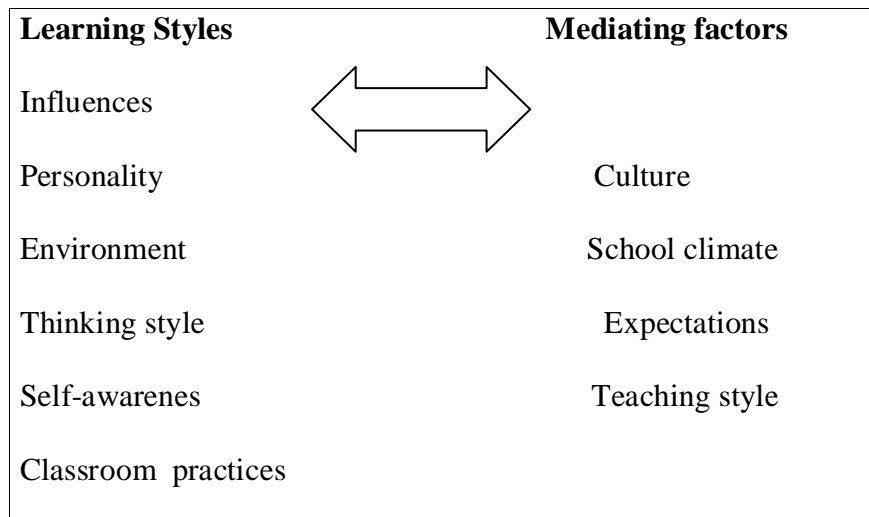
- environmental influences in learning.
- cognitive styles.
- Meta-cognitive influences.

all styles of learning are mediated by:

- the learner’s culture
- the classroom and school climate
- teaching style
- classroom dynamics and environment
- the curriculum and school expectations.

These factors are highlighted in the diagram below.





*Figure 2.1: The mediating factors that influence learning styles. (Gavin Reid,)*

this diagram shows that the mediating factors can influence the factors that determine learning style but at the same time those factors can also influence the mediating factors. This means, the learner's learning style can be affected by the teaching style, while at the same time teachers can adapt their teaching style to fit their learners' learning styles. Learning is a process where learners and teachers can understand each other, throughout the learning process.

Some theorists see learning styles as a fixed, perhaps genetically determined features like size and hair colour. It is well known that environmental influences are very powerful in determining pupils' characteristics, both of learning and behavioural factors. Moreover, it needs to be recognised, because many of the instruments measuring learning styles are based on self-report. This method of obtaining data relies on the individual's awareness and accuracy in identifying their awareness of their preferences.

The classroom experience suggests that children have learning preferences. Pupils in every classroom show a variety of styles and preferences. Some pupils may have a more refined learning style than others. The danger is that when pupils' opportunities to use their preferred

style are not available. Thus , they may fail in the learning situation. At the meanwhile , recognising learning styles can prevent pupils from failure.

( Coffield et al, 1997) suggest that one of the important aspects is the importance of context. It can justify the need to perceive learning styles within a practical teacher-developed framework that guides learning styles for specific learning contexts. It needs to be careful and take into consideration different circumstances to recognize those learning styles.

It can also be an observation or a test through planned tasks which can provide the teacher with information on the pupil's style that can be useful in planning, in differentiation tasks and in the use of the curriculum. The main aim of such assessments is to inform the teacher to make pupils more aware of their learning preferences in the class.

Snider suggests that , test–retest are important for a measure of learning styles.

One important factor to consider is the linkage between learning styles and other important aspects of learning. There is a connection between learning styles and the following elements of interest:

- ✓ learning theory.
- ✓ learning strategies.
- ✓ thinking styles.
- ✓ multiple intelligence.
- ✓ cognitive style.
- ✓ Metacognition.
- ✓ teaching style.

### **2.5.1.Learning Theory**

This relates to the processes of learning and how the pupils interacts with the material to be

learnt. It relates to cognitive psychology and the use of different models in learning. Such theory can help to explain learning differences and learning difficulties.

### **2.5.2.Learning Strategies**

It refers to how the pupil manages learning. A pupil may have skills to learn but strategies will support and help him/her to react in a more practical way. Strategies means the ability of the pupil to know how to apply his/her abilities towards the task. They are also the preferred tactics for learning.

### **2.5.3.Thinking Styles**

Sternberg (1997) suggests that thinking styles describe the preferred way of using abilities.

He suggests that people think in different ways. Sternberg and Wagner (1991), in the *Thinking Styles Inventory*, argue that thinking styles can be explained in the following components :

- ✓ functions – legislative, executive and judicial
- ✓ forms – monarchic, hierarchic, oligarchic and anarchic
- ✓ levels – global, local
- ✓ scope – internal, external
- ✓ leanings – liberal, conservative.

### **2.5.4.Cognitive Style**

Cognitive style relates to how information processed. Cognition relates to learning and the Individuals. Pupils have different ways of understanding and learning information. Riding and Raynor (1998) suggest that there are two fundamental dimensions to cognitive style – the wholist analytic and the verbal-imagery. They define cognitive style as an ‘individual’s preferred and habitual approach to organize and represent information’ . The wholist-analytic dimension means that the individual tends to organise information into wholes or parts and the verbal-imagery style means that the individual represents information during learning verbally or in the form of mental pictures.

### **2.5.5. Meta-Cognition**

Meta-cognition refers to the individual's awareness of his/her own learning. Pupils use their knowledge to develop their understandings, comprehension and concepts in their learning areas. Transferring learning from one source to another is a meta-cognitive skill which makes learning more efficient. Meta-cognition skills help learners to become aware of their own learning. This means pupils will be able to direct their own learning, monitor their progress when learning a task. They also will be able to assess their own work.

### **2.5.6. Teaching Style**

Teachers have different styles. Learning styles can be affected by teaching styles. Grasha (1996) suggested that styles of teaching can include the following: the expert/formal authority teachers who lean towards teacher-centred classrooms in which information is presented and pupils receive knowledge; the personal model/expert/formal authority teachers whose approaches are teacher-centred and emphasise modelling and demonstration; the facilitator/personal model/expert teachers when the class is student-centred and teachers just interfere to design activities, socialize interactions or create problem-solving situations that allow pupils to practise the processes in order to apply the curriculum. The delegator/facilitator/expert group of teachers who make much of the learning on the pupils. Mosston and Ashworth (1990) claimed that the style chosen for any lesson should vary and depend on the relationship between teacher behaviour (T), learner behaviour (L), and objectives (O). It is important that teachers are aware of their styles and their preferences to meet their pupils' needs. (McBeath & Mortimore, 2001) highlight how teachers' characteristics can increase classroom effectiveness. While focusing on learning styles, therefore, it is important to recognise that teachers also will have preferences which will have an impact on the learning experience for the pupils in the classroom.

## **2.6.Examples of Learning Styles Models**

This section will provide an outline of some of the models that lead to a more comprehensive view of learning styles' inventories .Although models of learning styles are generated to make them perfect ,many scientists believe that there is no ideal model.

### **2.6.1.Kolb's Experiential Learning Model**

Kolb's twelve-item Learning Style Inventory generates four types of learners: divergers, assimilators, convergers and accommodators. In Kolb's model the concept of experiential learning explores the cyclical pattern of all learning from experience through reflection and conceptualising to action to further experience.

### **2.6.2.Honey and Mumford**

Honey and Mumford defined four styles, based on four stages of David Kolb's learning cycle: activists, reflectors, theorists and pragmatists. The Honey and Mumford's learning styles questionnaire is available from [www.PeterHoney.com](http://www.PeterHoney.com).

### **2.6.3.Gregorc's Model**

The Gregorc model (Gregorc, 1985) categorises learners into two continuums: concrete–abstract and sequential–random. They can have a combination; for example, some can be concrete–sequential, which can indicate a strong left-hemisphere preference. Others might be abstract–random, which can indicate a strong right-hemisphere preference. Other pupils will also have different combinations such as abstract–sequential, abstract–random, concrete–sequential, concrete–random. Gregorc's model allows teachers to identify the strengths of each type and adapt an appropriate plans in teaching .

### **2.6.4. Dunn and Dunn Learning Styles Model**

The Dunn and Dunn learning styles model (Dunn et al., 1975, 1978, 1984, 1985, 1987, 1989, 1990, 1996) identifies learning style using a Learning Styles Inventory that contains 104 items

which includes pupils's learning style preferences. The model focuses on five domains (environmental, emotional, sociological, physiological and psychological) and 21 elements across those domains .

### 2.7. Processing Information and Learning Operations

Since the learning operations are very complicated, it is difficult to explain directly how they function ,but we can understand and analyse them by observing pupils' behaviours which are received by their organs ( eye, hand, ear ) . After that , they move to memory registration where we find many abstract operations happen.

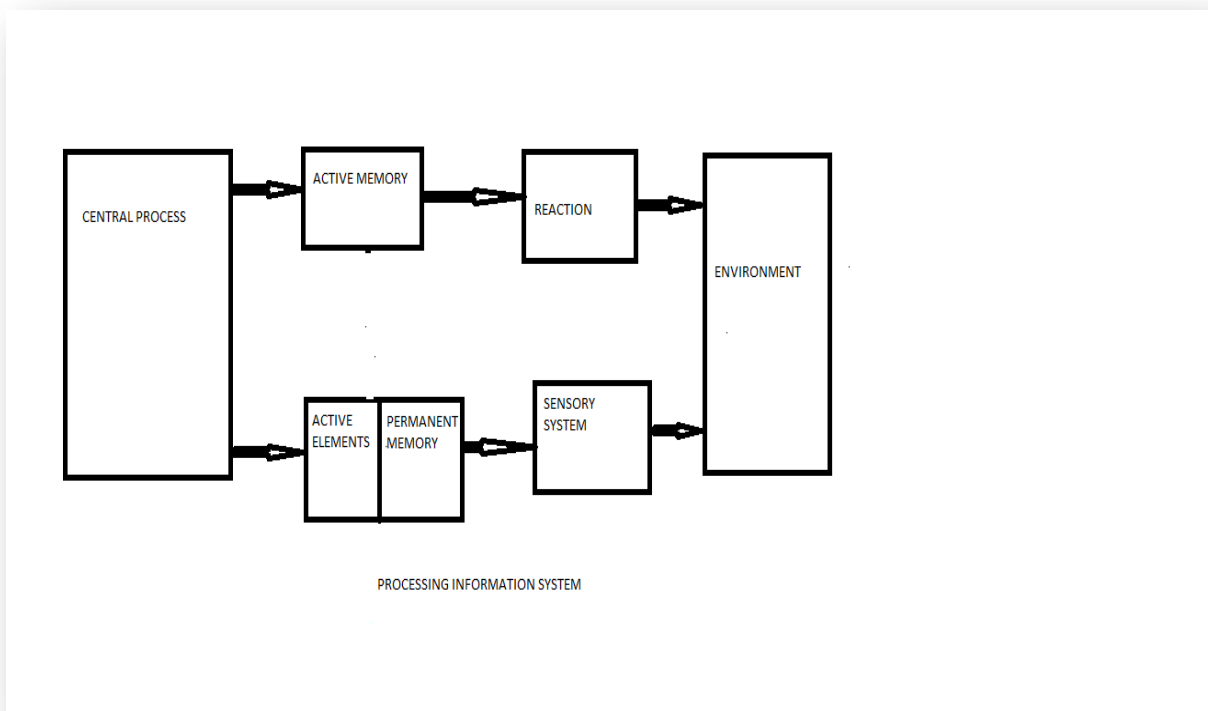


Figure 2.2: Processing information system<sup>7</sup>.

<sup>7</sup> It is taken from « An Entrance to the educational psychology, (Cairo, Angelo library, 1985)

On this level pupils differ from each other in the way they receive information and how they process them depending on their mental abilities . For that , pupils differ in the way of their thinking , their memory capacities, their knowledge background and their learning styles ( Hand Saker , 1987) . That is to say , the effective learning is not only the relation between pupils' organs and the brain , but it is deeper . It is the way pupils like to process the external situations with the internal abilities which are developed through time.

### **2.7.1. Learning Styles and the Way of Processing Information**

This relation means the way pupils prefer to learn (analyse, conceive, explain..) and how they receive ,store and reuse the information depending on the individual differences that enable them to reach their academic performances and solve their problems and understand how their friends can solve their learning problems (peer learning) .Researchers found that learners differ in processing information from one to another with regard to the same problem, according to their abilities , the motivation and the self esteem of each individual .i ,e. The impact of the environment and the personality on learners performances is strongly influenced . Researchers proved also that the way of processing information develops from a time to another . This is what we will see in Kolb's experiential learning .

#### **2 .7.1.1. Definitions of Learning Styles**

The learning style is the ability of the learner to receive and store information according to the cognitive and mental characteristics via the behaviour of the individual which can be measured and classified by the psychological measurements .So, the study of learning styles aims to visualize the ways pupils like more to learn .i.e. the different operations and strategies that pupils need to use to learn . It is the ways pupils develop new experiences and add them to their old experiences. Learning styles are the description of the individual

abilities towards the affecting environment. (Lockhart & Schemeck, 1983) defined learning styles as the way the individual understands the new learning experiences. (Rebecca, 1990) defines them as a cognitive style that each individual prefers. (Mesick, 1985) said that learning style is the preferred way used by each individual to organise and process the information and the experience. (Keef, 1979) defines them as the interactive and physiological cognitive behaviours which fit each individual, also, they reflect the way pupils receive and interact within the learning environment. (MC Neal & Dwyer, 1987) define learning styles as the fixed way to acquire and process information and taking decisions with regard to the environment. From the previous definitions of learning styles, we can understand the following:

- ✓ Learning styles are the preferred ways which are related to teaching and learning.
- ✓ The ways pupils process information.
- ✓ The behaviours of pupils or the characteristics of pupils' personalities.
- ✓ The styles are the preferences to use the abilities.
- ✓ The coordination between the styles and capabilities are important.
- ✓ Pupils differ in preferring their styles.
- ✓ Styles Can be measured .
- ✓ Styles can be taught .

Vermont in his definition of learning styles confirms that it is the way pupils learn . The style is one of the learner's strategies . (Matron & Saljo, 1985) defines them as deep and surface learning processes . Gregory in his definition says that some pupils can learn better in concrete situations and others in abstract situations . some others prefer sequential learning in parallel to non sequential . In parallel , Kolb describes learning styles through the Concrete Experience (CO) and the Reflective Observation (RO) also the Abstract



Conceptualisation(AC) and the Active Experimentation (AE) which result four main learning styles :Diverging, Assimilating, Converging and Accommodating.

### **2.7.2.Kolb Cognitive Sample of Learning Style**

David Kolb sample was built on some previous studies like ( Raoul Young ) in the types of personality and the theory of learning of ( Dewey ,1938) and the cognitive development of Jean Piaget and Brain formation of Guilford .This theory in learning is built on two main dimensions :

A - The perception continuum which deals with concrete and abstract learning.

B - The processing information continuum which stresses on the reflective Observation and Active Experimentation.

#### **2.7.2.1.The Perception Continuum**

It means the ability to understand the environmental situations when the information flow through different senses into the brain centres in which pupils can get a clear concept of the external situations . The perception focuses on four elements : Discovering ,Transforming ,Sending and preparing information. It is affected by the environment and the experience ( observation and practice ). (Payne , 1886) defines the perceiving process as a process to gather signals that come from the external environment and received by the different senses in the light of the previous experiences .

#### **2.7.2.2. Processing Information Continuum**

Analysing information is the first step to understand the differences between the elements of the new experiences ( analysing the elements into small units ), then pupil starts to build

them when he / she understands the correlations between those elements . The next step is the generalisation of the abstract meaning which has also relation with the concept formation (Zohensen & Mylebust, 1967). The generalisation covers the rules and judgements of the experiences . After that , the pupil prefers, selects and classifies. The relations between these mental processes do not work in a linear or sequential form but they work in a circular cycle . David Kolb proposed his sample according to that .i.e. learning passes through four stages : the Concrete Experience (CO) and the Reflective Observation (RO) also the Abstract Conceptualisation (AC) and the Active Experimentation (AE) which result four main learning styles : Divergers, Assimilators , Convergents and Accommodators.

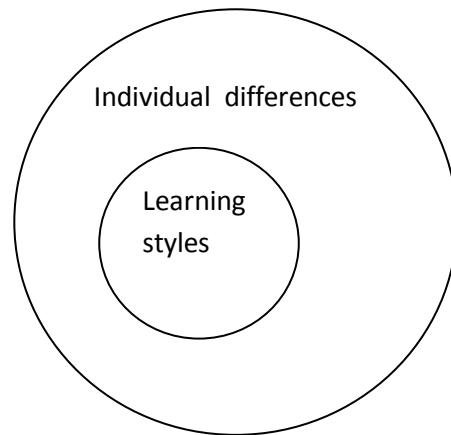
## **2.8. Factors Affecting Learning Styles**

Since learning style is a part of the learning process, it is of course affected by other elements that shape the preferred learning styles of each pupil. The individual differences have a great impact on pupils . Hence, the selection of learning styles is influenced by each element , whether by the age, gender, environment or other factors.

### **2.8.1. The Individual Differences**

The study of the individual differences aim to investigate how the individual learns when he uses his /her own abilities in learning in order to understand and discover the different situations. The individual differences enable pupils to choose their learning styles from the early ages, according to the environment , the physiological and psychological reasons which have direct or indirect relation to the learning situations . Pupils at schools get different averages because of their cognitive abilities in solving the learning problems . We find the slow and quick learners. Their outcomes represent the rate of learning to understand the learning styles. Those who have big memories can reach their academic performance

easily because they can store information. Other pupils can analyse and synthesize because they are good observers.



*Fig 2.3 . Learning styles and individual differences*

### **2.8.2. The Environment**

The environment means the place where the individual grows up and keeps in touch with his surroundings. He is affected by everything found in this environment. Therefore, he tends to discover and understand everything new. He also, starts to imitate and compare the different behaviours , customs and traditions. The individual abilities are improved because of the effects of environment on learner’s behaviour. This progress enables pupils on this level to use their mental capabilities when they can identify and understand the external world. So, the environmental factors are particular characteristics of the individuals who share the same age, level and characters taken from the environment. Therefore, pupils take and give new experiences into their psychological world .Among the studies that proved these findings; (Speer, 1940) says children who came from poor families and moved into better conditions of life showed a progress in their intelligences. The organised environment leads to good outcomes because pupils feel comfortably and adequately.

### **2.8.3 Inheritance**

It is an important ability and factor that enables learners to inherit their parents. It comes through the DNA . It covers different psychological and mental characteristics . That's why we find some families are more intelligent than others . It is quite sure that twins may differ in the way they like to learn , but they share some of the genetic characteristics.

### **2.8.4. Gender Differences**

Since males and females are different physically, they are also different in their mental capacities . We cannot say males are better than females or vice versa , but each ones prefer to learn things that cope with their characteristics . For example, females tend to learn languages better than males , however , males tend to learn maths . So, gender differences have great impact on the preferred learning styles .

### **2.8.5. Age Influence**

Because the human behaviour changes through time and in a regular process, the factor of age makes a clear distinguish among the individuals with regard to their living environment and society. That is to say, the progress of the individual is related to the maturity that he/she reached by gathering experiences through time . It is also a clear indicator to measure the individual capabilities in learning . For that reason , the individual learns in two main different ways : The first one is interior . It has a relation to The development of the brain through time and the second one is exterior ,which appears in the differences between individuals. Those two ways determine the way how learners learn . ( Piaget , 1984).

The individuals have the capability to cope with the new experiences and changes in their behaviours. So, the learning style has the ability of adaptation because of the learner's

willingness to take profits from his learning experiences and developing new ways to make a balance in his / her cognitive environment and conception . Those advantages enable him /her to develop ways of processing information .So, the age of the learner influences the individual 's learning style .

### **2.8.6.Learning Styles and Teaching Styles**

Teaching styles are the ways of contact between the learner and the teacher . They include teaching strategies and pedagogical styles which are taken from different learning situations . Teaching styles aim to transmit learning matters into learner's mind in an interactive way . They are formed in a cognitive system contained two main elements ;

It includes also teachers' academic competences , learning objectives and the manuals where , materials, learning tools and the syllabus are concerned .

#### **A - The Process:**

processing information is the role of the memory and the brain in organising and explaining information . It also combines the information with the previous ones , with regard to the meanings .

#### **B - The Output:**

It means training pupils to be qualified and creative . Some researchers prove that teachers teach their learners with their preferred learning styles ( Still & Gohder , 1987) . Some other researchers discovered the importance of recognising the effects of teaching styles on learning styles and the learning situations in order to have an effective learning . (Janier) in his sample pyramid of learning , when he supplies learners with sets of definitions . He focuses to differentiate learning according to the individual differences by taking into

account their mixed abilities levels . The compatibility between styles is better for learners who like to work independently ( Stone,1986) .

Identifying learners' learning styles helps a lot to take decisions in training and selecting jobs and for long life learning . Piaget's learning cycle is beneficial because it is built on two main hypotheses :

### **A - Concrete Experiences**

They help learners to learn through their feelings. These experiences let them use their senses to discover learning situations by touching , smelling , tasting or listening .It is the first step that the baby does to learn .

### **B – Abstract Experiences**

They contain the critical thinking which helps learners to challenge themselves logically . Learners in this case , make concepts about learning situations and they engage in learning. Pupils do not use their senses on this level , but they use their thinking perception to learn.

## **2.9.Learning Styles and Types of Learning**

Teaching learners in one way may help some of them and ignore others .For that reason, the identification of the preferred learning styles helps a lot teachers and decision makers to plan according to the needs of learners according to their ages, levels and mental abilities. (Cortazzi and Lin,1999) said that, it is possible to control the class by taking into account the ways learners like to learn . In the same context, grouping learners is a vital strategy to teach and learn . The role of the teacher is to facilitate learning when he behaves as a guide and involver aiming to encourage learners to learn individually in pairs or as peers .

### **2.9.1. The Cooperative Learning**

It is dividing learners into small groups and they are asked to solve problems. Learners work together to reach their objectives . Although peer learning has some negative effects like, the dominance of gifted learners and the ignorance of slow learners , cooperative learning has positive effects on learners and their learning .

#### **2.9.1.1.The individual responsibility**

Everyone is responsible to participate and share learning where the teacher gives each learner a specific role in the group . Learners will share ideas and select the best ones . They show their social skills when they are given time , in drama , sport ... The teacher encourages them by creating challenging tasks and problems . At the meanwhile, Learners need to be trained consciously to avoid making mistakes .

### **2.9.2. individual learning**

It is a strategy that enables learners to rely on themselves in solving problems . The role of the teacher is to differentiate learning according to the needs of each individual . When he sets activities he has to take into account their capabilities and their preferred learning styles

### **2.10.The Capabilities of Learning according to Kolb**

In Kolb's inventory , learning moves through four stages related to four principle capabilities . Kolb considers learning as a cycle. It starts from the capabilities of concrete experiences when learners can integrate themselves according to the learning situation in each experience. They like to feel to build new ideas , rules and theories which lead to new experiences .In capabilities of abstract observation, pupils like to observe and reflect the present experience.The capabilities of abstract conceptualisation , pupils make concepts that

lead them to complete their observations into deep theoretical understandings . In capabilities of active experimentation, they use their theoretical ideas to solve problems and taking decisions . We can say , the learning process changes from the practical to the observable and from specific to the general analysis .

### **2.11.David Kolb Theory (Experiential Learning)**

Kolb's model represents an integration of many intensive researches in cognitive development and cognitive processes .The result is a model of learning process which is consistent with the nature of human cognition and the stages of human growth . This sample shows us learning processes and learning styles differences and their relation to the learning environment . It confirms that there is no dominant style on the other . The cognition is a relation between the experiences and how to recognise them in order to use them in new learning situations . Kolb said, this theory is called learning through experience for two main reasons:

- ✓ Because of its relation to the writings of Kurt Levin .
- ✓ To confirm the importance of the experience in learning processes.

It is the description of the learning cycle , in how experience is translated into concepts . Those ones are used as guides to choose new experiences ( David kolb ,1984).

#### **2.11.1.Kolb's Definition of Learning**

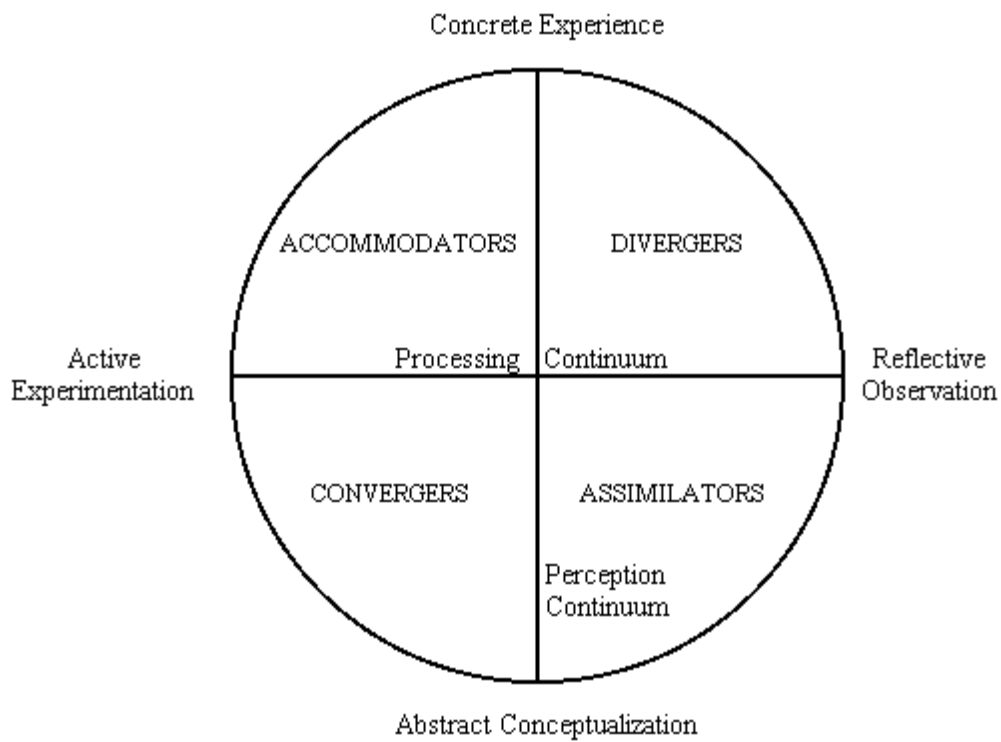
David Kolb defines learning as a process through which the cognition is created starting from the transformation of experience and reuse it in new experiences . This process is continuous . Kolb in his research emphasized on the clinical observations of many samples in order to confirm his findings . This clinical observation is away to search and means also



the experiential analysis of the individual behaviour .It is the same method used by Piaget and Ge Sell .

### 2.12.Characteristics of the Learning Styles

According to Kolb ,learning is a continuous cycle . It is acquired through repeating the experiences which starts from, reflecting on the experience , making sense of it planning to do it then doing it. This cycle is divided into four main styles:



### Kolb's Learning Styles

Fig.2.4 . Kolb's learning styles<sup>8</sup>.

<sup>8</sup> It is taken from the internet.

In Kolb's learning styles , Learners do their cognitive and meta cognitive learning on two orthogonal continuums :

- **Perception Continuum**

On this line we have the concrete experiencers ( CE) who like to involve in a new experiences and the abstract conceptualizers (AC) who like to watch others or develop observations about their own experiences .On this level , some pupils can learn through feeling and others like to learn through thinking.

- **Processing Continuum**

On this line we have the reflective observers (RO) who like to create theories to explain observations and the Active experimenters who like to use theories to solve problems and make decisions . On this level , some pupils like to learn through doing and others like learning through watching.

### **2.12.1.Diverger**

It is when the capabilities of the concrete experience and reflective observation dominate learner's style . Pupils who prefer this style are able to see the learning situations from different dimensions . He has the ability to brainstorm ideas and likes to gather information , imagines and works in groups.

### **2.12.2.Assimilator**

It is when capabilities of reflective observation and abstract conceptualisation dominate learner' style . He cares about the ideas . He is able to discover the analytical samples .He prefers to study the scientific streams .

**2.12.3. Converger**

It is when the capabilities of active experimentation and abstract conceptualisation dominate learner’ style . Learner is able to use the ideas and theories . He can solve problems, takes decisions and tests the new ideas . He prefers to study technical subjects .

**2.12.4. Accommodator**

It is when concrete experience and active experimentation dominate learner’ style . Learner who prefers this style likes to know the new and difficult experiences , relying on the logical analysis to solve the problems . He likes also to work with others. Here there is a table which shows best strategies of each learning style in learning .

<p style="text-align: center;"><b><u>Accommodating</u></b></p> <p>Open-ended vehicle problems          Student presentations          Hands-on repair simulations</p>	<p style="text-align: center;"><b><u>Diverging</u></b></p> <p>Class discussions          Group lab projects          Field trips</p>
<p style="text-align: center;"><b><u>Converging</u></b></p> <p>Vehicle computer simulations          Individual lab assignments          Field trips</p>	<p style="text-align: center;"><b><u>Assimilating</u></b></p> <p>Lectures/Presentations          Repair manual reading          Repair demonstrations</p>

*Figure 2.5. strategies to foster pupils’ learning styles.<sup>9</sup>*

<sup>9</sup> It is taken from the internet.

### **2.13. Conclusion**

This chapter includes the theoretical framework that incorporates a variety of fundamental issues affecting learning styles . It describes how learning theories perceive and consider learning styles as an important component of the learning situation . At the meanwhile, it highlights the different influential factors like , teaching styles , learning styles and other variables which shape the preferred style in the light of social and psychological proportions. Moreover, this literature’s review main focus is, the experiential learning developed by David Kolb who advocates that learning style is conducted by the cognitive process and learning becomes more efficient through experience . This chapter includes also different definitions and subdivisions of learning styles included in Kolb’s learning styles inventory.

<b>Chapter three</b>	<b>practical Field and Data Analysis.....</b>	<b>56</b>
3.1.	Introduction.....	57
3.1.	The current Study in its Practical part.....	57
3.1.1.	The Initial method Experiment.....	57
3.2.1.	Description of the Classroom Observation.....	57
3.2.2.	Description of the Questionnaire.....	58
3.3.2.	Administering the Questionnaire.....	59
3.3.3	The Fulfilment of the Questionnaire.....	61
3.4.	The Procedures of the final Experiment.....	61
3.5.	Learning styles Inventory.....	61
3.6.	Calculating Pupils’ Learning Styles.....	62
3.7.	The Statistical Results of the Study.....	64
3.8.	Results’ Analysis.....	66
3.8.1.	Pupils’ preferred Learning Styles and Gender.....	66
3.8.2.	Learning Styles and Pupils’ Outcomes.....	71
3.8.3.	Pupils’ Preferred Learning Styles and Outcomes.....	72
3.9.	Learning Outcomes and Gender.....	73
3.9.1.	The Rate of Success and Gender.....	74
3.9.2.	Preferred Learning Styles At Omar Racem School.....	76
3.10.	Interpretations of Results.....	76
3.10.1.	Classroom Atmosphere and Pupils’ Learning Styles.....	76
3.10.2.	Classroom Observations (Teaching and Learning in the Algerian Context).....	78
3.10.3.	Teachers and Pupils Major Complaining .....	79
3.11.	Conclusion.....	86

### **3.Introduction.**

The research process in the study is needed and it is considered as a principal element which deals with the practical side of the research. It aims to find out the results of the problematic and describes the procedures of building the study and how the results are found. In addition to that, these results will be judged and evaluated starting from the limitation of the study the hypotheses, the methods of selecting the samples ,their appropriateness to the study and its objectives. For that, the process of the study is limited with some limits, like the ways of observing the psychological phenomena, the experiments and the objectivity to discover the reasonable correlations for further studies in this field of research.

#### **3.1.The Current Study in its Practical part.**

The researcher aimed to compare and discover the effects of learning styles' differences on pupils' preferences in the sample of the study and this is for many reasons .

##### **3.1.1.The Initial Experiment.**

It enabled the researcher to repeat the observations under the same conditions and analysing the relations between the reasons and the results. Two tools have been used to cope with the objectives and the hypotheses of the study.

##### **3.2.1.Description of the Classroom Observation**

It is a tool used to observe and assess the different circumstances that happen in the class. The researcher applied it to investigate pupils ways of learning comparing to their teachers' teaching styles . He tried to attend different sessions of different subjects in order to find the correlations between the preferred learning styles and the other components of the classroom setting .( C.R.Kotari,2004) explains it more in his book Research methodology:

*“ The observation method is the most commonly used method specially in studies relating to behavioural sciences. In a way we all observe things around us. Under the observation method, the information is sought by way of investigator’s own direct observation without asking from the respondent ”*

It is an important tool to keep in touch with pupils. The researcher did not find any difficulty to apply it because he is a member of the staff and teachers were satisfied to do that . The concerned subjects were ; English ,French , Arabic, Maths , Physics and Natural Sciences . He preferred to attend two whole classes’ sessions and one tutorial session in each subject .The procedure was as follow:

The researcher sat at the back of the class and observed lesson’s stages till the end of the session. He did not intervene in any circumstances to avoid any disturbance and interruption which might be occurred . During the different sessions , the presence of the researcher was familiar to pupils and teachers . For that reason , they were not anxious and worked in good conditions

### **3.2.2.Description of the Questionnaire and the Principles of the Study.**

The questionnaire as one of the most useful tools is often perceived as a partly valid research instrument to elicit available information from the informants; the case here, pupils of fourth year Omar Racem middle school .

The construction of questionnaire is a delicate step for the researcher in order to ask the correct and the right questions aiming to get reliable data. Accordingly, the advantages underlying the use of questionnaire in any research work can be stated and summarized in the following headlines:

- ✓ It covers a large number of participants.
- ✓ It is standardized and easy to analyze.
- ✓ It is not time consuming

**3.3.2. Administering the Questionnaire.**

First of all, the researcher contacted the headmaster of the school and explained him what he is going to do and the objectives of the study. The principal of the school appreciated this study because it has great benefits in the field of education. The researcher limited the following notes:

- ✓ The objective of the study.
- ✓ The category of the pupils who are concerned.
- ✓ A conceptual design of how to work with pupils.

The researcher did not face any problems in administering the learning styles inventory (LSI).

The following learning style inventory is adapted from Kolb's (LSI) version 3 .



Gender: Male Female

Age Average of the first term

 / 20

Learning Style Inventory Name : .....

CIVIL1101 FALL 2009

On the following page you will be asked to complete 12 sentences that describe learning . Each has four endings .To respond to the sentences , consider of your recent learning situations. Then rank the endings for each sentence according to how well you think each describes the way you learn .Enter a 4 for the ending that describes best how you learn , and so on down to 1 for the sentence ending that seems least like the way you learn . Be sure to rank all endings for each sentence . Do not make ties.

Example:

When I learn	I am happy (.....2.....)	I am careful(.....4.....)	I am fast (....1.....)	I am logical (.....3.....)
1 - when I learn	I like to deal with my feelings (.....)	I like to think about ideas(.....)	I like to be doing things (.....)	I like to watch and listen (.....)
2 - I learn best when	I listen and watch carefully (.....)	I rely on logical thinking (.....)	I trust hunches and feelings (.....)	I work hard to get things done (.....)
3- When I am learning	I tend to reason things out (.....)	I am responsible about things (.....)	I am quiet and reserved (.....)	I have strong feelings and reasons (.....)
4- I learn by	Feeling (.....)	Doing (.....)	Watching (.....)	Thinking(.....)
5- When I learn	I am open to new experiences (.....)	I look at all sides of issues (.....)	I like to analyze things, break them into their parts (.....)	I like to try things out (.....)
6- When I am learning	I am an observing person (.....)	I am an active person (.....)	I am an intuitive person (.....)	I am a logical person (.....)
7- I learn best from	Observation(.....)	Personal relationships (.....)	Rational theories (.....)	A chance to try out and practice (.....)
8- When I learn	I like to see results from my work (.....)	I like ideas and theories (.....)	I take my time before acting (.....)	I feel personally involved things (.....)
9- I learn best when	I rely on my observations (.....)	I rely on my feelings (.....)	I can try things out for myself (.....)	I rely on my ideas (.....)
10- When I am learning	I am a reserved person (.....)	I am an accepting person (.....)	I am a responsible person (.....)	I am a rational person (.....)
11- When I learn	I get involved (.....)	I like to observe (.....)	I evaluate things (.....)	I like to be active (.....)
12- I learn best when	I analyze ideas (.....)	I am receptive and open-minded (.....)	I am careful (.....)	I am practical (.....)

*Kolb's Learning Style questionnaire (LSI), Version 3<sup>10</sup>*

After finding an appropriate time, the researcher divided pupils into two groups randomly (19 pupils in each).Then, He distributed Kolb learning styles inventory (LSI) which is made of twelve (12) questions translated into the Arabic language.

<sup>10</sup> It is Kolb learning styles questionnaire .It is available on the internet as an electronic page and as a document.

### **3.3.3 The Fulfilment of the Questionnaire.**

The questionnaire succeeded to reach its objectives and they are as follow:

- Concerning Kolb learning styles inventory, it was printed again in a clear writing.
- The time devoted for the experiment was limited .
- The (LSI) as a tool to investigate the learning styles is clear in its statements.

Pupils answered the questions by the help of the teacher in explaining some difficult words , like the word “ intuition” even it was explained in the mother tongue . Pupils did not understand it because it is a technical word .

### **3.4.The Procedures of the Final Experiment.**

The researcher by himself was present in the final experiment with the participants of the study. After limiting the number of groups and participants , the researcher distributed the learning styles inventory to the members of the groups and explained them how to fill in.

### **3.5. Learning Styles Inventory.**

David Kolb made this inventory for the American context ( David Kolb,1976) . It is composed of twelve (12) questions and it was accepted in the foreign contexts in a constant and valid degree .In 1985, Kolb learning styles inventory was modified into twelve questions (12) , each question contains four answers . Participants answer according to the following instructions:

Number four (4) for the answer that fits the participant. Number three (3) for the one which is less preferred and so on. (Kolb learning styles inventory. version 3 . (LVSI v 3 .1). It is considered as a personal confirmation to measure the learning styles of the individual which measures learners’ behaviours and the cognitive processes that are used during his/ her interactions within the learning situations. This learning styles inventory is built on the

experiential learning theory (learning cycle) where the learning style is determined by defining the results of the tested pupils on the perception continuum ( Abstract Conceptualisation – Concrete Experience ) and on the processing continuum ( Active Experimentation – Reflective Observation ) .

The total marks for each pupil equals 120 in all cases when we calculate the marks of his / her choices in the inventory (LSI).

According to Kolb, the ideal learner copes with the living concrete experience ( C.E ) and reflects on the ( C.E) by reflecting through reflective observation (R.O) . After that, he / she develops his / her abstract conceptualisation (A.C) . Later, he /she uses the (A.C) in the active experimentation (A.E) to make decisions and solve problems .

(David Kolb in 1976), supposed that both concrete experience and abstract conceptualisation ( C.E / A.C ) are on the same continuum and (reflective observation , active experimentation ) are also on the same continuum . The two continuums are perpendicular.

When pupils received the survey questionnaire, they read the questions and did its partial answers in Arabic language .After that they put numbers (1/2/3/4/ ) according to their choices. The researcher gave them an example for more clarification. After forty five minutes the researcher collected the questionnaire and started his interpretations.

### **3.6.Calculating Pupils' Learning Styles**

The researcher distributed the learning styles on each pupil's questionnaire according to Kolb inventory .Later , he copied the numbers ( 1/2/3/4/ ) done in each column and pasted them regularly in the inventory . After that , he calculated the numbers of each learning style which resulted the four learning styles ( CE / RO /CE /AC) as it is explained below. When the

researcher finished the calculations , he started finding pupils’ learning styles ( *Divergers / Assimilators / Convergors / Accommodators* ) .

<i>Divergers</i>	<i>Assimilators</i>	<i>Convergors</i>	<i>Accommodators</i>
<i>Concrete experience(CE)</i> + <i>Reflective Observation(RO)</i>	<i>Reflective Observation(RO)</i> + <i>Abstract Conceptualisation(AC)</i>	<i>Abstract Conceptualisation(AC)</i> + <i>Active Experimentation(AE)</i>	<i>Active Experimentation(AE)</i> + <i>Concrete Experience(CE)</i>

*Table.3.1.the components of each learning style.*

As it is seen in the above table , according to David Kolb , each learning style is composed of two components which determine the preferences of each pupil .

The following table shows the distribution of learning styles according to questions’ meanings.

	1	2	3	4	5	6	7	8	9	10	11	12
A	CE 3	RO 2	AC 1	CE 4	CE 3	RO 1	RO 4	AE 2	RO 1	RO 2	CE 4	AC 2
B	AC 4	AC 1	AE 3	AE 2	RO 2	AE 4	CE 3	AC 3	CE 2	CE 1	RO 2	CE 3
C	AE 2	CE 3	RO 2	RO 1	AC 4	CE 2	AC 2	RO 1	AE 3	AE 4	AC 1	RO 4
D	RO 1	AE 4	CE 4	AC 3	AE 1	AC 3	AE 1	CE 4	AC 4	AC 3	AE 3	AE 1

*Table 3.2.Sample of learning styles’ distribution of according to the inventory(LSI) Version*

3.1

A- CE = Concrete Experience.

B- AC = Abstract Conceptualisation.

C- AE = Active Experimentation.

D- RO = Reflective Observation.

The total numbers equals one hundred and twenty (120).

This inventory was used to test the correlation between learning styles ,the age and Gender ( 1971, 1976 , Kolb ) .

### **3.7. The Statistical results of the Study**

In this part , the researcher exposes his statistics found during the tests done before where he used simple tools to calculate the percentages; The Bar chart, the line Chart and the pie Chart.

As it was explained before, the learning styles shown in Kolb learning style inventory (LSI) are divided into four main parts. It is the combination between the concrete experience (CE), the abstract conceptualisation (AC), the active experimentation (AE) and the reflective observation (RO). the diverging learning style means the combination of (CE and RO). Here learners who prefer this style like to feel, watch, connect and attend .They prefer to deal with meanings. They seem to be imaginative. They are good in generating ideas. They also view situation from different angles and they are open to experience. In this preferred learning style, learners are interested to answer the question why?.

The second preferred learning style is the assimilating when learners like to think and watch. They have the ability to create the theoretical modals. They also prefer to compare, define and formulate hypotheses. Learners here like more to conceptualize .They are interested to answer the question ,what?

The third learning style is the converging. It is the combination of (AE and AC). When learners like to think and do. They are good at practical applications and making decisions. They do well when there is one answer and they are better in evaluating and selecting from alternatives. Here learners like to answer the question how? They like also to extend their thinking and practise when they rely on their own efforts and skills to define problems.

The fourth learning style is the accommodating when learners like to feel and do. They are better in refining and performing. Moreover, they can carry out plans and adapt to immediate circumstances. They are also interested in actions and results. Those learners are good in setting objectives and schedules. They are better to answer the question what if..

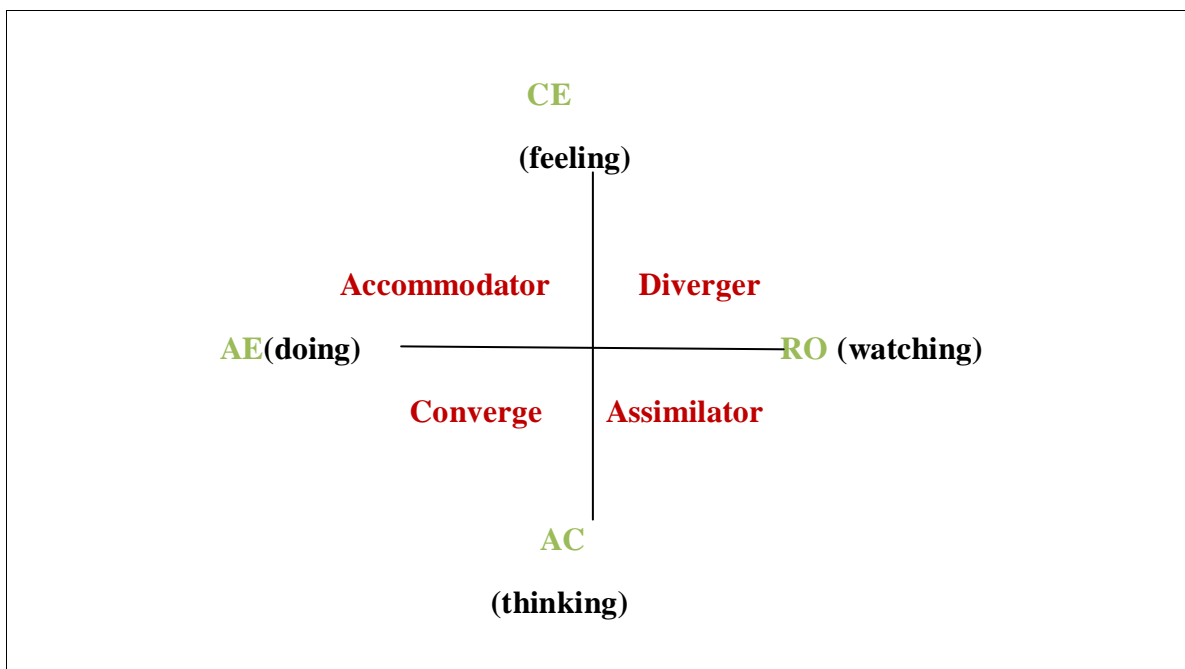


Fig 3.1. learning styles' cycle.

As we see in the above figure, Diverging learners are better in perceiving things through concrete experience on the perception continuum and processing by reflective observation.

- Assimilating learners perceive through abstract conceptualisation and process by reflective observation.

- Converging learners perceive through abstract conceptualisation and process by active experimentation.
- Accommodating learners perceive through concrete experience and process by active experimentation.

### 3.8.Results’ Analysis

After measuring pupils of the fourth year middle school learning styles, the researcher tries to analyse and compare the results according to Kolb learning styles inventory (LSI).

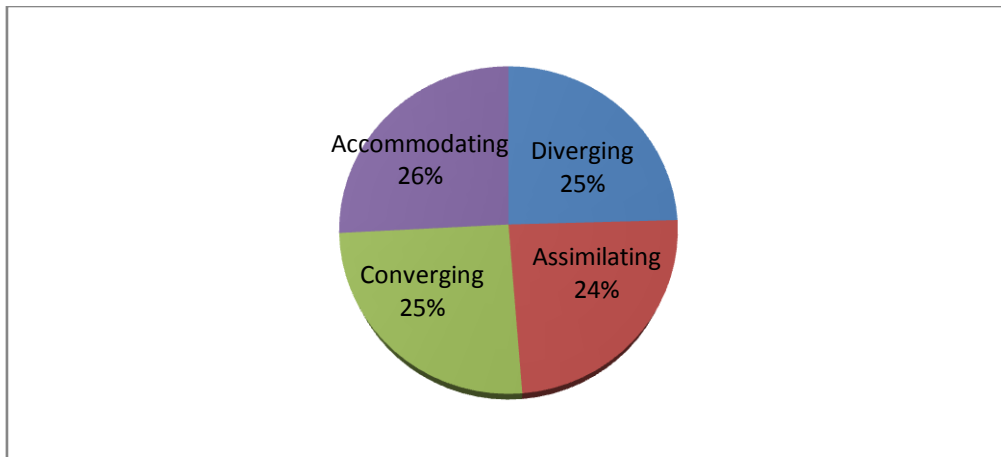
The following table represents fourth year middle school number of participants and ages .

<b>Gender</b>		<b>Age average</b>	<b>Percentage</b>
Male	22	16	57,89%
Female	16	15 ,18	42 ,10%
<b>Total</b>	<b>38</b>	<b>15,59</b>	<b>100%</b>

*Table 3.3 .Pupils’ Age and Gender*

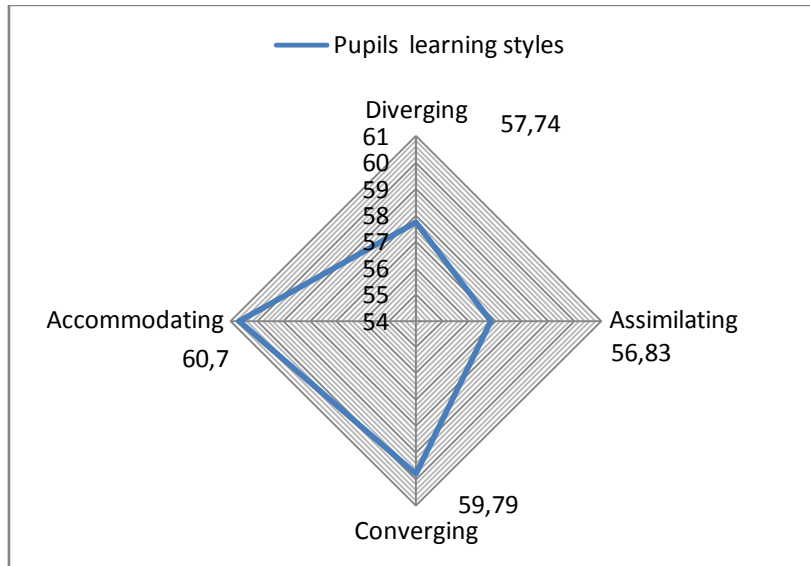
#### 3.8.1. Pupils’ Preferred Learning Styles and Gender

According to Kolb, not all learners equally experience each phase of the cycle and there is no any phase of the cycle more important than the other. This suggests that the preference of learners among the phases of the cycle does not make them better or worse learners (Kolb, 1984, Smith & Kolb, 1996).



*Fig.3.2. pupils preferred learning styles*

The pie chart above shows the percentages of pupils' preferred learning styles of both males and females. As it is found, all learning styles seem to be the same. Diverging 25%, Assimilating 24%, converging 25% and accommodating 26% That is to say, those learners differ from each other. In the same group we find different preferences.



*Fig.3.3. Pupils preferred learning styles and their values.*

The second chart shows the statistics of the preferred learning styles (Diverging 57, 74 – Assimilating 56, 83 – Converging 59, 29 – Accommodating 60, 7).



The accommodators score first (60, 7). It means that, pupils here like to feel and do. The accommodating style is composed of the active experimentation (AE = 32, 96) on the processing continuum i.e. pupils like to process things through doing and practising .The second duality is the concrete experience (CE = 27, 73) on the perception continuum when pupils like to perceive things through feeling. The accommodating style = 60, 7 (AE 32, 96 + CE 27, 73) , those pupils like to learn through feeling and doing ( feel and do) .

The second preferred learning style is converging ( 59, 79) where pupils learn best through thinking and doing . It is the combination of the abstract conceptualisation (26, 82) and the active experimentation (32,96). Converging 59,79= (AC)26,82 + (AE) 32,96.

The third one is the diverging style. It is the combination of concrete experience (27, 73) and the reflective observation (30, 01). CE (27, 73) + RO (30, 01) = 57, 74. Pupils here like to feel and watch .

The last preferred learning style is the assimilating style when pupils prefer to think and watch. It is composed of the reflective observation (RO = 30, 01) and the abstract conceptualisation (AC = 26, 82). It is the lowest preferred learning style in the fourth year middle school. (30, 01 + 26, 82) = 56, 83.

<b><i>Learning style</i></b>	<b><i>Arrangement</i></b>	<b><i>Percentage</i></b>
Accommodators	1	60,7
Convergers	2	59, 79
Divergers	3	57, 74.
Assimilators	4	56, 83.

*Table.3.4.Pupils males and female Preferred leaning styles*

The below bar chart shows clearly the arrangement of the preferred learning style. It is noticed that pupils like to feel and do better than think and watch.

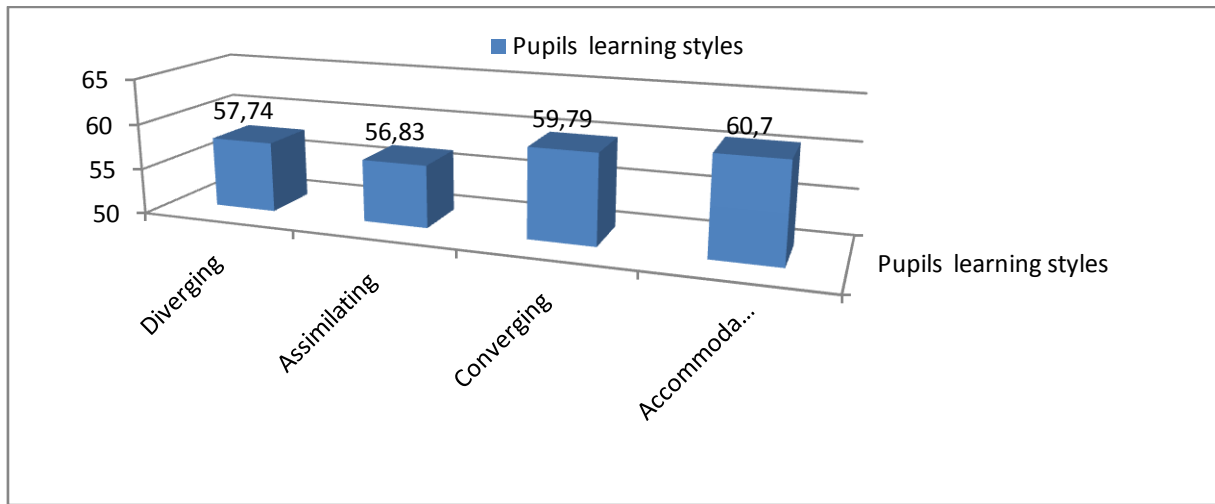


Fig.3.4. Pupils preferred learning styles.

The following table represents the statistical results of pupils’ preferred learning styles. As Kolb said there is no dominant learning style on the other. Therefore, pupils are free to learn through their preferred ways with regard to their individual differences .

<b>Preferred learning styles</b>		<b>Total</b>	<b>Males (26)</b>		<b>Females (16)</b>	
<b>Diverging</b>		57,74	CE	RO	CE	RO
Males	Females		28,22	30,9	27,73	29,12
59,12	56,37					
<b>Assimilating</b>		56,83	RO	AC	RO	AC
Males	Females		30,9	28,72	29,12	24,93
59,62	54,05					
<b>Converging</b>		59,79	AC	AE	AC	AE
Males	Females		28,72	34,31	24,93	31,62
63,03	56,55					
<b>Accommo-dating</b>		60,7	AE	CE	AE	CE
Males	Females		34,31	28,22	31,62	27,25
62,53	58,87					

Table.3.5. shows detailed results of pupils preferred learning styles.

The table above shows the detailed results of the fourth middle school preferred learning styles. The statistics identify the variables in pupils' preferences. Both males and females seem to have the same choices of learning styles. As a result of that, The most preferred one is the accommodating style where pupils like to feel and do. On the other hand, Males score better than females in converging style (63, 03 – 56, 55),  $M < F$ .

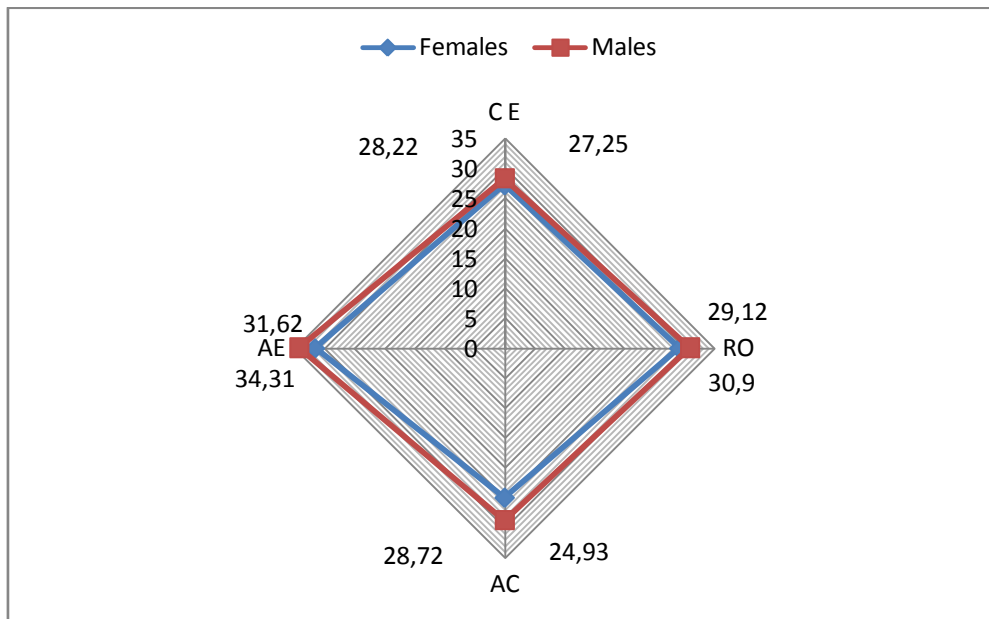


Fig 3.5. males and females preferred learning styles.

That is to say, males in Omar Racem school like to think and do more than other preferences. However, females like better the accommodating style, when they prefer to feel and do. These results have been confirmed by many studies. Females learn better through feelings. For that, they like studying literature subjects .whereas, males learn better through thinking. So, they prefer studying scientific subjects. Honey& Mumford, 1995) confirmed this when they said females are emotionally intelligent, emphasis on communication and males are specialised thinking and emphasised on action. In addition, (Kolb & McCarthy, 1997)

added that females are Assimilators ( Abstract Reflectors), However males are Accomodators ( Concrete Activists) .

At Omar Racem school all learning styles are higher for males than females, as it is shown in

The following Fig 3.6 . The highest difference is (6, 48) in converging style where pupils like to think and do. However, the lowest difference is (2, 75) in diverging style where pupils like to learn through experiencing and reflecting. In the assimilating style the difference is 5, 57. Pupils like to think and reflect. In the accommodating style the difference is 3, 66, pupils here like to learn through doing and experiencing.

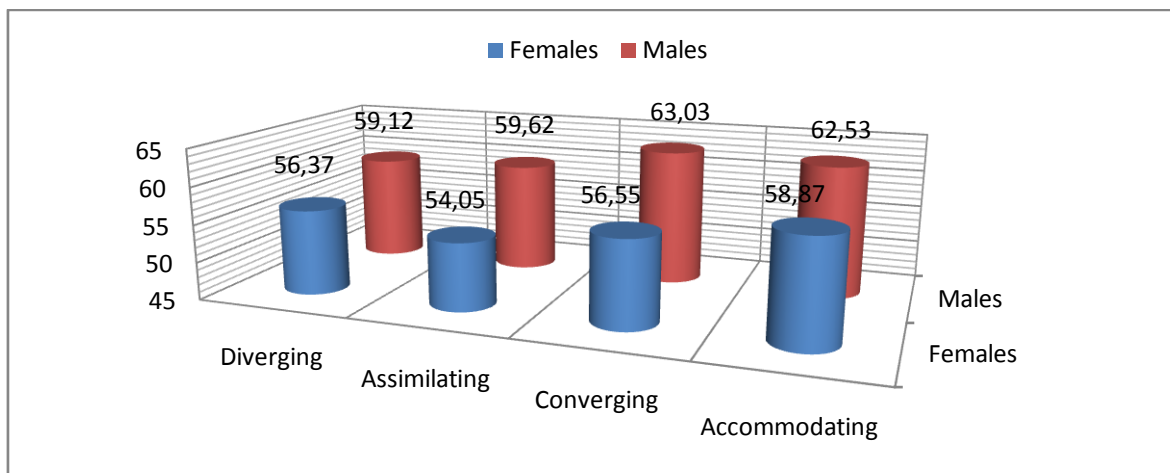


Fig 3.6 . males and females preferred learning styles.

### 3.8.2.Learning Styles and Pupils’ Outcomes.

Pupils’ averages have been recorded from the first trimester profile .The following table shows the scientific and literary averages for both males and females.

Gender	Literary subjects	Scientific subjects
Male	9,16	12,54
Female	10,65	11,93
<b>Total</b>	<b>9,90</b>	<b>12,23</b>

Table.3.6. pupils’ averages in the first trimester ( scientific and literary subjects)

After analysing pupils’ results of the first trimester, 2015. The researcher found that females scored better than males ( F 12,11 > M 11,63 ). According to pupils’ outcomes, females like to feel and act rather than males who like to think and act. We see that, both of them could not get better results. This is of course because of many circumstances and reasons that shape classroom atmosphere and the misunderstanding of those pupils preferred learning styles.

<b>Males Pupils</b>	<b>Literay subjects</b>	<b>Scientific subjects</b>	<b>Females Pupils</b>	<b>Literary subjects</b>	<b>Scientific subjects</b>
1-Bouchraf Mhamed	8,1	8,25	23-Safoine Chaimaa	8,77	11,96
2-Hameche Yacine	9,77	10,91	24-Baghdaoui Djazia	11,35	10,04
3-Djwahri Rachid	7,77	15,3	25-Dai Bouchra	13,5	15,07
4-Sellaoui Ossama	8,87	12,66	26-Hamiani Hanaa	13,94	15,21
5-Baatochi Bilal	13,39	13,76	27-Helladj Wissem	11,83	13,8
6-Bedrani Toufik	11,38	11,71	28-Zehafi Nadjia	8,5	11,02
7-Cheib Mohamed	7,89	14,01	29-Helledj Salima	12	9,05
8-Belhadj Djilali Samir	6,67	14,72	30-Teguia Rokia	8,05	10,72
9-Hamret Ibrahim	5,58	11,49	31-Boumhiriz Lina	9,14	12,38
10-Belhadj Elarbi Mohamed	9,63	15,19	32-Bellahcene Zahra	9,3	10,25
11-Bourssass Abdou	8,2	13,18	33-Bennour Fadwa	8,69	10
12-Djabbari Aissa	7,62	10,08	34-Raieb Ikram	12,43	13,03
13-Bouradou Khei/	10,58	13,43	35-Belhadj mehdi Amira	12,43	13,09
14-Chahma Imade	9,2	14,73	36-Belaid Akil Amira	7,58	10,69
15-Bouradou Amine	9,52	11,64	37-Djelouli Fatima	13,65	14,06
16-Hedjloui Mohamed	9,71	13,03	38-Hamrat Khawla	8,51	13,6
17-Djaaboub Ali	7,64	9,14			
18-Delliher Mohamed	10,44	13,61			
19-Chahma Mohamed	7,5	14,42			
20-Chikhi Abdelmalek	12,78	9,38			
21-Djalouli Djallal	7,53	9,93			
22-Bounoua Abdella	13,94	15,46			
<b>Total</b>	<b>9,16</b>	<b>12,54</b>	<b>Total</b>	<b>10,65</b>	<b>11,93</b>

Table.3.7. Pupils’ averages in literary and scientific subjects.

### 3.8.3.Pupils’ Preferred Learning Styles and Outcomes.

After analysing pupils results of first trimester, these are their academic performance,

The researcher wants to make a comparison between the literary and scientific subjects. More than that, he likes to compare them to pupils’ preferred learning styles . He selected three

literary subjects (Arabic, English, French) and three scientific ones (Maths, Physics, Natural sciences) . The aim from the analysis is to know to what extent pupils can perform with regard to their preferred learning styles and gender differences.

Among 38 pupils there are only five (05) ones get less than 10 ( $5 < 10$ ) in the scientific subjects and 23 pupils get less than 10 ( $23 > 10$ ) in the literary subjects.

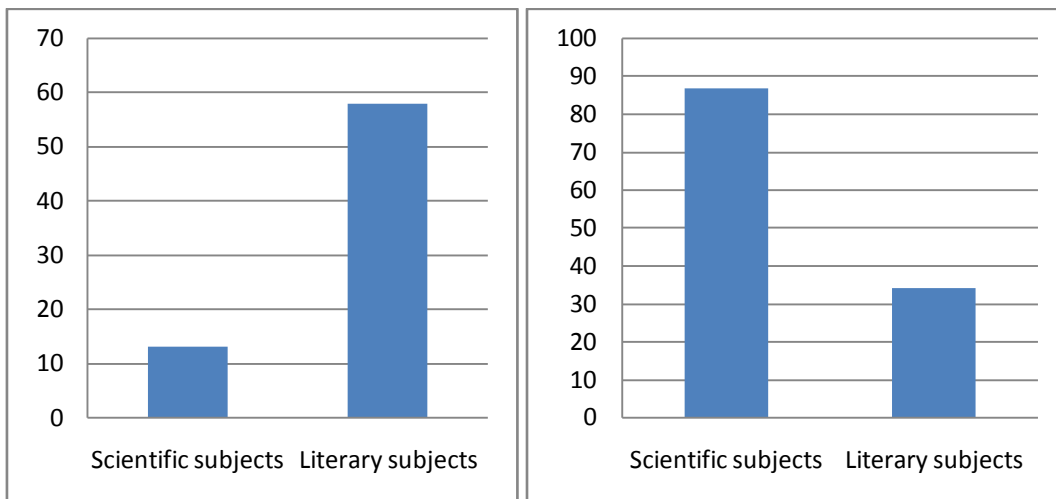


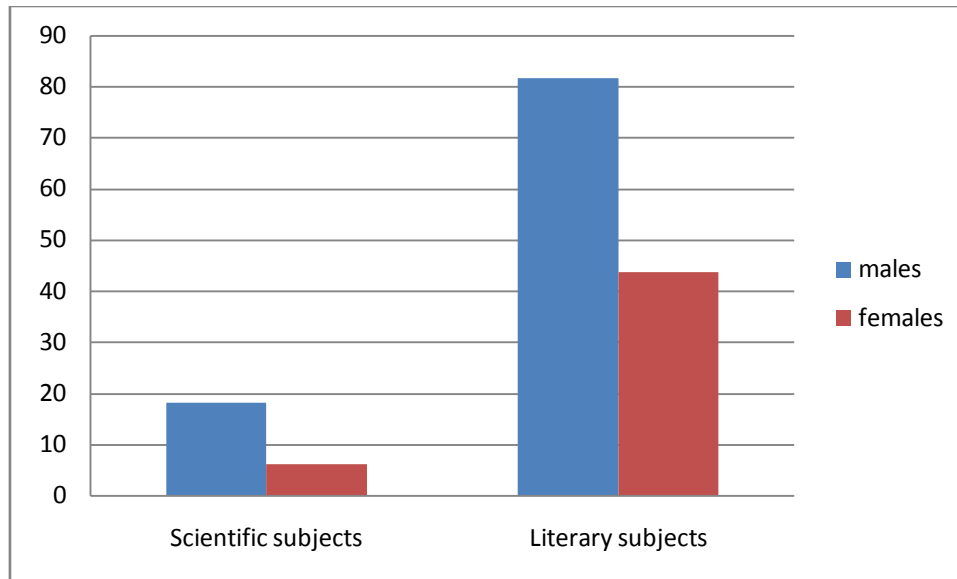
Fig.3.7. pupils' averages less and more than 10.

As it is seen above, pupils' outcomes in the scientific and literary subjects in more and less 10 seem to be different. It is absolutely clear that pupils get 89, 47% in the scientific subjects and 36, 84% in the literary ones. However, the percentage of pupils who get less than 10 in the scientific subjects is 13, 15% and 60, 52% in the literary subjects.

That is to say, pupils at Omar Racem school are better in the scientific subjects rather than literary ones.

### 3.9.Learning Outcomes and Gender.

Concerning females, among 16 girls there are only one pupil gets less than 10 ( $1 < 10$ ) in the scientific subjects i.e. Only 6% among females . There are 09 ones who get less 10 ( $9 < 10$ ) in the literary subjects (56%).



*Fig.3.9. Gender's ' averages less than 10.*

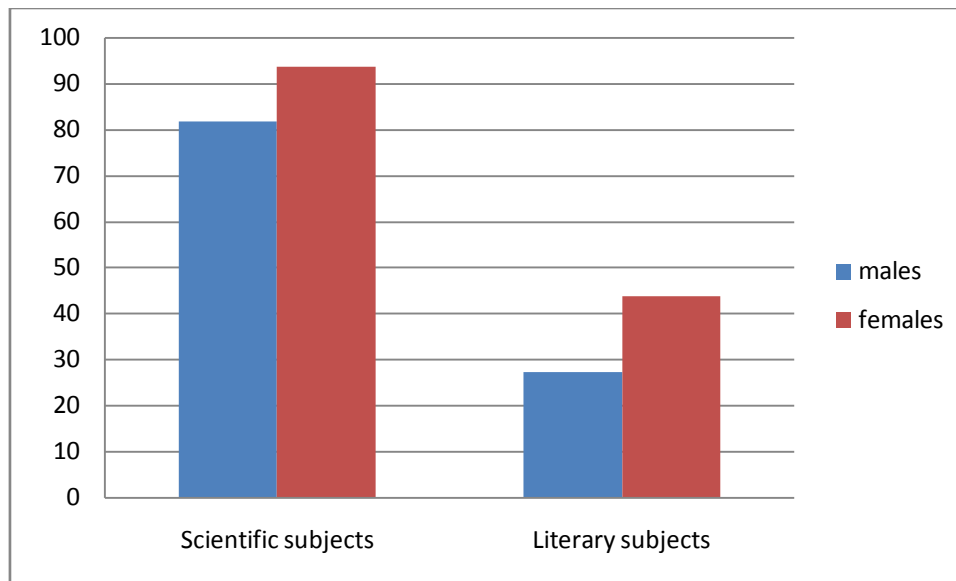
Concerning males, there are 18% did not get their averages in the scientific subjects and 68% did not get their averages in the literary subjects. That is to say, mostly 60% of Omar Racem pupils do not meet their preferences and cannot progress in the literary subjects (Arabic, French and English).

As it is seen above, the total percentage of pupils who get less than 10 is 73% .Males obtain 47% and females 26%. It means that female pupils work harder and rank first in both Literary and scientific subjects.

### **3.9.1.The Rate of Success and Gender.**

In the scientific subjects (Physics, Maths and Natural sciences), there are 33 pupils (86%) are more than 10 and in the literary subjects (Arabic, French and English), there are 14 pupils (36%) are more than 10.

- Males get 81% in the scientific subjects and 27% in literary ones.
- Females get 93% in the scientific subjects and 43% in the literary ones.



*Fig .3.10. males' and females' rate of success.*

As it is displayed above, females pupils seem to be better in their rate of success than males.

Both of them are better in the scientific subjects than the literary ones. As a result of this,

The total percentage of pupils in their rate of success in the scientific subjects is 86%. On the contrary, the total percentage of them in their rate of success in the literary subjects is 35%. We can say that in both subjects, pupils are better in the scientific subjects than the literary ones. On one hand, females are better than males in their rate of success either in the scientific or the literary subjects. Furthermore, in their partial or global outcomes, males and females like to study better the scientific subjects rather than the literary ones.



### **3.8.2. Preferred Learning Styles At Omar Racem School.**

As it is said before pupils at Omar Racem School prefer the accommodating style when they like to feel and think. These pupils like doing things and involving themselves in the experience.

They rely often on other pupils's information rather than on their own analytic ability. These learners are good in doing complex tasks and are able to see relationships among aspects of a system. Males prefer the converging style when they like to practise and apply ideas.

Therefore, the use of information is increased by understanding detailed information about the system's operation.

- They are unemotional and prefer to deal with things rather than their peers.
- They like to be specialized in the field of sciences.

Females pupils at this school prefer the accommodating style .they prefer to learn through feeling and doing rather than watching and thinking.

Questions that we can raise here:

- 1- Why pupils are not interested or less involved in the other learning styles?
- 2- Do teachers respect those learners' preferences?

### **3.10. Interpretations of Results**

After Algeria has launched the new reforms since 2003, teachers are still struggling to cope with the competency approach although , dozens of training sessions have been delivered and a lot of money have been invested in the field of education . Because of the dominance of traditional methods and absence of clear policies that lead to clear objectives . Identifying the preferred learning styles is influenced by the role of the teachers and their strategies in shaping their classes . More than this , The learning style has a psychological and social impacts that influence pupils' thinking and learning . If teachers are not conscious and careful in their planning , automatically , they will discourage their pupils to recognise and use their

preferred learning styles . Besides , text books should be adequate and fit pupils' needs by differentiating tasks which serve both males and females .More than that , teachers have to take into account their pupils' age and level when setting objectives , because pupils cannot learn in an ambiguous atmosphere .Also , the lack of ICT's creates a great problem in implementing the competency based approach .

### **3.10.1.Classroom Atmosphere and Pupils' Learning Styles at Omar Racem School.**

Classroom atmosphere constitutes the crucial challenge for both teachers and pupils to unify their efforts to minimize risks and stimulate pupils to cooperate with their peers , in an attempt to liberate pupils from traditional teaching and learning .

It is observable that learning styles are considered as one of the main features of a successful learning situation and a basic element to establish an adequate classroom management. For that, ignoring them in any plan, will lead to deterioration in the outcomes of learners .i.e .The inputs received from different resources won't be acquired at a high level. Moreover, the learning atmosphere will be built on doubtful decisions. It means that, the decision makers (teachers, planners), if they do not take into account the preferred learning styles, surely, the relationship between them and learners will be broken down . If we come back to the learners' positive achievement, we find that, only those who are talented learners can get good results, or those who meet their teachers' teaching styles. Automatically, those teachers will find themselves working with the minority of their classes and the majority will be totally ignored. At the meanwhile, learners may lose self confidence and may be passive and dependents, waiting for what the teachers provide them with and relying on their talented classmates in learning. This black learning atmosphere will lead to disconnection in many ways such as: low self- esteem which lead to low motivation and interests in learning. These factors are totally interlinked . If teachers do not pay attentions to their pupils' regressions , there will be a massive failure .

### 3.10.2. Classroom Observations (Teaching and Learning in the Algerian Context)

With regard to the Algerian context, it is noticeable that teachers always complain about the poor achievement of their learners'. At the same time learners claim that they can't understand their teachers' instructions. Some of them say we like the method of 'x' teacher whereas, others say we prefer 'y' method. Between these and those, we remain suffering from the low achievement of learners. Neither teachers succeed to transmit their knowledge appropriately nor learners are capable to score best and get good results. During his teaching experience, the researcher attended some of classroom meetings in many middle schools, which were held by the end of each term, he noticed many teachers blaming their learners and insulting them without giving concrete proofs to justify their critics. At Omar Racem school, the researcher met many learners from different classes, saying that they cannot understand their teachers' styles well without asking themselves why and how. Some others said that they prefer for instance to learn maths and physics and they dislike foreign languages, other groups prefer the literary ones, and of course these preferences are affected by the innate abilities and also to other features occurred in their learning situations like their teachers' teaching styles and the type of the tasks. It is by nature some learners like subjects and getting very good results, others who are talented, they can get acceptable results in both, scientific and literary streams. Unfortunately, the most of them, let's say all of them are not able to recognize and identify their preferable learning styles. We can talk here about the gender's choice (male, female preferred ways of learning). We know that in Algeria, all learners are learning in mixed classes and there are no as we call; single sex classes. What is noticed also is that female learners like to sit in the front of the class; however males learners prefer to sit at the back. (Hannah) wrote:

It is noticed that the talented learners like to sit in the front of the class. It is obviously clear that those who sit at the back are mismatched. In parallel, those who sit in the front seem to

say that they are comfortable and they meet their needs. In many circumstances, this is not always true, because the real outcomes are built on the form of the class and differentiation which means the type of task, the given instructions and grouping learners. Here some questions are raised:

-Do teachers manage their classes according to their learners' learning styles?

-Do they differentiate instructions and tasks in the light of learners capabilities and learning styles ?

### **3.10.3. Teachers and Pupils major Complaining**

Because the researcher is a member of the staff , he was able to have an overall of the school issues. He observed that both teachers and pupils at Omar Racem want to justify the lack of motivation and weak achievements inside classrooms and during coordinating classrooms assessments that held generally by the end of each trimester where they raise sets of reasons .

The following table shows the main complaining

<i>Teachers' complaining</i>	<i>Pupils' complaining</i>
<ul style="list-style-type: none"> <li>• Pupils do not like to participate and rely on their teachers.</li> <li>• They do not do their homework.</li> <li>• They are passive.</li> <li>• Pupils are noisy and disturbing .</li> <li>• Pupils are disinterest .</li> <li>• They are pessimistic.</li> <li>• They do not share their learning with their peers.</li> <li>• Most of them do not rely on themselves.</li> <li>• Pupils do not have a clear programmes for revisions at home .</li> <li>• They are not motivated.</li> <li>• Girls are well engaged in learning.</li> </ul>	<ul style="list-style-type: none"> <li>• Teachers do not explain well and they move fast from one step to another.</li> <li>• They work only with some pupils.</li> <li>• Teachers do not explain clearly.</li> <li>• Teachers do not monitor and involve.</li> <li>• They are pessimistic.</li> <li>• Some teachers insult their pupils.</li> <li>• Teachers do not display drama and entertainment inside classrooms.</li> <li>• They do not enable us to take decisions.</li> <li>• They do not prepare clear exam subjects.</li> <li>• They do not motivate us .</li> <li>•</li> </ul>

*Table.3.8. Teachers' and pupils' complaining.*

These features that characterise classroom situation at this school , led the researcher to emphasise on the ones that affect pupils' preferred ways of learning .Hence, he classified each learning styles' affective factors with the expected classroom observation. He aimed to compare between the current classroom situation and the importance of those factors in shaping pupils' outcomes and how they would do better. The following table summarises what was said before.

<i>Factors that affect pupils preferences</i>	<i>Observations</i>
<ul style="list-style-type: none"> <li>• <i>Differentiation</i></li> </ul>	<ul style="list-style-type: none"> <li>• Teachers do not vary tasks according to pupils' needs .They set the same activities for the whole class.</li> <li>• They do not differentiate grouping according to pupils' needs.</li> <li>•</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Assessment</i></li> </ul>	<ul style="list-style-type: none"> <li>• Teachers focus on the summative assessment and neglect the formative which aims to better learning by giving the effective feedback and stressing on pupils' weaknesses.</li> <li>• They assess globally and not give particular feedback.</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Grouping</i></li> </ul>	<ul style="list-style-type: none"> <li>• Teachers' grouping strategies are not used according to pupils' needs.</li> <li>• They use pair work in foreign languages .</li> <li>• They use group work in Physics and Natural sciences.</li> <li>• They generally group their pupils at random.</li> </ul>
<ul style="list-style-type: none"> <li>• Classroom arrangement</li> </ul>	<ul style="list-style-type: none"> <li>• Teachers at Omar Racem school rarely change their classrooms' arrangement.</li> <li>• Each classroom consists of four rows.</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Autonomy</i></li> </ul>	<ul style="list-style-type: none"> <li>• All classrooms are teacher-centred classes.</li> <li>• Most of tasks are guided activities</li> <li>• These activities are challenging for some pupils, but for others are not.</li> <li>• Pupils' learning is limited to their Academic performance.</li> <li>• Pupils' are not trained to be creative .</li> <li>• They are strongly influenced by their teachers attitudes.</li> <li>• They rely on their peers' efforts.</li> </ul>
<ul style="list-style-type: none"> <li>• <i>ICT's</i></li> </ul>	<ul style="list-style-type: none"> <li>• Most of teachers do not use the computers in their teaching .</li> <li>• Physics and natural sciences teachers use the projectors and computers.</li> <li>• Many teachers do not know how to manipulate on those devices.</li> <li>• Projectors and computers are not sufficient .</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Classroom setting</i></li> </ul>	<ul style="list-style-type: none"> <li>• All the classes are large.</li> <li>• There is more than thirty five in each.</li> <li>• Girls sit in the front and boys at the back .</li> <li>• Teachers mostly sit in front of the board.</li> </ul>

*Table.3.9.Factors affecting pupils' preferences and classroom observations*

These observations show that there is no positive correlation between pupils' and their teachers' promotion in the learning situation .That is to say, pupils do not meet their needs. Hence , these factors have to take into consideration the role of each element . Then, gender differences should be also integrated in teachers' preparation. It means that , teachers teach according to objectives implemented in the syllabus .These objectives should be specific , measurable, attainable, responsible , and time bound.(SMART).

The previous remarks which dominate the learning situation, gave the researcher an overview and helped him to attend both scientific and literary subjects. He recorded and wrote down notes. The following observations have been registered during the participants' whole classes sessions and tutorial ones ( TS<sup>11</sup> ). Researcher presence was unlimited throughout the first trimester.

The main found observations are listed in the following table:

---

<sup>11</sup> **NB:** *Tutorial Session (TS) is a session devoted to each class in middle school curriculum It is done in four main subjects (English , Arabic ,French and Maths).Teachers build their lessons on pupils' needs .This session is presented with half number of pupils. For example, this week pupils study English , next week they'll study French and vice versa .*

<i>Scientific streams</i>	<i>Literary streams</i>
<ul style="list-style-type: none"> <li>• <b>Maths:</b> Pupils listen to their teacher attentively , participate in classroom activities and are engaged in learning</li> <li>• Both males and females interact and produce .</li> <li>• They use their logical thinking .</li> <li>• <i>In tutorial sessions:</i> Teachers do not group their pupils .</li> <li>• The interactions are done silently</li> <li>• Pupils think and do .</li> <li>• Most of interactions are done individually.</li> <li>• Teachers give series of activities without stressing on pupils' needs.</li> <li>• <b>Physics:</b> Physics classes are more motivated than maths</li> <li>• Even though pupils suffer in conceptualising some natural phenomena , but they are eager to discover them.</li> <li>• Teachers motivate pupils by demonstrating their lessons through ICT's</li> <li>• ICT's are highly integrated .</li> <li>• Pupils like to learn through visual tools</li> <li>• Teachers do not differentiate their learning according pupils needs .</li> <li>• There is no efficient formative assessment .</li> <li>• Pupils use their cognitive styles to learn.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>French:</b> <i>In whole class sessions</i> , pupils are not motivated.</li> <li>• Classes are teacher-centred .</li> <li>• Pupils are not engaged in learning .</li> <li>• They face serious problems in interacting and producing their activities.</li> <li>• Only few pupils take part in lessons</li> <li>• Teachers work only with minority of pupils</li> <li>• <i>In tutorial sessions:</i> Teachers focus on consolidating tasks instead of assessing and giving feedback</li> <li>• They do not differentiate their learning according to pupils needs.</li> <li>• The use of ICT's is very lack</li> <li>• Pupils try to interact and produce , but they face difficulties</li> <li>• <b>English:</b> Though pupils are aware about English efficiency in the twenty first century (21<sup>st</sup> ), they are not really engaged to acquire it .</li> <li>• Participants' English teachers are motivated .</li> <li>• Pupils face serious problems in learning English.</li> <li>• There is insufficient tools to demonstrate and explain lessons.</li> <li>• Some classes are teacher-centred.</li> <li>• Girls take part in lessons better than boys.</li> <li>• <i>In tutorial sessions:</i> Pupils are more engaged.</li> <li>• Teachers are able to monitor and involve their pupils.</li> <li>• The number of pupils helps the acquisition of the language.</li> <li>• In tutorial sessions , teachers remediate and consolidate.</li> </ul>

*Table3.10.The major observations found in the scientific and literary subjects.*

The researcher was lucky to take part in the training sessions that occurred in all over Algeria .The main objective was to qualify middle school teachers and enable them to keep in touch



with the contemporary methods and strategies in teaching English as foreign language (EFL). Those training sessions started after an agreement signed by the ministry of education and British council Algeria. The following table shows the schedules of the training sessions.

<i>Date of conducting the training sessions</i>	<i>Delivered topics</i>	<i>Wilaya</i>
31-04-2010	Classroom language. Managing large classes and mixed ability classes. Teaching speaking, reading, writing and listening skills . Error correction and Assessment Adapting the course book. Learner training .	Blida
15-19 Dec , 2013	Attending Middle School Inspector and teacher trainer training .(Differentiation and Assessment)	Boumerdes
23-27 Nov,2014	Attending one week on training skills.	Algiers
29-02 Apr, 2015	Attending Middle school teacher trainer training on “ communicative practices in the classroom”	Batna

*Table.3.11.Training sessions’ schedules.*

The presentation of this table aims to show the impact of training sessions on teachers who are supposed to meet their pupils’ needs and the positive effects of these methods and strategies in helping pupils to be learner-centred .Hence, pupils would be able to meet their preferred learning styles .

One of the main features at Omar Racem middle Schools is that teachers do not group their learners .They teach them at random without any clear image regardless to learners’ needs. The teacher comes to the class, starts the lesson directly, giving some samples, explaining what some learners enquire about and she/he finishes the lesson. She/he teaches globally without any care to the particular needs of learners. In this traditional pedagogical method, learners of course understand and do the tasks, but the question that is raised here, how much

do they learn? and do learners receive the same quality and quantity of knowledge? . Unfortunately the reality is not , because their results reflect that. That is because learners are not autonomous. Simply they are dependents to their teachers. How learners can improve themselves without feeling free, which does not enable them to work with their peers in groups or encourage them to be doers and not followers. Teacher- centred method is still dominating middle school classes. This latter leads learners to lose interest and motivation.

Throughout this chapter, the findings show that pupils of 4 AM at Omar Racem school like to learn as follow; 4- Accommodators 3 – convergers 2 – Divergers 1 – Assimilators . They are from the most to the least preferred styles. That is to say , pupils like more to learn through asking the questions what if ...? and How....? when they prefer to process through doing and conceive through feeling and thinking . However , they are less involved in diverging and assimilating styles. This arrangement of learning styles urge teachers at Omar Racem school to plan their lessons according to their pupils' choices. Tasks and instructions should include strategies that constitute each learning style to promote pupils' learning .Teachers of literary subjects at Omar Racem need to respect their pupils' preferred learning styles by guiding them to learn through doing , feeling , thinking and observing.

### **3.11.Conclusion.**

This chapter dealt with different data gathering analysis . The researcher has attempted to investigate pupils' preferred learning styles through a designed questionnaire and classroom observation which enabled him to draw up an over-all perception about the recognition of learning styles and their prominent values that booster pupils to appreciate learning in the Algerian context. They have been designed to detect pupils' favoured ways of learning as well as the factors that influence the learning process . Differentiation is an important strategy that enable pupils to highlight their preferences in doing tasks . In addition to this , the competency based approach (CBA) appeared as an alternative approach that is dominating the Algerian curriculum . However, the lack of training and materials faltered pupils' identification of learning styles . The classroom observation supported the previous analysis . It is an essential tool that enables the researcher to detect teachers' and pupils' correlations and their impact on learning situations. Thus , the Data analysis proved that pupils' academic performance and achievement are strongly affected by pupils' preferred learning styles with regard to pupils differences and classroom atmosphere .For that reason teachers need to be aware when planning their lessons. Finally , the recognition of pupils' preferred learning styles is an important educational policy for any change may occur in the classroom atmosphere aiming to promote pupils' outcomes.

<b>Chapter Four</b>	<b>Recommendations and Pedagogical upshots.....</b>	<b>87</b>
4.1.	Introduction .....	88
4.2.	Discussing the Result of the first Hypothesis .....	88
4.2.1.	Teachers and Competency Based Approach .....	89
4.2.2.	Bloom’s Taxonomy in Classrooms and Learning Styles .....	89
4.2.3.	The CBA Approach and Classroom Management .....	91
4.2.3.1.	The Benefits of Grouping Learners .....	92
4.2.4.	Classroom Management.....	94
4.2.6.	Learning Styles and Differentiation.....	95
4.2.7.	Motivation and learning styles .....	96
4.3.	Discussing the Second Hypothesis.....	97
4.3.1.	Formative Assessment and Learning Styles.....	99
4.3.2.	Learning Styles and Learning Strategies.....	101
4.4.	Discussion the Third Hypothesis .....	102
4.4.1.	Classroom Atmosphere and Learning Styles.....	103
4.4.2.	Learning Styles and Pupils Differences.....	103
4.4.3.	Learning Styles and Teaching S.trategies.....	105
4.4.3.1.	Strategies to booster Pupils’ Preferred Learning Styles.....	105
4.4.3.	Pupils and Teachers Correlations.....	106
4.6.	Recommendations for further Discussions.....	109
4.7.	Conclusion.....	111
	General Conclusion.....	112

#### **4.1.Introduction**

In this chapter , The researcher tries to explain and discuss the results and what the current study has discovered as findings and meanings . On the other hand , he tries to compare pupils' outcomes with their preferred learning styles , taking into account the individual differences ( males /females) and the effects of those styles on pupils' academic performances . This study has been built on three hypotheses . Each one is going to be discussed alone as well as many related factors will be studied. Many points will be raised in an attempt to highlight their impacts on the preferred learning styles such as ; the competency based approach which aims to help pupils being responsible towards their learning. Then , the importance of Bloam Taxonomy which guides pupils to learn through their deep thinking and understanding. Moreover , the prominence role of the formative assessment which will be discussed also as a stepping stone in solving pupils' learning disturbances.

#### **4.2.Discussing the Result of the First Hypothesis**

There is a positive effect of the preferred learning styles on the cognitive style . According to Kolb learning styles inventory ( LSI) , The undertaken learning styles ( Diverging , Assimilating , Converging , Accommodating ) which are related to the learning patterns ( Concrete experience, reflective observation , Active experimentation , and Abstract conceptualisation ) , we can say that , pupils can cope with different learning situations if they are given the opportunity to learn with regard to their preferences . As it was observed during the classroom observation sessions , pupils are dependent to their teachers since they are considered as the owners of the knowledge . Because , most of teachers at Omar Racem school are authoritative , where pupils are not encouraged to be more autonomous in their learning .

The cognitive learning gives the opportunity for both teachers and learners to process and conceptualize learning through the experiences and observations. This latter, leads to new experiences . The added values that come through using the best methods and appropriate teaching styles , enable pupils to promote their learning through different competences ( interacting , interpreting and producing ) .

#### **4.2.1. Teachers and Competency Based Approach**

Teachers at Omar Racem school are not well trained to use the (CBA) approach which normally help them to pass through the cognitive processes and facilitate their teaching . It also gives the opportunity for pupils to be learner centred rather than teacher centered . This approach minimizes teachers' role and lead them to become helpers and facilitators instead of authoritatives and dominants of the class .The cognitive learning works better if pupils are engaged to be in action and more motivated .

#### **4.2.2. Bloom's Taxonomy in Classrooms and Learning Styles**

The use of bloom's taxonomy in teaching and learning , is considered as an efficient tool to foster and assess pupils' learning .This taxonomy is in a form of pyramid . It is made of levels that lead pupils to learn best .Hence , pupils' learning styles are deeply affected by these cognitive processes that enable teachers to include Bloom's taxonomy in their teaching . The following stages are ranked from the surface to the deep understanding of learning situations:

- ✓ **Remembering:**The pupil is able to recall, restate and remember learned information.
- ✓ **Understanding :** Pupil grasps meaning of information . by interpreting and translating what has been learned.
- ✓ **Applying :** Pupil makes use of information in a context different from the one in which it was learned .

- ✓ **Analysing** : Pupil breaks learned information into its parts to best understand that information.
- ✓ **Evaluating** : pupil makes decisions based on in-depth reflection, criticism and assessment .
- ✓ **Creating** : pupil creates new ideas and information using what has previously been learned.

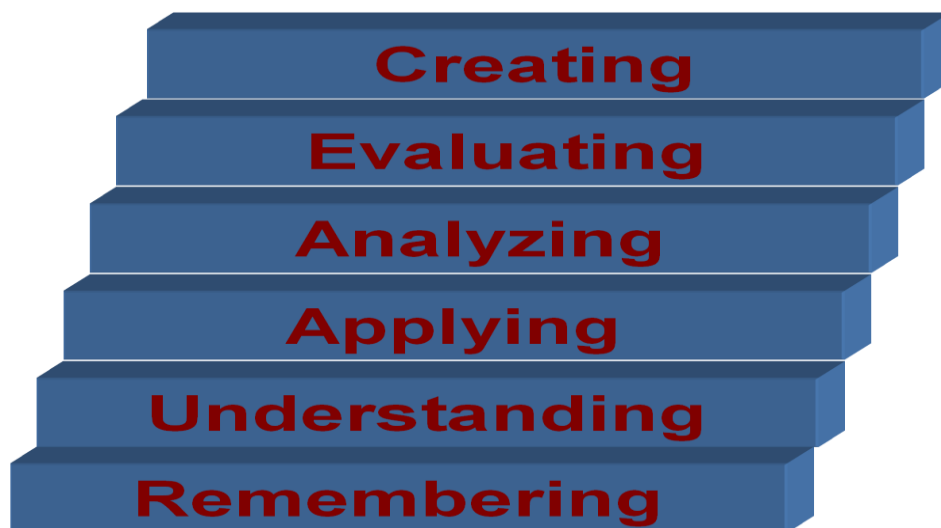
The following list of questions provided by Pohl help teachers to encourage pupils to use their critical thinking aiming to overcome learning difficulties .

<p><b>“Remembering” stems</b>                      What happened after...?                      How many...?                      What is...?                      Who was it that...?                      Name ...                      Find the definition of...                      Describe what happened after...                      Who spoke to...?                      Which is true or false...?</p>	<p><b>“Understanding” stems</b>                      Explain why...                      Write in your own words...                      How would you explain...?                      Write a brief outline...                      What do you think could have happened next...?                      Who do you think...?                      What was the main idea...?                      Clarify...                      Illustrate...</p>	<p><b>“Applying” stems</b>                      Explain another instance where...                      Group by characteristics such as...                      Which factors would you change if...?                      What questions would you ask of...?</p>
<p><b>“Analyzing” stems</b>                      Which events could not have happened?                      If. ..happened, what might the ending have been?                      How is...similar to...?                      What do you see as other possible outcomes?                      Why did...changes occur?                      Explain what must have happened when...                      What are some or the problems of...?                      Distinguish between...                      What were some of the motives behind..?                      What was the turning point?                      What was the problem with...?</p>	<p><b>“Evaluating” stems</b>                      Judge the value of... What do you think about...?                      Defend your position about...                      Do you think...is a good or bad thing?                      How would you have handled...?                      What changes to... would you recommend?                      Do you believe...? How would you feel if...?                      How effective are...?                      What are the consequences...?                      What influence will....have on our lives?                      What are the pros and cons of....?</p>	<p><b>“Creating” stems</b>                      Design a...to...                      Devise a possible solution to...                      If you had access to all resources, how would you deal with...?                      Devise your own way to...                      What would happen if ...?                      How many ways can you...?                      Create new and unusual uses for...                      Develop a proposal which would...</p>

Table4.1.Higher level questions (Pohl,2000)

By repeating these experiences, pupils will know how to use cognitive styles to learn. Teachers have a great job to teach their pupils by using these steps for better interactions, interpretations and productions. The more teachers use these steps the more pupils become autonomous and ready to choose their preferred learning styles.

The cognitive style means also the capability of teachers to encourage their pupils to explore and do the experience, then they reflect on it through the reflective observation. Later on, pupils can make the experience through the abstract conceptualisation pattern. At last, pupils can plan what to do next in the active experimentation. Through these stages, pupils tend to be well processed to learn.



*Figure.4.1.Bloom's taxonomy<sup>12</sup>.*

#### **4.2.3.The CBA Approach and Classroom Management**

Classrooms at Omar Racem school are managed for the individual learning and not for the cooperative learning. Mostly all pupils interact, interpret and produce individually. For that reason, they do not share their learning with their peers, however, if teachers group them into groups and pairs using the teaching strategies, pupils will be motivated and active.

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<sup>12</sup> Janet Giesen  
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During the scientific tutorial sessions (Physics, Natural sciences ,Maths ) , pupils are engaged better in learning . They showed great motivation in doing their experiences . They observe , reflect on , think and conceptualize , because their number is limited and all learners are exposed under the same conditions .i.e. , learners have the same opportunities in learning in analysing , discussing and observing .However, in the tutorial sessions ( French, Arabic and English) they did not show the same interaction and production .Because teachers work more with the talented and quick learners and neglect the others . As a result of that , pupils cannot integrate and progress in their learning which reflects negative effects on their learning styles . As it is shown in figure 3.3. pupils preferred the converging style where they showed strength in practising things and involving themselves in the experience .The bar chart shows that males are better than females in preferring the converging styles .However , females learners like the accommodating style .They prefer to feel and do . As a matter of fact , pupils learning outcomes are affected by those styles when males tend to study better the scientific subjects, whereas, females are better in literary subjects .

Concerning the pupils averages , table 3.4 shows that males are less than females in the literary subjects (  $M = 9,16 / F = 10,65$ ), however, they are better in scientific subjects (  $M = 12,54 / F = 11,93$ ) . These results explain that both males and females averages are better than 10 out of 20 .This academic achievement enables them to succeed but the question that we can raise here .why don't they get better or excellent results ?

Simply because , teachers do not differentiate learning according to their pupils' needs .

#### 4.2.3.1. The benefits of Grouping Learners<sup>13</sup> :

Grouping learners is using different ways to organise pupils when they are working in their classes .Teachers have to organise them to work in different ways during each lesson .The effective grouping depends on the type of task , the mixed ability of pupils and the aim of the task .When deciding how to group pupils , teachers need to consider a number of different factors :

The teaching aim is an important element in grouping pupils. It is much easier to choose how to group learners when teachers have decided on the aim of the lesson and the aim of the task. The learning styles of pupils should be given great importance while preparing , For example ,some pupils prefer to work in individuals, others in groups . Those pupils a have different personalities and find it easier to work with some partners or groups than with others.

The ability and level of pupils are also important factors . All classes are ‘ mixed abilities. Teachers can group pupils for some activities to work together because pupils personalities play a crucial role in grouping pupils in avoiding the risks and creating a motivating atmosphere. Most of time pupils work well together, but sometimes there are some others who do not work together positively. Teachers need to think carefully how to group them in an attempt to break the ice and encourage the cooperative learning . The class size has also an impact on the effective grouping. With class of between 20 and 30 pupils , teachers can manage pair and group work quite easily . However ,with classes of more than 30 learners , pair and group work are possible , but need more careful planning .The last factor is the balance of interaction patterns in lessons which means that a lesson where pupils are doing pair work for the whole lesson will probably not be successful because pupils get bored and there might be discipline problems .A lesson where pupils are doing individual work for the

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<sup>13</sup> Adapted from TKT ( Teaching knowledge Test),Alan Pulverness

whole lesson will not also probably successful and pupils lose concentration . Equally, a lesson which is wholly teacher –led is unlikely to be successful. So, pupils need a balance of different interaction patterns within one lesson .

#### **4.2.4. Classroom Management**

teachers need to manage the classroom activities and pupils in different ways .This means, teachers need to behave in different ways at different stages of the lessons. Every teacher changes his roles during the lesson according to pupils’ needs .These roles are appropriate to the type of lessons, activities , lesson aims and the level and age of pupils .At different times , teachers should act as planners , informers, managers, or friends . These different roles enable teachers to be facilitators in the learning situations and enable them to cooperate their efforts with their pupils to bridge the gaps and encourage pupils to be classroom centred.

#### **4.2.5. Learning Styles and Autonomy**

Autonomy is considered as the locomotive and a starting point of any creativity and development. For that reason, identifying the preferred learning styles comes through encouraging pupils to be more autonomous in their learning . Phil Benson defines autonomy as it is a recognition of the rights of learners within educational systems. David Little confirms this by saying: Autonomy is essentially a matter of the learner's psychological relation to the process and content of learning . When pupils feel free in their learning processes, surely there will be a great promotion in their competencies and skills .

Being autonomous pupil is the responsibility of teachers at Omar Racem to encourage them to be more dependent in their learning .Many teachers stick to one way teaching which make pupils passive and dependents . Even though , the fourth AM curriculum encourages pupils to make research works and projects , pupils still working alone and rely on the prepared works . Because teachers do not train them how to be autonomous .Spoon-feeding strategy is still

leading pupils to rely on their teachers .If teachers cannot manipulate computers perfectly , how pupils can use them inside and outside classrooms. Encouraging pupils’ autonomy comes through the involvement of the cooperative learning strategy .Teachers have to plan tasks and instructions that make pupils work together ( peer learning). For example , TPS technique (think, pair share) which means think alone , work in pairs and share the ideas with others , helps a lot to make pupils confident , motivated and creative . Autonomous pupils means encouraging them to be adventurous and risk takers .Teachers need to know their roles as involvers , facilitators and monitors to engage their pupils and training them to be dependents. Pupils centred classes become a prominent strategy in modern teaching methods because Pupils become partners in the fulfilment of the learning objectives. The following table shows the difference between ancient and modern classrooms in the educational system of Algeria :

<i>Ancient classrooms</i>	<i>Modern classrooms</i>
<ul style="list-style-type: none"> <li>- Teacher centred</li> <li>- Pupils rely on their teachers</li> <li>- Individual learning dominates classrooms</li> <li>- Teachers are lecturers</li> <li>- Assessment of learning is dominant</li> <li>- Lack of ICT’s</li> <li>- Learning styles are not recognised</li> </ul>	<ul style="list-style-type: none"> <li>- Pupil centred</li> <li>- Pupils are autonomous in their learning</li> <li>- Cooperative learning dominates learning</li> <li>- Teachers are diagnosticians involvers, facilitators, monitors .</li> <li>- Assessment for learning is dominant</li> <li>- Massive use of ICT’s</li> <li>- Learning styles are recognised</li> </ul>

*Table n 4.2. Modern and ancient classrooms differences*

#### **4.2.6.Learning Styles and Differentiation**

Differentiating according to the pupils’ individual and group levels of performance is one of the most basic opportunities to meet pupils needs and ways of learning . Teachers need to make sure that they use a variety of teaching approaches , capable of accommodating the different abilities and learning preferences of their pupils .

Teachers who only group according their own abilities , they are limiting the learning of many pupils in their classes .Particularly those with special educational needs .

The best way to meet pupils’ needs is to deliver the curriculum in a number of different ways of teaching .

*“To differentiate the way skills , knowledge and concepts are delivered , as well as , by presenting a range of tasks designed to support learning”*

( Phil Silvester,2014)

With regard to differentiating learning inside classrooms and how teachers manage and teach , we can say that there is a massive cut and big gap that influence fourth year classes at Omar Racem school which discourage pupils to learn independently .These handicaps mislead pupils to learn according to their preferred learning styles .The effects of cognitive learning is not well clear , because pupils are not trained to know and use their preferred learning styles .The real differences in learning styles is how pupils capabilities can be developed autonomously by taking special care and help given at schools’ environments . More than that, there is a need to make the curriculums built on pupils’ learning styles by differentiating tasks , questions and instructions according to the mixed ability levels.

In the current ways of learning we see that many pupils are mismatching learning because they do not have opportunities to interact , either individually or with their peers .So differentiation provides them with appropriate elements to bridge their gaps and learn according to their levels.( Grieve and Davis ,1987 ) found that pupils’ performances increases positively when their learning styles cope with their teachers’ teaching styles and strategies done in classes .

#### 4.2.7. Motivation and Learning Styles

These short comings can be seen as a form of difficulties in learning .Many pupils feel that they neglected and marginalised .Successful learning is built on well engaged , interactive and productive pupils who later continue building their skills and competencies when they feel confident and autonomous , but if they feel unsupported , they will surely fail to carry on learning because motivation is the locomotive of development in the learning environment .Parents and teachers have to emphasize on both , the intrinsic and extrinsic motivation .Hence, the role of them is prominent and should be varied in order to encourage pupils . In parallel to this , comforting learners when they are upset or unhappy inside or outside classes has a great impact on pupils performances .

In the study of (Cano & Hewitt , 2001) they found that the learning style is related to the thinking style which confirm that analysing the learning styles are not studied only in how pupils process and conceptualise learning , but there are other cognitive limitations we have to care about in order to help pupils recognising their preferred learning styles .We can say that the identification of the preferred learning styles has a great impact on how pupils can learn by using their cognitive processes.

#### 4.3.Discussing the Second Hypothesis:

Learners can cope easily with difficult situations if they recognise their learning styles . When we look at the preferred learning styles at Omar Racem school , the convergers and accommodators get averages in the scientific subjects better than others . Because those pupils like (to think / do) and (feel / do ) which means they like to learn through practice .If we want them to be better in the literary subjects , teachers need to plan their lessons and managing their classes accordingly .They are also responsible to provide them with

appropriate tools and materials (ICT's). During the classroom observations there was a lack of tools in teaching pupils .

If convergers and accommodators are differentiated , grouped according to their abilities and taught through (thinking and doing) tasks , absolutely they will improve their outcomes in foreign languages . It was noticed that few of them get good results in foreign languages and the majority are suffering to improve .We believe that if those learners are equipped with sufficient tools (Labo – listening ) devices, surely , they recognise the nature of the strange sounds of (English / French) and become familiar with them . Unfortunately, Teachers of foreign languages at Omar Racem school do not take care of their pupils weaknesses in acquiring languages and lessons are based mostly on grammar sessions . At the meanwhile , differentiation of learning that meets pupils needs is nearly ignored and the classroom arrangement is not done in the correct way . Teachers explain and ask far from pupils who sit at the back . Therefore , pupils cannot hear and understand well and not integrate and react positively .We imagine if those learners who like to watch and do , are supported with devices that enable them to hear clearly and perform at the same time, they will discriminate between sounds and meanings .The ICT's have a great role to facilitate learning .They are crucial tools in the acquisition of the foreign languages . Furthermore , if pupils are grouped and taught according to their needs ,they will appreciate learning and will be motivated and compete to develop their skills .

The same thing is said to the convergers and accommodators . They will learn best , if they are equipped with digital resources to learn the scientific subjects ( Maths, Physics ..)

Through watching videos and pictures , taking into account to the individual differences and abilities . convergers and assimilators are able to cope with the complexities . According to Kolb those pupils score better than the others .

We can say that , the preferred learning styles work better if teachers take into consideration their ways of teaching and grouping pupils according to their mixed ability levels and guide pupils to be more independent . It is time to make classes pupils centered . There is a famous Chinese proverb says:” *don ’t give a fish but teach me how to fish “* .

One of the factors that discourage pupils to promote their learning and demotivate them to interact and produce , is the misunderstanding of “Assessment”. Schools are still assessing only the summative assessment which is done to grade pupils in tests and exams without focussing on giving the appropriate feedback to fit pupils weaknesses during lessons .

#### **4.3.1. Formative Assessment and Learning Styles**

The word assess comes from the latin verb ‘assidere’ meaning ‘to sit with’ . In assessment one is supposed to sit with the learner. this implies it is something we do ‘with’ and ‘for’ students and not ‘to’ students ( Green, 1999). ( Harlen, Gipps, Broad foot, Nuttal,1992) said that ,

Assessment in education is the process of gathering , interpreting , recording and using information about pupils’ responses to an educational task. ( Angelo & Cross, 1993) explained it by saying,

*“It is the variety of intervals which are taken to suit pupils with information and feedback . It is learners centered , teacher directed , mutually beneficial , formative context , specific , ongoing and firmly rooted in good practice”*

It aims to provide teachers with information in order to use them later in how pupils learn and how to learn next . (Alan Pulvernes,2005) said that,



*“Giving feedback is giving information to learners about their learning .It can focus on pupils’ skills , the ideas in their work , their behaviour , their attitude to learning or their progress. Sometime we give feedback to the whole class , at other times we give feedback to small groups or individual learners “*

The purposes of feedback are to motivate pupils and to help them understand what their problems are and how they can be improved . Assessment means collecting information about pupils’ performance in order to make judgements about their learning .Teachers may choose to assess formally through tests and examination whereas , they have to use the informal assessment during lessons by monitoring ( listening and observing pupils while they are doing classroom activities) . Informal assessment is an important way of checking how pupils are learning . When teachers plan assessment , they need to think first about reasons for assessing pupils then they can decide when and how to assess them in order to choose the appropriate methods of assessment . As it was observed during classroom observation , teachers at Omar Racem School do not give partial and specific feedback to their pupils and they do not use classroom assessment techniques ( CATs)<sup>14</sup> to detect pupils weaknesses in order to give appropriate feedback .Assessment at omar Racem school is built on grading . For this reason , pupils remain struggling to get marks regardless to the quantity and quality of learning .

Assessment for learning (AFL) fosters pupils to use their preferred learning styles .It helps teachers to know how their pupils prefer to learn . On the other hand , if ( AFL) is neglected while planning lessons , teachers cannot meet pupils needs and fit their preferred ways of learning .It is like the compass that identifies directions and targets .

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<sup>14</sup> They are drawings or statements are given to learners through which teachers can assess and build constructive feedbacks.

.How can pupils promote their learning ? and how pupils can learn according to their best ways of learning ? if teachers plan without taking into consideration differentiation and building positive feedback according to the formative assessment. The following table shows the strategies can be taken to have an effective Assessment for learning.

<p><b>Seven Strategies of Assessment for Learning</b></p> <p><b>Where Am I Going?</b>                  Strategy 1: Provide students with a clear and understandable vision of the learning target.                  Strategy 2: Use examples and models of strong and weak work.</p> <p><b>Where Am I Now?</b>                  Strategy 3: Offer regular descriptive feedback.                  Strategy 4: Teach students to self-assess and set goals.</p> <p><b>How Can I Close the Gap?</b>                  Strategy 5: Design lessons to focus on one learning target or aspect of quality at a time.                  Strategy 6: Teach students focused revision.                  Strategy 7: Engage students in self-reflection, and let them keep track of and share their ideas</p>
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Figure.4.2 Strategies of Assessment for learning <sup>15</sup>

**4.3.2.Learning Styles and Learning Strategies**

With regard to the individual differences and abilities through which pupils learn better , convergers and assimilators are able to cope with the complexities . According to Kolb those pupils score better than the others . Because they like to watch, think and do .Pupils at Omar Racem use the inductive thinking to learn when they prefer to observe and watch ,later they think about the task, at last they do it. This way of learning is considered as an important strategy in order to explore and discover the shortest ways to learn . According to (Missk,1984) learning strategies are general ways that individual uses as mental activities to think and conceptualize . They are also used to remember and form information to solve learning problems .It is also the abilities which are well organised and built on conceiving the cognitive maps that enable pupils to learn .

<sup>15</sup> Source: Classroom Assessment for Student Learning: Doing It Right—Using It Well (Portland, OR: ETS Assessment Training Institute, 2004), p. 42.

**4.4. Discussion of the Third Hypothesis.**

The findings show that pupils at Omar Racem school , learn in different ways, either the males or the females . As it was proved in the learning style inventory (LSI). The figure ( 3.2 ) shows that males’ pupils prefer the converging style first , second, accommodating , third, assimilating and the last one is diverging .Females pupils like first the accommodating , then the converging , next the diverging , and the last preferred one is the assimilating .

<i>Diverger</i>		<i>Assimilator</i>		<i>converger</i>		<i>accommodator</i>	
<i>males</i>	<i>females</i>	<i>males</i>	<i>females</i>	<i>males</i>	<i>females</i>	<i>Males</i>	<i>females</i>
59,12	56,37	59,62	54,05	63,05	56,66	62,53	58,87

*Table.4.3. gender preferred learning styles.*

Males and females are closer in preferring the diverging style .That is to say , both of them like to feel and watch in their learning ,however, they are different in preferring the converging style when males are eager to think and do .

The question that is raised here :

- Do pupils at Omar Racem have the opportunities to prefer their learning style?
- Do teachers encourage them to choose their learning styles?
- Is the classroom atmosphere suitable for pupils to use their preferred learning styles ?

#### **4.4.1. Classroom Atmosphere and Learning Styles**

pupils in the tutorial sessions at Omar Racem school tend to be more autonomous than in the whole class sessions. So they seem to be more engaged and involved . This classroom atmosphere (Tutotial session) will lead pupils to use their styles whether in the literary subjects or the scientific ones , if teachers know how to profit from them . On the other hand ,Pupils at Omar Racem are more engaged in the scientific subjects than the literary ones ,because pupils prefer to learn through the logical and inductive proofs .However , in the literary subjects there are feelings and social factors which means shifting from the local cultures and behaviours towards other cultures need to facilitate problems and become closer to the foreign sounds and vocabularies. It was found that many pupils cannot cope with those learning situations.

#### **4.4.2. Learning Styles and Pupils Differences**

From the results' analysis shown in figure 3.10. and figure 3.11 that represents gender differences , females are better in the literary subjects than males because they like to learn cooperatively . More than that, they are more sociable than males.( Outlet & Marie, 1996) study which dealt with the interaction between groups , shows that females are more sociable in processing learning and solving problems. The study of (Mathew J.Cook,1997) clarified that females are better in their academic performances than males. Some other researchers proved that the mental development is affected by the factor of masculinity and femininity .This development is higher for females who are less than the age of adolescence . However , males' mental development is higher at the age of adolescence . After this period both of them seem to have the same rate of development .Of course , learning styles are not affected only by the mental development , but also by other factors in processing and conceiving information .

(ten Dam & Volman , 1995) believed that both males and females participate to develop a gender identity in learning when he said:

*“At this point, one could ask whether gender as a (dichotomous) biological variable is the concept we are looking for. Prevailing ideas on what women and men should be or how they should behave and ideas about femininity and masculinity should also be taken into account. Outside School as well as in school, students learn to think about themselves as women or men .In other words, they develop a gender identity by participating in cultural settings “*

The following table shows gender differences with regard to their left and right hemispheres.

<b>FEMALE</b>	<b>Gender Brain</b>	<b>MALE</b>
Left brain		Right brain
Linguistic & logical		Visual-spatial & creative
Holistic thinking		Specialised thinking
Emotionally intelligent		Problem-solvers
Relate to people		Relate to things
Emphasis on communication		Emphasis on action
Theorists & Reflectors	<b>Honey &amp; Mumford</b>	Activists & pragmatists
"Assimilators"	<b>Kolb &amp; McCarthy</b>	"Accommodators"
(abstract reflectors)		(concrete activists)
Thinks first - then does	<b>Geoff Hannan</b>	Does first - then thinks
Sequential method		Trial and error method
Reflective thinker	<b>Reading material</b>	Speculative thinker
Novels		Action books
Romantic fiction		Practical information
	<b>Working style</b>	Science fantasy
Will plan, edit and re-work		Will do what's necessary
"Presentation is everything"		"Shopfloor mentality"
Will solicit help		Independent
Co-operative	<b>Preferred learning activities</b>	Competitive
Listening		Brainstorm
Discussion		Role-play
Writing		Visits
Lengthy assignments		Practical investigation
	<b>BOTH</b>	Information technology
Need motivating		Audio-visual aids
Respond to praise		Need motivating
		Respond to praise

Table.4.3. learning styles and gender differences<sup>16</sup>.

<sup>16</sup> (Learning Styles and Gender - Brainboxx, web - site)

Concerning the figures that show the correlation between pupils (males and females) and their academic performances, figure n 3.5 and 3.6 show that pupils' tendency to learn differ from males and females. Males tend to learn the scientific subjects, however, females tend to learn the literary ones. The study of (Mathew .J .Cook, 1997) which is about investigating the relation between the academic performance and the type of learning styles using Kolb learning styles inventory (LSI), showed that there is a compatible relation between the learning style and the type of learning (scientific/literary) (Kolb, 1993) confirmed that studying in department of (Medicine, Biology, Physics and Maths) cope with the diverging and assimilating styles. These results were also proved by (Kolb,1981;Kolb,1993, Wolf & Kolb,1979).The current study supports the previous findings in considering which styles pupils at Omar Racem prefer to use while learning. In the light of the findings of the current study, the researcher aimed to discover the effects of the individual differences on how pupils like to learn by using Kolb's learning style inventory (LSI).

#### **4.4.3. Learning Styles and Teaching Strategies**

Teaching strategies are ways taken by teachers to meet their pupils' preferred learning styles. Like differentiating tasks according to pupils' levels (hard, medium and easy).The use of CATs (classroom assessment techniques) is a beneficial strategy to simplify learning and make it interactive. The more teaching strategies respect pupils' choices, the more pupils progress and engage in learning.

##### **4.4.3.1.Strategies to booster Pupils' Preferred Learning Styles**

When teachers make their plans for teaching, they need to differentiate their materials and tasks. hence, there are many strategies to fit their pupils' preferences while learning. Here there are some applicable strategies. (Bloam Field,1956) said that the old people block and

interrupt young people's learning .That is to say, teachers and tutors do not investigate their pupils' appropriate learning styles . (McCarthy and Kolb ,1997 ) supported this when they said teachers prepare variety of dishes for their learners , if they find what they like they will eat the other dishes. The following strategies help pupils to foster their learning through their preferred learning styles.

**A– Strategies that suit Diverging Learning Styles**

Those pupils are good in brainstorming ideas . For that , they like to explore through feeling and observing .They learn best through tasks and instructions that include ( why...?) Questions . They prefer to perceive and process things from different angles. Those pupils learn best through intrinsic motivation.

**B – Strategies that suit Assimilating Learning Styles**

Pupils who prefer this style like to learn through lecturing sessions . They learn best through instructions that contain the question (what?).These pupils are attracted to the content( information)

**C – Strategies that suit Converging Styles**

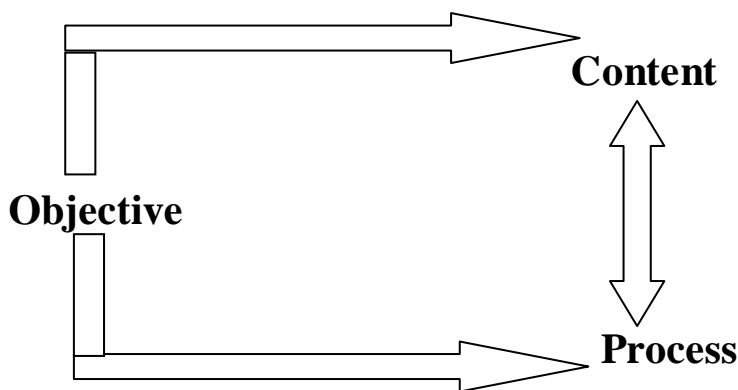
Those pupils prefer to think and do. They learn best through collecting experiences and practice .Teachers should pay attention to the materials because these pupils like hand-on activities.

**D – Strategies that suit Accommodating Learning Styles**

Pupils who like this learning styles prefer to learn through instructions that contain the question (what if ...?) . Teachers should prepare tasks that contain fiction and practice because pupils here like to explore through feeling and doing

**4.4.4.Pupils and Teachers Correlations**

The positive correlations between teachers and pupils build the road map that enlighten the way for pupils to prefer their learning styles, because this ability in learning has sets of constraints and incentives that affect its emergence .If teachers plan their learning objectives according to their pupils preferences and capabilities ,undoubtedly , there will be a clear engagement of pupils in the learning situations. These correlations are explained through the learning process that determines the roles of teachers and pupils in reaching those objectives in the curriculum. For deep understanding of the relation between the objectives , content and process that enable both teachers and pupils to work in a safe environment ,(McGrath ,1997) designed a schema which explained the proportionality between these elements:



McGrath says that the learning process is composed of four categories (feeding, leading , throwing and showing ).By feeding means the transformation of information or relevant theoretical discipline. This may be through words , lectures or written texts .Leading refers to process by which course pupils are guided to the knowledge or awareness or towards a conscious or analytical understanding of what they already know. Showing involves the provisions of models , examples or teaching techniques. In showing we say , this is how it is done or can be done. Throwing is a matter of exposing pupils to the realities of everyday life , in real or in stimulated situations , giving them an opportunity to perform or other of the roles associated with teaching or training .



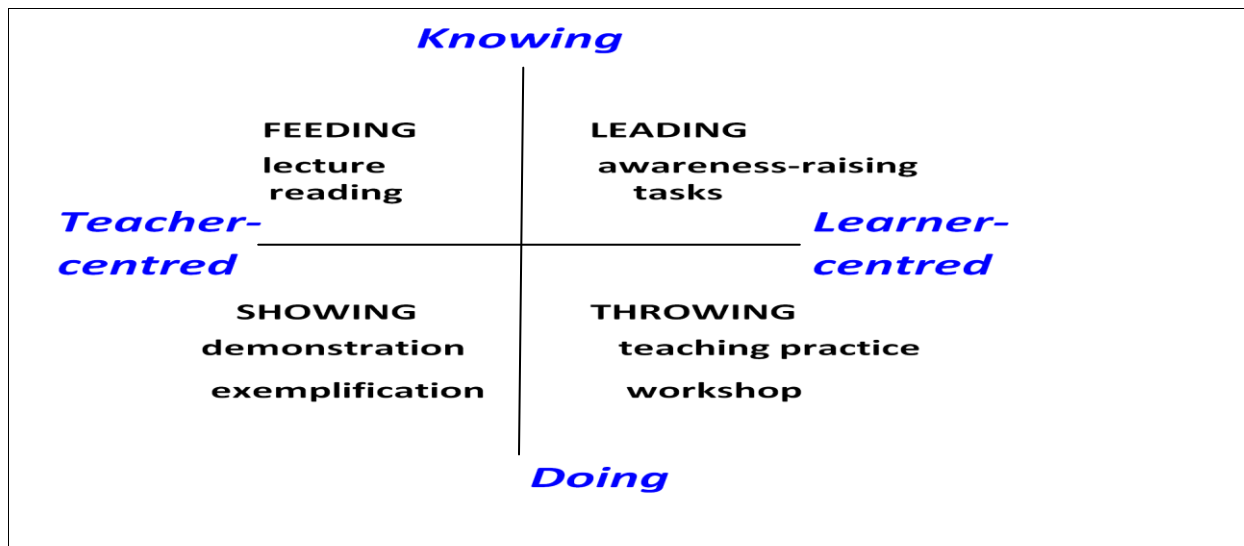


Figure.4.Process categories <sup>17</sup>

The categories are divided by axes. The vertical axis labelled “knowing / doing to draw attention to the fact that the categories in the upper half of the diagram are basically *knowledge – oriented* and what pupils are fed or led is *knowledge* or teaching methods. The categories in the lower half of the diagram are *action – oriented* .Showing category enables pupils to do things . Throwing being the catalytic experience which enables pupils to put it all together, the final and most valid test of what a pupils can do.

The horizontal axis indicates that categories may also be more or less teacher- centred. In the left hand categories “feeding and showing “ the source of knowledge and the provider of data is the tutor. Pupils may be passive .In the categories on the right , leading and throwing pupils are much more active . The data on which they work may be their own experience and they will be capable in many cases of shaping the outcome.( *Adapted from Ian McGrath.p.4.11*).

What McGrath has demonstrated above can meet pupils choices and provide a variety of ways to learn through , regarding to the introverted and extroverted pupils abilities .

<sup>17</sup> (McGrath ,1997) which shows the process categories.

Moreover, Pupils can make a balance between the theoretical and practical tasks which fit their preferences.

Teachers should therefore take care to label children. Furthermore, they should attempt to develop other abilities in pupils so that his/her spectrum of learning preferences may be expanded. In this way, individual differences and changes in the pupil are not missed over time. Thus, teaching pupils properly urges teachers to adjust their roles according to their pupils' needs. Accordingly, (Montgomery, 1998) said that matching teaching styles to learning styles is essential, but it doesn't provide a unique solution to classroom problems because the preferred learning styles are affected by other variables.

*“Another cautionary note to teachers is that matching teaching style to learning style should not be seen as a panacea that solves all classroom conflicts”*

So, there are other factors such as previous history, gender, motivation, and multicultural issues influence the kind of learning that takes place. It is therefore essential for teachers to be knowledgeable about all the factors influence learning and to be mindful of the importance of both catering to and expanding the learning repertoire of their pupils.

#### **4.5. Recommendations for Further Study**

For better enhancement of learning styles in the learning situations and in an attempt to raise the awareness of parents and teachers. The following notes could be developed and discussed:

- Further consideration should be given to match teacher's teaching styles and pupils' learning styles.
- Further testing of learning styles should be conducted at other grade levels.
- Pupils' textbooks should take into account the variety of learning styles.
- Differentiating learning situations and implementing the effective feedback become compulsory strategies to promote teaching and learning.

#### **4.6. Conclusion**

Throughout this chapter ,the researcher aimed to discuss and analyse his findings in the light of the highlighted hypotheses .Many influencing factors have been tackled to measure the correlations between learning styles and other variables like gender and academic achievement .The findings proved that there is a positive correlation between fourth year pupils' learning styles and their academic achievement where pupils need help to identify their preferred learning styles .The role of teachers is to schedule their planning according to their pupils' needs and using the appropriate strategies that fit each pupil's way of learning by differentiating tasks and the mixed ability levels .The findings show that fourth year adolescent pupils prefer to learn differently . Both males and females have their own learning styles .For that reason , teachers should be careful and take into account the suitable plans to encourage them to learn .Meanwhile, lack of materials and training sessions for novice and experienced teachers to apply the competency based approach (CBA) in their classes urge for attentive mending launched by the government .In order to bridge the gap for better teaching and learning .

## **General conclusion**

## **General Conclusion**

It is undoubtedly that the identification of learning styles has become an urgent alert to accumulate the efforts in the educational curriculum where teachers and pupils play a massive roles in building a solid partnership based on cooperation and sharing. The recognition of learning styles is a new culture accompanied with globalisation that directs both people and companies to free their thinking and markets for world-wide perspectives. This shift incorporates many changes to occur inside and outside classrooms. Pupil-centred method is inserted under the competency based approach (CBA) which fosters pupils to be more autonomous and self confident .The effective cooperation necessitates to differentiate learning to meet pupils' needs. Although Algeria has started pedagogical reforms since 2003 by implementing these methods , the added value that makes the difference is still insignificant with regard to pupils' academic achievement ,because of the lack of teachers' trainings and ICT's that should influence the Algerian middle school curriculum. This study came to accompany other studies that have been conducted in the field of educational psychology aiming to stress on the valuable impact of learning styles on pupils' outcomes in their learning process and long life benefits . The recognisable learning styles lead pupils to be critical thinkers and enable them to criticise and evaluate their learning. In this attempt to boost learning styles' effectiveness in the learning process and provide logical evidences to answer the wonderings , three hypotheses have been highlighted to find the correlations between teachers' roles, gender and classroom climate that help pupils to choose their ways in learning. This exploration is limited in four associated chapters. The first chapter presented a description of recent learning situation where curriculum constitutes an important element in shaping and orienting the educational system towards an effective standards .Hence, the competency based approach which stimulates pupils to be classroom centred as well as the cooperative learning implemented through differentiated tasks regarding to the mixed ability

levels and pupils age . Thus, pupils' preferences of learning styles seemed to be affected by the above factors. Second chapter explored a literature review related to learning styles' background and the influencing elements that dominate the learning situations .The chapter covered the correlations of the main theories emerged to support learning styles as well as the accompanied model inventories. In particular , the chapter focussed on Kolb's inventory in the light of the experiential learning theory . Third chapter shed the light to research tools and the data analysis deduced , taking into account the research questions and the highlighted hypotheses. Pupils' questionnaire and an unstructured classroom observation have been implemented to identify fourth year pupils' preferred learning styles , emphasising on gender differences and their learning outcomes . The findings showed that pupils had different learning styles . Hence, Teachers and principals of schools would have to respect their pupils' differences by differentiating learning in an attempt to stimulate them using their preferred learning styles . The fourth chapter aimed to provide sets of recommendations by which the educational curriculum would have more emphasis and supporting on pupils – centred classrooms in the light of competency based approach which should be adapted to the Algerian contexts . Training teachers ,adapting textbooks and providing appropriate ICT's would have a great impact on pupils' outcomes and helping them to share their learning with others and take part inside and outside classrooms. The key points in relation to learning styles is that teachers should make efforts to organise the classroom environment in order to suit a range of styles. It is also important that teachers have an awareness of what is meant by learning styles and how to identify different them in pupils , by doing observation. Although there are many different instruments that can be used, teachers' observation and discussion with pupils will help them to engage in doing tasks. The different stages of the information processing cycle can take into consideration how pupils learn and how this can be used within a learning styles structure. At the same time it is important that all pupils will become aware

of their own learning style. Identifying learning styles can help to promote skills that can extend even out of school. For that, Knowledge of learning styles can equip all pupils for life-long learning. This study comes to investigate the appropriate learning styles that pupils prefer in their learning . After analysing the findings and discussing the hypotheses , we found strong correlations between teaching styles , teaching methods and individual differences .Teachers , decision makers and authors of manuals have to respect pupils' preferred styles. They need to plan lessons and contents of books according to pupils' appropriate learning styles. It is possible to do this by differentiating tasks , instructions and helping pupils to be more dependents . Hence, pupils will be able to engage and interact . At Omar Racem school , many circumstances do not help pupils to use their preferred learning styles .Teachers do not implement the competency based approach and differentiation properly. Besides of that , pupils are not trained enough to learn according to their preferred styles. Consequently, those pupils are not able to cope easily with difficult situations and they are not encouraged enough to know their styles .The identification of learning styles help them to take their ways directly in learning and avoid many inappropriate things that disturb them to learn. Even though pupils at Omar Racem school are taught in one way teaching , but they learn differently . Each pupil has his own preferred learning styles. At the end of this study we can say that teachers can use David Kolb learning styles (LSI) to measure their pupils' learning styles. Therefore, pupils learning outcomes will be improved .

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# Appendices

## Appendix A

## QUESTIONNAIRE FOR PUPILS

Gender: Male /Female

Age Average of the first term

 / 20

Name : .....

CIVIL1101 FALL 2009

On the following page you will be asked to complete 12 sentences that describe learning . Each has four endings .To respond to the sentences , consider of your recent learning situations. Then rank the endings for each sentence according to how well you think each describes the way you learn .Enter a 4 for the ending that describes best how you learn , and so on down to 1 for the sentence ending that seems least like the way you learn . Be sure to rank all endings for each sentence . Do not make ties.

Example:

When I learn	I am happy (.....2.....)	I am careful(..4.....)	I am fast (....1.....)	I am logical (.....3.....)
1 - when I learn	I like to deal with my feelings (.....)	I like to think about ideas(.....)	I like to be doing things (.....)	I like to watch and listen (.....)
2 - I learn best when	I listen and watch carefully (.....)	I rely on logical thinking (.....)	I trust hunches and feelings (.....)	I work hard to get things done (.....)
3- When I am learning	I tend to reason things out (.....)	I am responsible about things (.....)	I am quiet and reserved (.....)	I have strong feelings and reasons (.....)
4- I learn by	Feeling (.....)	Doing (.....)	Watching (.....)	Thinking(.....)
5- When I learn	I am open to new experiences (.....)	I look at all sides of issues (.....)	I like to analyze things, break them into their parts (.....)	I like to try things out (.....)
6- When I am learning	I am an observing person (.....)	I am an active person (.....)	I am an intuitive person (.....)	I am a logical person (.....)
7- I learn best from	Observation(.....)	Personal relationships (.....)	Rational theories (.....)	A chance to try out and practice (.....)
8- When I learn	I like to see results from my work (.....)	I like ideas and theories (.....)	I take my time before acting (.....)	I feel personally involved things (.....)
9- I learn best when	I rely on my observations (.....)	I rely on my feelings (.....)	I can try things out for myself (.....)	I rely on my ideas (.....)
10- When I am learning	I am a reserved person (.....)	I am an accepting person (.....)	I am a responsible person (.....)	I am a rational person (.....)
11- When I learn	I get involved (.....)	I like to observe (.....)	I evaluate things (.....)	I like to be active (.....)
12- I learn best when	I analyze ideas (.....)	I am receptive and open-minded (.....)	I am careful (.....)	I am practical (.....)

**Appendix B**

**Kolb' Learning styles Inventory (LSI)**

	1	2	3	4	5	6	7	8	9	10	11	12
A	CE 3	RO 2	AC 1	CE 4	CE 3	RO 1	RO 4	AE 2	RO 1	RO 2	CE 4	AC 2
B	AC 4	AC 1	AE 3	AE 2	RO 2	AE 4	CE 3	AC 3	CE 2	CE 1	RO 2	CE 3
C	AE 2	CE 3	RO 2	RO 1	AC 4	CE 2	AC 2	RO 1	AE 3	AE 4	AC 1	RO 4
D	RO 1	AE 4	CE 4	AC 3	AE 1	AC 3	AE 1	CE 4	AC 4	AC 3	AE 3	AE 1

## Appendix C

## List of pupils names at Omar Racem school.

<i>Males Pupils</i>	<i>Literay subjects</i>	<i>Scientific subjects</i>	<i>Females Pupils</i>	<i>Literary subjects</i>	<i>Scientific subjects</i>
1-Bouchraf Mhamed	8,1	8,25	23-Safoine Chaimaa	8,77	11,96
2-Hameche Yacine	9,77	10,91	24-Baghdaoui Djazia	11,35	10,04
3-Djawhri Rachid	7,77	15,3	25-Dai Bouchra	13,5	15,07
4-Sellaoui Ossama	8,87	12,66	26-Hamiani Hanaa	13,94	15,21
5-Baatochi Bilal	13,39	13,76	27-Helladj Wissem	11,83	13,8
6-Bedrani Toufik	11,38	11,71	28-Zehafi Nadjia	8,5	11,02
7-Cheib Mohamed	7,89	14,01	29-Helledj Salima	12	9,05
8-Belhadj Djilali Samir	6,67	14,72	30-Teguaia Rokia	8,05	10,72
9-Hamret Ibrahim	5,58	11,49	31-Boumhiriz Lina	9,14	12,38
10-Belhadj Elarbi Mohamed	9,63	15,19	32-Bellahcene Zahra	9,3	10,25
11-Bourssass Abdou	8,2	13,18	33-Bennour Fadwa	8,69	10
12-Djabbari Aissa	7,62	10,08	34-Raieb Ikram	12,43	13,03
13-Bouradou Khei/	10,58	13,43	35-Belhadj mehdi Amira	12,43	13,09
14-Chahma Imade	9,2	14,73	36-Belaid Akil Amira	7,58	10,69
15-Bouradou Amine	9,52	11,64	37-Djelouli Fatima	13,65	14,06
16-Hedjloui Mohamed	9,71	13,03	38-Hamrat Khawla	8,51	13,6
17-Djaaboub Ali	7,64	9,14			
18-Delliher Mohamed	10,44	13,61			
19-Chahma Mohamed	7,5	14,42			
20-Chikhi Abdelmalek	12,78	9,38			
21-Djalouli Djallal	7,53	9,93			
22-Bounoua Abdella	13,94	15,46			
<b>Total</b>	<b>9,16</b>	<b>12,54</b>	<b>Total</b>	<b>10,65</b>	<b>11,93</b>



## Appendix D

A table represents Factors that affect pupils preferences

<i>Factors that affect pupils preferences</i>	<i>Observations</i>
<ul style="list-style-type: none"> <li>• <i>Differentiation</i></li> </ul>	<ul style="list-style-type: none"> <li>• Teachers do not vary tasks according to pupils' needs .They set the same activities for the whole class.</li> <li>• They do not differentiate grouping according to pupils' needs</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Assessment</i></li> </ul>	<ul style="list-style-type: none"> <li>• Teachers focus on the summative assessment and neglect the formative which aims to better learning by giving the effective feedback and stressing on pupils' weaknesses.</li> <li>• They assess globally and not give particular feedback.</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Grouping</i></li> </ul>	<ul style="list-style-type: none"> <li>• Teachers' grouping strategies are not used according to pupils' needs.</li> <li>• They use pair work in foreign languages .</li> <li>• They use group work in Physics and Natural sciences.</li> <li>• They generally group their pupils at random.</li> </ul>
<ul style="list-style-type: none"> <li>• Classroom arrangement</li> </ul>	<ul style="list-style-type: none"> <li>• Teachers at Omar Racem school rarely change their classrooms' arrangement.</li> <li>• Each classroom consists of four rows.</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Autonomy</i></li> </ul>	<ul style="list-style-type: none"> <li>• All classrooms are teacher-centred classes.</li> <li>• Most of tasks are guided activities</li> <li>• These activities are challenging for some pupils, but for others are not.</li> <li>• Pupils' learning is limited to their Academic performance.</li> <li>• Pupils' are not trained to be creative .</li> <li>• They are strongly influenced by their teachers attitudes.</li> <li>• They rely on their peers' efforts.</li> </ul>
<ul style="list-style-type: none"> <li>• <i>ICT's</i></li> </ul>	<ul style="list-style-type: none"> <li>• Most of teachers do not use the computers in their teaching .</li> <li>• Physics and natural sciences teachers use the projectors and computers.</li> <li>• Many teachers do not know how to manipulate on those devices.</li> <li>• Projectors and computers are not sufficient .</li> </ul>

<ul style="list-style-type: none"><li>• Classroom setting</li></ul>	<ul style="list-style-type: none"><li>• All the classes are large.</li><li>• There is more than thirty five in each.</li><li>• Girls sit in the front and boys at the back .</li><li>• Teachers mostly sit in front of the board.</li></ul>
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## ملخص البحث:

إن تحديد أساليب التعلم المفضلة وتمكين التلاميذ من استعمالها أثناء عملية التعلم ، كانت مطلب المختصين في علم النفس التربوي و كذا المعلمين و الأساتذة في البيئات المختلفة منذ عشرات السنين, و تمثل هذه الدراسة محاولة في البحث عن الإستراتيجيات المناسبة و التقنيات المختلفة لفهم أساليب التعلم . تتكون الشريحة المستهدفة من 38 تلميذ و تلميذة يتمدرسون في السنة الرابعة من التعليم المتوسط بمدينة العطف ولاية عين الدفلى . قام الباحث باستخدام استبيان صمم من طرف العالم الأمريكي (دايفد كولب) ، و كذلك الملاحظة العلمية كأداة لتعزيز نتائج البحث , وسيتم من خلال ذلك تحليل و مناقشة النتائج من أجل اكتشاف العلاقة الدالة بين تفضيلات التلاميذ لأساليب التعلم في مقابل الاستراتيجيات المستعملة من طرف الأساتذة في التدريس ، و البيئة التعليمية الموجودة داخل القسم. و بناء على ذلك فإن مخرجات الدراسة ستساهم في رسم نتائج و تعميمات تساعد على إثراء الموضوع.

## Le résumé:

La détermination des styles d'apprentissage choisis et leur appropriation durant l'apprentissage par les élèves était la revendication des psychopédagogues ainsi que les enseignants des différents cycles depuis des décennies. Cette étude est considérée comme une tentative de la recherche des stratégies convenables et les différentes techniques pour comprendre les styles d'apprentissage. Le public visé de cette étude est composé de 38 élèves filles et garçons , inscrit en 4ème AM , à Sidi Bouabida , El Attaf. L'enquêteur a utilisé un questionnaire élaboré par le savant Américain David Kolb , ainsi que l'observation scientifique pour appuyer les résultats de cette recherche. A partir de cela , l'analyse et l'étude des résultats , pour la mise en évidence de la relation scientifique entre les choix des élèves par rapport aux stratégies utilisées par les enseignants durant leur pratique et l'environnement de la classe . En s'appuyant sur les conclusions de cette étude , nous contribuerons à tracer des attentes et leur généralisation pour enrichir ce thème.

## Summary :

Identifying and adapting Pupils' appropriate learning styles in perceiving learning has been of great inquiry for educational psychologists and teachers over the past decades .The present study is trying to investigate the most adequate preferred learning styles , among a sample of thirty eight (38) in 4AM pupils at Omar Racem middle school in El Attaf Wilaya of Ain Defla . A survey questionnaire was designed for pupils,adapted from David Kolb learning styles inventory (LSI) , and a classroom-based observations were implemented to support Data collection. They were analysed and discussed to uncover the positive correlations of pupils' preferences and their teachers' strategies in teaching as well as the classroom atmosphere . The findings of the study will help to draw some generalizations and implications.