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## Thesis

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**Doctorat Es-Sciences**

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By **BOUGUERNE Aicha**

# **The Effect of Experiential Education on EFL Students' Learning Development**

**The Case of First-Year LMD Students in the Department  
of English Language and Literature at Setif 2 University**

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## Abstract

The current research aims to investigate the effects of Experiential Education through the Dynamic Matching Model of teaching around the learning cycle on first-year EFL (English as a Foreign Language) students' learning development as assessed by the Kolb Learning Style Inventory 4.0 (KLSI 4.0). For that reason, it started with exploring teachers' and first-year students' perceptions about learning styles and learning development at the Department of English Language and Literature at Mohamed Lamine Debaghine Setif 2 University. The data revealed the students' difficulties with adapting their learning to the demands of their courses and showed a perceived focus on the delivery of EFL content rather than the development of students' learning. The research proceeds then with a quasi-experimental stage that involved a conveniently selected sample of 38 first-year EFL students to test the effectiveness of Experiential Education in developing first-year EFL students' learning. Both the control group (CG) (n=18) and the experimental group (EG) (n=20) took the KLSI 4.0 in the pre-test and post-test phases and a twelve-session treatment using the Dynamic Matching Model of was applied to the EG. The t-test results revealed a significant development in the EG's learning modes' use and flexibility level. Their learning styles were also adapted to better match the EFL demands with a wider range of backup styles. Moreover, a post-treatment questionnaire and a focus group discussion were used to explore the EG's reflections affirming the positive effects of this method on students' learning development and performance in the different EFL courses. As a result, this study suggests the implementation of Experiential Education through the Dynamic Matching Model in the EFL classroom to help learners develop their learning abilities, styles, and flexibility to better match their different courses' demands. In addition, decision makers in the Algerian higher education are invited to create Experiential Learning Centers to provide both students and teachers with training opportunities to develop their Experiential Education knowledge and practices.

**Key Words:** Experiential Education, Dynamic Matching Model of Teaching around the Learning Cycle, learning development, learning cycle, learning flexibility, learning styles, Kolb Learning Style Inventory (KLSI 4.0).



## **Dedication**

*This work is cordially dedicated*

*To my source of motivation and strength,*

*My father and hero; Mabrouk*

*My beloved and loving mother, Hadda*

*To my sisters 'Sameh, Amel, Ahlem, Khouloud, and Nesrine', my brothers Adel and Rachid,  
my husband 'Raouf', all my nieces and nephews, friends, and family members who  
encouraged and supported me*

*And to my source of happiness, peace, and motivation*

*My soul mate and sweet angel;*

***Yahia Abderrahman Hamzaoui***



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## List of Abbreviations

<b>%</b>	Percent
<b>AC</b>	Abstract Conceptualization
<b>AE</b>	Active Experimentation
<b>CE</b>	Concrete Experience
<b>CG</b>	Control Group
<b><i>Df.</i></b>	Degrees of freedom
<b>EFL</b>	English as a Foreign Language
<b>EG</b>	Experimental Group
<b>ELM</b>	Experiential Learning Model
<b>ELT</b>	Experiential Learning Theory
<b><math>\eta^2</math></b>	Effect Size
<b>F</b>	Frequency
<b>FGD</b>	Focus Group Discussion
<b>FGD</b>	Focus Group Discussion
<b>H.E.</b>	Higher Education
<b>KERP</b>	Kolb Educator Role Profile
<b>KLS</b>	Kolb Learning Styles
<b>KLSI</b>	Kolb Learning Style Inventory
<b>LMD</b>	License, Master, Doctorate
<b>LS</b>	Learning Style (s)
<b>N</b>	Number of cases
<b>OE</b>	Oral Expression
<b><i>p</i></b>	Significance Value



<b>PAA</b>	Personal Application Assignment
<b>RO</b>	Reflective Observation
<b><i>S.d.</i></b>	Standard Deviation
<b>Sig.</b>	Significance value
<b>SPSS</b>	Statistical Package for Social Sciences
<b><i>t</i></b>	Observed t Value
<b><math>\alpha</math></b>	Probability Level



## **General Introduction**

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## General Introduction

### 1. Background of the Study

Higher education (HE), being the last phase of the educational system, should have more focus on developing students' learning abilities and flexibility rather than the simple delivery of information and content related to specific disciplines through traditional lectures (Kolb & Kolb, 2017; McDonald, 2020). This focus on learning development would not only enable students to overcome their learning weaknesses and learn how to adapt their learning ways to the demands of their different courses but it would also help them to proceed with their learning and development after graduation and adapt to the requirements of their future professions (Sims S. J., 1995; Zhang, Sternberg, & Rayner, 2012).

Several studies, however, have revealed that students still struggle with adapting to the learning demands of higher education (Dunn, 2000; Kolb & Kolb, 2013) mainly because they come to university "conditioned by their previous educational experiences to be passive recipients of what they are taught" (Kolb & Kolb, 2013, p. 23) which hinders their learning development process. In other words, while students should have been expected to be "mature enough to guide their educational experience" (Sims S. J., 1995, p. 151) many university teachers tend to adapt their teaching approaches to match their students' passive ways of learning instead of trying to develop them (Prosser & Trigwell, 1999, p. 159). Likewise, the Algerian HE instructors in the different fields including EFL (English as a Foreign Language) are called to change their traditional ways of teaching with more developmental ones. However, one of the main reported concerns of these instructors is to find a rational and practical process-based model that can help them make the shift to adult education and target the development of the wide

variety of university students' learning ways and abilities (Sims & Sims, 1995; McDonald, 2020).

In this regard, Experiential Education has recently gained worldwide recognition and acceptance as an effective method to improve the teaching and learning processes in higher education (Association for Experiential Education; Sims & Sims, 1995; Zhang, Sternberg, & Rayner, 2012; Mollaei & Rahnama, 2012; Kolb & Kolb, 2017; McDonald, 2020). This method is accredited for its rational, holistic, and developmental view of learning and learning styles. Consequently, this view justifies its usefulness to help higher education instructors make the necessary shift from the content model of pedagogy to the process model of andragogy in a way that aims to assist adult students develop their learning abilities, achieve personal growth, and eventually, commit to lifelong learning after graduation (Sims & Sims, 1995; Zhang, Sternberg, & Rayner, 2012; Knowles, Holton, & Swanson, 2015; Kolb & Kolb, 2017; McDonald, 2020).

As a matter of fact, many methods such as task-based and cooperative learning have attempted to build on the Experiential Learning Theory (ELT) and the learning cycle concept, though to varying extents, and proved their effectiveness in many different disciplines in higher education including EFL and ESL (English as a Second Language) (Sims S. J., 1995; Mollaei & Rahnama, 2012; Association for Experiential Education; Kohonen, Jaatinen, Kaikkonen, & Lehtovaara, 2014). Nevertheless, Kolb's Experiential Education also called the Dynamic Matching Model "of teaching around the learning cycle" is considered the most rational and practical experiential method for it not only builds on the experiential learning cycle but also clarifies the existing ambiguity and perplexity related to the developmental nature and usefulness of learning styles in education (Kolb & Kolb, 2017). This method thoroughly suggests four

educators' roles that can assist students learn by going through the four modes (abilities) of the learning cycle in a recursive way that enables them to develop their learning abilities and flexibility to adapt their learning styles to the different demands of the different learning situations and contexts and thus, learn how to learn in different contexts (Zull, 2011; Kolb A. Y., Kolb, Passarelli, & Sharma, 2014; Kolb & Kolb, 2017; Kolb & Kolb, 2018). In addition, Experiential Education recommends two useful instruments, namely the Kolb Educator Role Profile (KERP) and the Kolb Learning Style Inventory (KLSI 4.0). While the KERP aims to evaluate teachers' adoption of the four roles, the KLSI 4.0 assesses students' learning through their learning style preference, their use of the four learning modes (abilities), their learning flexibility level, as well as their backup styles. These two instruments can help both instructors and learners understand and assess their teaching and learning practices and preferences, their strengths and weaknesses, and how to enhance and develop them.

ELT suggests that the development of one's ability to move freely and easily around the learning cycle modes and adapt their learning style to respond to the demands of the different learning situations provides learners with different perspectives on the learning task in a way that deepens knowledge and understanding (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014). It also capitalizes on the strengths of each learning style, broadens the learning comfort zone, and allows learners to operate more effectively and comfortably in any learning situation (Kolb & Kolb, 2013). Purkiss (1995, p. 96) even adds that a student's learning style "is a predictor of success in different academic disciplines" which means that students' ability to flex to the appropriate style that best matches their discipline demands is of paramount importance for their academic success.

Similarly, in the field of EFL, research suggests that Experiential Education has the necessary potential that can “help students negotiate far more than just the linguistic code” and “form positive identities of themselves as successful language learners and thus perhaps ease the often frustrating task of learning a new language” (Mollaei & Rahnama, 2012, p. 268). As a result, students can acquire the necessary learning skills and abilities that can help them to acquire the content of their discipline and enhance their communicative performance and achievement at university. But more importantly, this kind of learning development can help students to ameliorate their learning experiences in their personal and professional lives and acquire lifelong abilities and skills. Therefore, Experiential Education is widely recommended for its usefulness to guide EFL teachers to help students overcome their learning weaknesses and adapt to the different learning situations and demands of their courses (Association for Experiential Education; Sims & Sims, 1995; Zull, 2011; Mollaei & Rahnama, 2012; McDonald, 2020).

## **2. Statement of the Problem**

The current research stemmed from the researcher’s previous investigation of the correlation between Algerian first-year EFL students’ learning styles and their performance in the oral expression course using the KLSI 3.1 that revealed a negative correlation between the assimilating style and students’ performance (Bouguerne, 2013). This means that those students’ performance in the English oral expression course was negatively influenced by their preference for the assimilating style which did not match the learning demands of the target course. These results showed students’ need to develop their learning abilities and flexibility to adapt their learning ways to their discipline’s and courses’ demands as also suggested by many other previous

studies (Kolb D. A., 1981; Jones, Reichard, & Mokhtari, 2003; Kohonen, Jaatinen, Kaikkonen, & Lehtovaara, 2014; Kolb & Kolb, 2017; McDonald, 2020).

A preliminary study was consequently conducted in this research to explore EFL students' learning styles and learning development difficulties in higher education. For this purpose, focus group discussions ( Appendices P, Q) were conducted at the Department of English Language and Literature at Mohamed Lamine Debaghine Setif 2 University to explore teachers' and first-year students' perceptions about adult learning and learning development in higher education, their beliefs about HE goals and objectives, as well as their practices and obstacles in the classroom. The results from this investigation were congruent with Dunn's (2000) and Kolb and Kolb's (2013) previously mentioned claims about students' difficulties with adapting to HE learning demands in addition to the big confusion and ambiguity regarding students' and teachers' perceptions of the goals and objectives of HE that were generally related to the delivery of the EFL content. This exploratory study was further developed in this research's exploratory phase using a teachers' and a students' questionnaire (Appendices A, B) to delve into this problem and shed light on EFL students' and teachers' perceptions about learning development in higher education to pave the way for this research's main attempt to develop students' learning. This exploratory study was aimed at gaining a better understanding this research's context and participants.

In addition to that, the informal classroom observations conducted in several classes and courses revealed that the majority of teachers relied either on theoretical lectures, students' presentations, or practice through exercises. Thus, those teachers did not attempt to develop students' learning abilities through the Experiential Education method that relies on a balanced use of concrete experience, reflection, theory, and

practice. These results were also confirmed in the exploratory phase of the research using the Kolb Educator Role Profile (KERP).

Moreover, although there are several studies and resources about experiential learning and models such as the task-based model and cooperative learning, it was noticed that there is a big void in the literature and studies related to Kolb's Dynamic Matching Model and learning development using the KLSI 4.0, especially in the EFL field. Therefore, it was important to further investigate this model to test its effectiveness in the EFL field.

Consequently, the current research aims to test the effectiveness of Experiential Education (the Dynamic Matching Model of Teaching around the Learning Cycle) in developing EFL students' learning as indicated by the Kolb Learning Style Inventory 4.0 with a focus on their flexibility level as it is considered the best indicator of one's level of development and ability to adapt to the different learning demands.

### **3. Aims of the Study**

The present research aims to investigate the effect of Experiential Education on first-year students at the Department of English Language and Literature at Mohamed Lamine Debaghine Setif 2 University. To reach this aim, it starts with exploring first-year EFL students' and teachers' perceptions of learning styles and students' learning difficulties, in addition to the instructional practices and goals related to learning development in higher education. The exploratory phase also attempts to determine first-year EFL students' learning style profiles using the KLSI 4.0 and teachers' role profiles through the KERP. After that, the research intends to scrutinize the effectiveness of Experiential Education on students' learning development using the Dynamic Matching Model and the KLSI 4.0. Finally, this study intends at supporting the quantitative results related to the effect of Experiential Education on EFL students'



learning development in EFL with their reflections and attitudes regarding their experience with this method.

#### **4. Research Questions**

Based on all that has been said earlier, the following questions are legitimately raised in this research:

1. What are first-year EFL students' perceptions of their learning experience in higher education?
2. What are EFL teachers' perceptions about learning development in higher education?
3. What is the Educator's Role Profile of EFL teachers as assessed by the KERP?
4. What is first-year EFL students' learning style profile as assessed by the KLSI 4.0?
5. To what extent would the integration of Experiential Education (the Dynamic Matching Model) affect first-year EFL students' learning development as assessed by the KLSI 4.0?
6. What are first-year EFL students' views concerning the effects of Experiential Education (the Dynamic Matching Model) on their learning development?

#### **5. Research Hypotheses**

This research aims to evaluate the effectiveness of Experiential Education (the Dynamic Matching Model) in developing first-year EFL students' learning as assessed by the KLSI 4.0. In other words, this research aims to test the following hypotheses to answer its main research questions:

##### **a. Alternative Hypothesis (H<sub>1</sub>)**

If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model) they would demonstrate development in their learning as assessed by the KLSI 4.0.

**b. Null Hypothesis ( $H_0$ )**

If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model) they would not demonstrate development in their learning as assessed by the KLSI 4.0.

**c. Alternative Hypotheses 2**

$H_{1.1}$ . If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model), there would be significant differences in the experimental group's learning as assessed by the KLSI 4.0 between the pre-test and post-test.

$H_{1.2}$ . If first-year EFL students are taught using Experiential Education (The Dynamic Matching Model), there would be significant differences in terms of students' learning as assessed using the KLSI 4.0 between the experimental group and the control group.

**d. Null Hypotheses 2**

$H_{0.1}$ . If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model), there would be no significant differences in terms of learning as assessed by the KLSI 4.0 between the experimental group's pre-test and post-test.

$H_{0.2}$ . If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model), there would be no significant differences in terms of students' learning as assessed using the KLSI 4.0 between the experimental group and the control group results.

## **6. Research Variables**

A Variable, according to Hatch and Lazaraton (1991, p. 51) is defined as “an attribute of a person, a piece of text, or an object which “varies” from person to person, text to text, object to object, or from time to time”. Khotari (2004) also defines it as any concept that can take various values.

### **a. Independent Variable**

Experiential Education also called the Dynamic Matching Model “of teaching around the learning cycle” is the independent variable that affects the dependent one(s).

### **b. Dependent Variable(s)**

First-year EFL students’ learning development as assessed by the KLSI 4.0 is the main dependent variable as it is the main consequence of the independent variable, namely Experiential Education. This variable includes the students’ use of the four learning modes (abilities), their learning style typology, and backup styles with more focus on their learning flexibility level as it is considered the most important indicator of one’s learning development level and the main goal of Experiential Education.

## **7. Significance of the Study**

This research aims to test the effectiveness of Experiential Education and its four educators’ roles of the Dynamic Matching Model “of teaching around the cycle” in promoting EFL students’ learning development. Consequently, it is an attempt towards finding more effective ways to develop EFL students’ ways and abilities of learning. In addition, the results and findings of this study will contribute to filling in the void in the existing literature related to the effectiveness of the implementation of Kolb’s Experiential Education (the Dynamic Matching Model) in developing students’ learning and flexibility in HE in general and in the field of EFL in particular. These results can also be used to enrich the literature related to the cultural aspect of ELT

concepts as well as the implementation of the Dynamic Matching Model in the Algerian culture and university. It also seeks to draw the Algerian higher education teachers', students', researchers', and stakeholders' attention to the importance of learning development and flexibility in creating independent and life-long learners.

## **8. Overview of the Research Methodology**

This research aims to investigate the effects of Experiential Education through the integration of the Dynamic Matching Model on first-year EFL students' learning development at the Department of English Language and Literature at Mohamed Lamine Debaghine Setif 2 University. Therefore, this research adopted a single-site quasi-experimental design involving 38 first-year students divided into an experimental group of 20 students and a control group of 18 students. Because random sampling was not feasible, the two groups were conveniently chosen. The Kolb Learning Style Inventory (KLSI) 4.0 was used as a pre-test and post-test to assess the participants' learning and development, while the Personal Application Assignment was used during the treatment that was based on the Dynamic Matching Model "of teaching around the learning cycle" (Experiential Education). Prior to the experiment, a preliminary exploratory study was conducted to have a better understanding of the research problem and context using a students' questionnaire, a teachers' questionnaire, and the Kolb Educator Role Profile (KERP). In addition to that, a focus group discussion and a post-treatment questionnaire were used after the experiment to explore the experimental group's reflections about the treatment as well as their perceptions about the effect of Experiential Education on their learning development in the EFL field. Thus, a mixed approach was also adopted through the collection of quantitative and qualitative data. The collected data were analyzed using the interpretive method for the qualitative data and the normative method for the quantitative ones.

## 9. Operational Definition of Terms

**Backup Styles:** The backup styles are the styles toward which a learner shows flexibility (Kolb & Kolb, 2017)

**Experiential Education/ Dynamic Matching Model “of teaching around the learning cycle”:** it is the Experiential Education method that was first introduced by Kolb, Kolb, Passarelli, and Sharma in 2014. This method is based on the Experiential Learning Theory and its belief that is a spiral and recursive process that requires the integration of the four modes of the learning cycle (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014). As a result, this model suggests that teachers need to recursively adopt four teaching roles (Facilitator, Expert, Evaluator, and Coach) in a way that leads learners to address the full range of the learning cycle and thus, reinforce and promote their learning ways, abilities, and flexibility (Kolb & Kolb, 2017). The **Dynamic Matching Model** is equated with **Experiential Education** and the two terms are used *interchangeably* in this research

**Kolb Learning Style Inventory (KLSI) 4.0:** It is an instrument used to assess an individual’s learning through his/her learning style preference, use of the four learning modes, learning flexibility level, and backup styles (Kolb & Kolb, 2013).

**Kolb’s Educators Role Profile (KERP):** It is an instrument used to assess educators’ adoption of the four educator’s roles (Facilitator, Expert, evaluator, and Coach) as suggested by the Dynamic Matching Model “of teaching around the learning cycle” (Kolb & Kolb, 2017)

**Learning Abilities:** This term refers to the four learning modes of the learning cycle (experiencing, reflecting, thinking, and acting) and the related cognitive abilities that are needed in each mode to *grasp* and *transform* knowledge (Kolb & Kolb, 2013). The

learning abilities of each learning mode also support certain learning skills (Boyatzis & Kolb, 1995).

**Learning Flexibility/ Learning Development:** It is the ability to move freely around the learning cycle and modify the learning approach or style in a way that fits all the different learning situations and demands (Kolb & Kolb, 2017). It signifies also that learners are able to develop a more holistic, blended, and sophisticated learning approach that helps them adapt to different learning situations and demands (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014). The learners' level of flexibility is equated with his/her level of learning development in this research, and thus, it is used interchangeably with the term **learning development**.

**Learning Modes:** They refer to the learning cycle's four dialectic ways of grasping and transforming experiences (Concrete Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation) (Passarelli & Kolb, 2021 in press).

**Learning Style:** It is the unique way an individual moves spirally through the experiential learning cycle based on their preference for the four learning modes is called a learning style (Passarelli & Kolb, 2021 in press). Learning styles are also defined as the creation of knowledge through the act of resolving creative conflicts between the dual dialectic learning modes (i.e. the conflict between being concrete or abstract and between being active or reflective) in coherent and typical ways (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014).

## **10. Organization of the Thesis**

In addition to the general introduction and the general conclusion, this research is divided into five chapters. The first two chapters form the literature review of this study. On the one hand, the first chapter describes the Experiential Learning Theory (ELT) and Experiential Education: ELT principles, the learning cycle and its modes,

learning styles, and Experiential Education. The second chapter, on the other hand, focuses on adult development, learning development, and flexibility in Experiential Education. It also introduces the Dynamic Matching Model “of teaching around the learning cycle” and reports the suggested guidelines and tips on how to integrate this model to promote students’ learning development. After that, the third chapter deals with the research methodology, design, and procedures adopted to collect and analyze the necessary data. The obtained data are then presented and analyzed in the fourth chapter; and the interpretations, implementation, and recommendations are finally introduced in the fifth chapter.



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## **Chapter One**

### **Experiential Education**

#### **Introduction**

The first two chapters in this research attempt to represent the theoretical background and framework of this study's theme and variables, namely Experiential Education and learning development. Consequently, the first chapter aims to introduce Experiential Education through the Experiential Learning Theory, its principles, as well as its major concepts including the learning cycle and learning styles to pave the way for a better understanding of the developmental nature of learning that is thoroughly discussed in correlation to Experiential Education and its Dynamic Matching Model in the second chapter.

Both teachers and students need to have enough knowledge and awareness about the learning process in general and adult learning in particular in order to be able to overcome the different obstacles and difficulties in enhancing students' ability to learn. Kolb's (1984) experiential learning model (ELM) which builds on Knowles' (1980) andragogical model is among the most famous frameworks offered for understanding adult learning and how the teaching-learning process and individual learning styles can affect adult learning and development (Sims & Sims, 1995). Therefore, the current chapter introduces the theoretical principles and fundamental concepts of experiential learning and education.

#### **1.1. Experiential Learning Theory**

Experiential Learning Theory (ELT) and its concepts of the learning cycle and learning styles have progressively gained significant acceptance and recognition as useful instruments to enhance the teaching and learning processes in higher education. This acceptance is easily evidenced through the considerable number of academic

research studies and articles that have been conducted and published all around the world across different academic disciplines using ELT and its learning style inventory (LSI) (Kolb & Kolb, 2006). The ELT bibliographies, prepared by Kolb and Kolb (Kolb & Kolb, 2005; 2010; 2012; 2014) in addition to (Kolb & Kolb, 2016; 2019), contain about 4 425 selected contributing references on experiential learning theory from nearly 100 thousand other citations of ELT on Google Scholars and ResearchGate since ELT's first appearance in 1971 to 2019. This widespread acceptance can probably be due to the fact that experiential learning theory (ELT) is an eclectic theory that represents a balanced and reasonable integration of many of the rigorous lines of research on cognition and development.

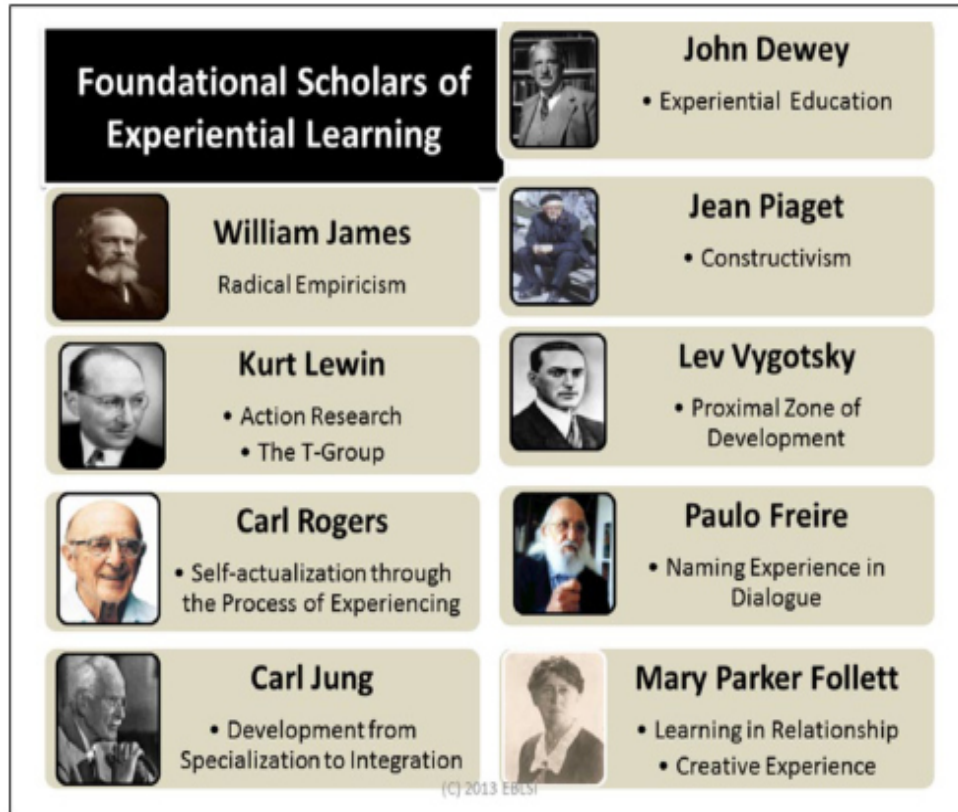
#### **1.1.1. Definition of Experiential Learning Theory**

ELT can be defined as a theory that sees learning and education as a developmental and lifelong process in which “ideas are not fixed and immutable elements of thought, but formed and re-formed through experience, in this perspective, learning is described as a process whereby concepts are derived from and continuously magnified by experience” (Adetunji, 2004, p. 41). Geary and Sims (1995, p. 120) also define ELT as a theory that is based on understanding “how people extrapolate from their experiences to generate the concepts, rules, and principles that guide their behavior in new situations, and how they modify these concepts, rules, and principles to improve their effectiveness”. These two definitions emphasize the importance of experience and the active, generative, and developmental nature of the learning process in ELT.

#### **1.1.2. Principles of Experiential Learning Theory**

David Kolb drew on the work of prominent 20<sup>th</sup>-century scholars who gave experience a central role in their theories of human learning and development—notably

William James, John Dewey, Kurt Lewin, Jean Piaget, Lev Vygotsky, Carl Jung, Paulo Freire, Carl Rogers, and others —creating a dynamic, holistic model of the process of learning from experience and a multi-dimensional model of adult development (Kolb D. A., 1984).



**Figure 1.1. Foundational Scholar of Experiential Learning Theory (ELT) (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014, p. 213)**

Integrating the work of these foundational experiential learning scholars, Passarelli and Kolb (2021 in press, pp. 5-6) state six characteristics of experiential learning theory:

1. *Learning is best conceived as an endlessly recurring process, not in terms of results or outcomes.* Although all learning must be framed by definite knowledge milestones, experiential theory considers that knowledge as an outcome is not to be the main goal of learning or education. Rather, experiential

theory considers the learning process itself as the ultimate goal of learning and education. As Dewey (1897, p. 79) suggests: "...the process and goal of education are one and the same thing". In other words, experiential educators need to focus on the development of their students' learning processes rather than their acquisition of knowledge or the enhancement of their grades and results.

2. *All learning is relearning.* Experiential Education is characterized by its belief that all learning draws from the individuals' previous experiences, beliefs, and ideas about the target topic. As such, learning is best facilitated by a process that helps learners examine, test, and integrate those previous experiences and ideas into new and more refined ones. This principle or characteristic is derived from Piaget's proposition of constructivism where individuals construct their knowledge of the world based on their previous experiences and beliefs.
3. *Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world.* Conflict, differences, and disagreement are what drive the learning process and motivate learning. Kolb's experiential learning theory proposes two dialectically opposed dimensions of grasping and transforming information. Each of these dimensions opposes two different modes resulting in four learning or adaptation modes (Reflective Observation and Active Experimentation and Concrete Experience and Abstract Conceptualization). Thus, in the process of learning one is called to move back and forth between the two opposed modes of information grasping and information transformation.
4. *Learning is a holistic process of adaptation to the world.* Following Jung's theory that adult development moves from a specialized way of adaptation to

the world toward a holistic integrated way, ELT considers that learning is not just the result of cognition and thinking. Rather, learning in ELT involves the integrated functioning of the total person involving a creative tension among the four learning modes, through thinking, feeling, perceiving, and behaving, that is responsive to contextual demands. It also encompasses other specialized models of adaptation from the scientific method to problem-solving, decision-making, and creativity.

5. *Learning results from synergetic transactions between the person and the environment.* Passarelli & Kolb (2021 in press) used Piaget's terms agreeing that learning occurs through equilibration of the dialectic processes of assimilating new experiences into existing concepts and accommodating existing concepts to new experiences. ELT also follows Lewin's famous formula that behavior is a function of the person and the environment and holds that learning is influenced by the characteristics of the person and the learning environment or space. That is to say, learning in ELT is not considered an internal process that is only influenced by the learner but also by his/her environment.
6. *Learning is the process of creating knowledge.* ELT proposes a constructivist definition of learning as the process of creating knowledge through the transformation of experience. This creation of knowledge results from the combination of grasping experience, using the two dialectic modes of Concrete Experience (CE) and Abstract Conceptualization (AC), and transforming experience through Reflective Observation (RO) and Active Experimentation (AE). Grasping experience means receiving and taking in information while transforming experience refers to how the learners interpret and act on that

information. In other words, this theory does not consider the learner as a simple passive receiver of knowledge but as an active, reflective, and constructive creator of knowledge. This stands in contrast to the “transmission” model on which much current educational practice is based where pre-existing fixed ideas are simply transmitted to passive learners.

All these characteristics are conveniently congruent with the principles of the andragogy approach that is widely recommended for higher education (Darkenwald & Merriam, 1982; Sims & Sims, 1995; Zhang, Sternberg, & Rayner, 2012) for its focus on the role of experience and individual differences in adult learning as well as adult learners’ intrinsic motivation, life or work-centered orientation of learning, and the increasing self-directedness of their learning process as the main distinctive features of adult learning (andragogy) from children learning (pedagogy) (Knowles, 1980; Knowles & Associates, 1984; Margolis & Bell, 1984; Knowles, 1990). As such, Sims S.J. (1995, p. 148) proposed ELT as an answer to the frequently posed question about how to move from a pedagogy approach to an andragogy approach that promotes flexibility and independent learning in higher education (Sims & Sims, 1995; Zhang, Sternberg, & Rayner, 2012). In other words, the experiential learning model, also called Experiential Education, can be an effective way to move higher education from the “content model concerned with transmitting information and skills” through the simple delivery of lectures to a “process model concerned with providing procedures and resources for helping learners acquire information and skills” by themselves (Knowles, Holton, & Swanson, 2015, p. 115).

As a matter of fact, these principles represent the essence of adult learning and the main goals of higher education as they emphasize the developmental, active, generative, and flexible nature of the adult learner and his/her learning process. In other

words, these principles claim that learners can and must learn how to learn in different learning contexts and situations, and therefore, higher education should direct its efforts toward helping students develop their learning process instead of the simple delivery of specialized knowledge which is the main aim of this research.

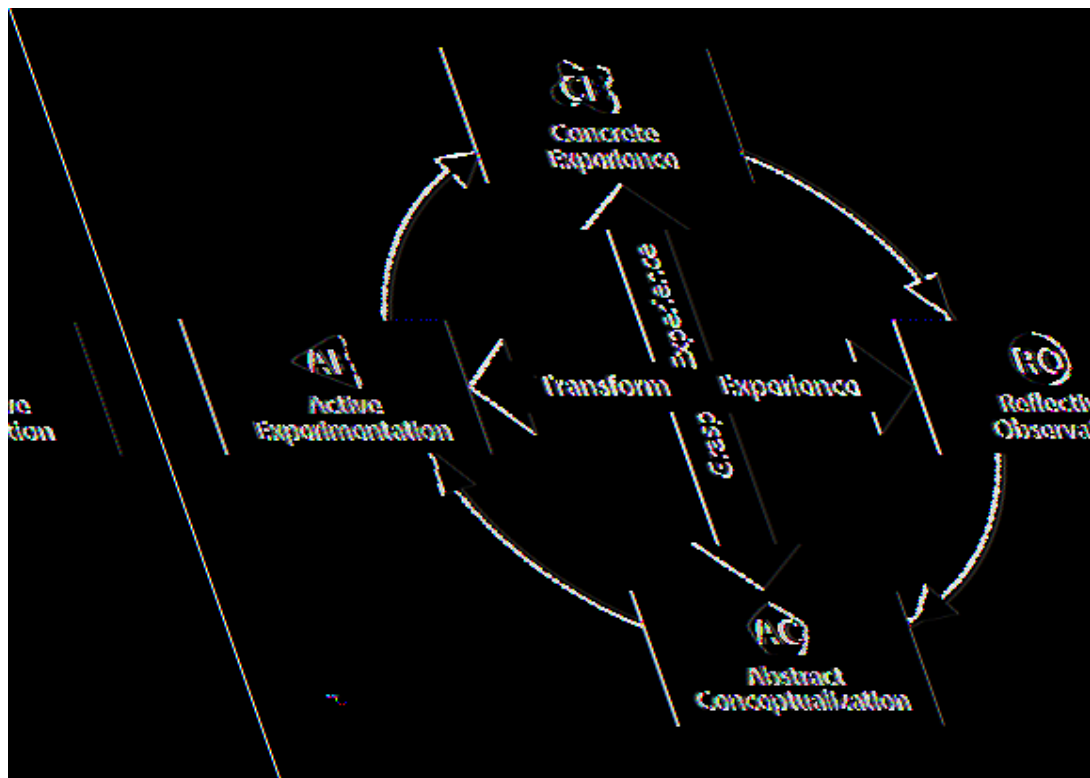
## **1.2. Experiential Learning Cycle**

ELT is probably best known because of its two most famous and widely used concepts of the cycle of learning from experience and learning styles. Kolb & Kolb (2017) explain that a Google image search of “learning cycle” shows an endless array of reproductions and variations of the ELT cycle from all around the world. They also claim that the learning cycle has been used to develop and deliver many different programs in higher education, and professional education, training, and coaching programs. In fact, the experiential learning cycle has gained this widespread popularity because it is an integrated and recursive learning process that best facilitates learning, change, growth, and development (Kolb & Kolb, 2017).

### **1.2.1. Definition of the Learning Cycle**

Experiential learning theory is built on its view of learning as “the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience” (Kolb D. A., 1984, p. 41). In other words, learning in ELT is an active process that requires a combination of two opposing dialectic dimensions: receiving or taking information in (i.e. the dimension of grasping experience) and then interpreting and processing that information (i.e. the dimension of transforming experience). This cycle, as such, is represented in two dialectically related modes of grasping experience- Concrete Experience (CE) and Abstract Conceptualization (AC)-and two other dialectic and yet related modes of transforming experience- Reflective Observation (RO) and Active

Experimentation (AE) (Passarelli & Kolb, 2021 in press). That is to say, the learning process in ELT is based on the experiential learning cycle concept that portrays a learning spiral, where a learner ideally touches all the previously mentioned four modes of learning-Experiencing (CE), Reflecting (RO), Thinking (AC), and Acting (AE)- in a recurring way that is responsive to the learning situation, the learning demands, and the subject matter or what is being learned (Passarelli & Kolb, 2021 in press). Kolb and Kolb (2017) also explain that these learning modes of the learning cycle are experiences. This claim is based on James's radical empiricism which better helps to understand what the term experience in the experiential learning theory means.



**Figure1.2. Experiential Learning Cycle** (Kolb & Kolb, 2013, p. 8)

According to ELT, learning starts with immediate or concrete experiences that provide the basis for observation and reflection. A learner then assimilates and distills these reflections into abstract concepts from which new implications for action can be drawn. After that, these implications can be actively tested and after that serve as

guides in creating new experiences and starting a new learning cycle (Stock & Kolb, 2021). As such, going through this learning cycle, the learner is both a receiver and a creator of knowledge. In other words, the learning cycle integrates Experiencing and Thinking (grasping dimension) through the transformation dimension of Reflection and Action (Passarelli & Kolb, 2021 in press).

Although these four modes are presented and described in Kolb's works as learning stages they rather refer to a series of steps rather than developmental stages (Sims S. J., 1995). Thus, effective learners, according to Kolb (1981), need the abilities represented by each of these four components of the learning cycle. It is also worth mentioning that the learning cycle does not take place as one big cycle nor does it proceed in the same way and in the same order of steps. It rather appears in several recursive small cycles or partial incomplete cycles and the order of steps would depend on the learning situations and demands in addition to the learner's preference. Furthermore, because of the dialectic nature of the experiential cycle dimensions, the extent to which a learner may get involved in one mode would affect the extent to which they get involved in the opposing one in the same dimension. Thus, achieving a balanced mastery of the four learning modes is complicated though possible and necessary for effective learning.

Moreover, each of the four learning modes focuses on a number of *abilities* that are required to *grasp* or *transform* a certain experience.

1. **Reflective Observation (RO):** learning by reflecting requires some abilities such as:
  - Making careful observations before making judgments
  - Looking at issues from different perspectives
  - Looking for the meaning of things and events

Reflection is a preference of individuals who regularly find themselves wondering about the things they observe in life: events, other people's actions or their own experiences. Therefore, this deep reflection also involves the information **skills** of sense-making, information-gathering, and information analysis.

2. **Abstract Conceptualization (AC):** learning by thinking involves the *ability* to:

- To weigh things up
- Analyze ideas and information in a logical way
- Make systematic plans
- Act based on an intellectual understanding of the situation

Consequently, this AC supports the analytical skills of explaining ideas, or situation, building theories, analyzing quantitative data, and managing technology. This mode of learning is the preference of people who tend to make comparisons between new experiences and ideas and past experiences and accepted ideas.

3. **Active Experimentation (AE):** learning by doing involves the following abilities of:

- Getting things done
- Taking risks
- Influencing people and events through action.

These abilities support the action oriented skills of goal setting, action taking, and being initiative. Therefore, this mode is a preference of learners who are usually drawn to the practical world of real consequences.

4. **Concrete Experience (CE):** learning by experiencing means having the ability to:

- Learn from specific experiences
- Relate to people
- Be sensitive to feelings and people

These abilities mean having the presence and attention that are particularly important for skills related to interpersonal relationships, communication, leadership, helping and delegating, and adapting (Kolb & Kolb, 2022).

### **1.2.2. Origin of the Learning Cycle**

ELT is built on William James' philosophy of radical empiricism (reality and mind) which resolved the conflict between idealism and materialism by the introduction of his concept of pure experience suggesting that both reality and mind are experienced but with different characteristics. This philosophy of dual knowledge is, in fact, the origin of ELT's learning cycle modes of knowing or learning concrete knowledge through Concrete Experience (Apprehension) and learning abstract knowledge through Abstract Conceptualization (Comprehension) (Kolb & Kolb, 2017). In other words, in addition to his concept of experience, James' theory of dual knowledge was also the first to refer to the learning cycle concept (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014) by suggesting that humans acquire knowledge through two independent but connected modes of knowing: Apprehension (dealing with subjective sense experience) and Comprehension (deals with abstract thoughts and concepts). (Kolb & Kolb, 2017).

Piaget's work on the stages of development of cognitive processes in childhood was another cornerstone of the development of the ELT theory and the learning cycle concept and processes (Kolb & Kolb, 2017). His theory was a real revolution in the field of human intelligence as he was a strong advocate for the child's capacity to create knowledge contrary to the commonly accepted view at the time that children were passive recipients of information. This view has uncovered the nature of human intelligence and cognitive processes (Assimilation and Accommodation) and described how intelligence is shaped by experience. As such, "by adding his two dialectical dimensions of concrete phenomenalism/ abstract constructionism (concrete vs. abstract)

and active ego-centrism/ internalized reflection (active vs. reflective)”, Piaget and his more linear model of development heavily contributed to shaping the ELT theory and its learning cycle (Kolb & Kolb, 2017, p. 31).

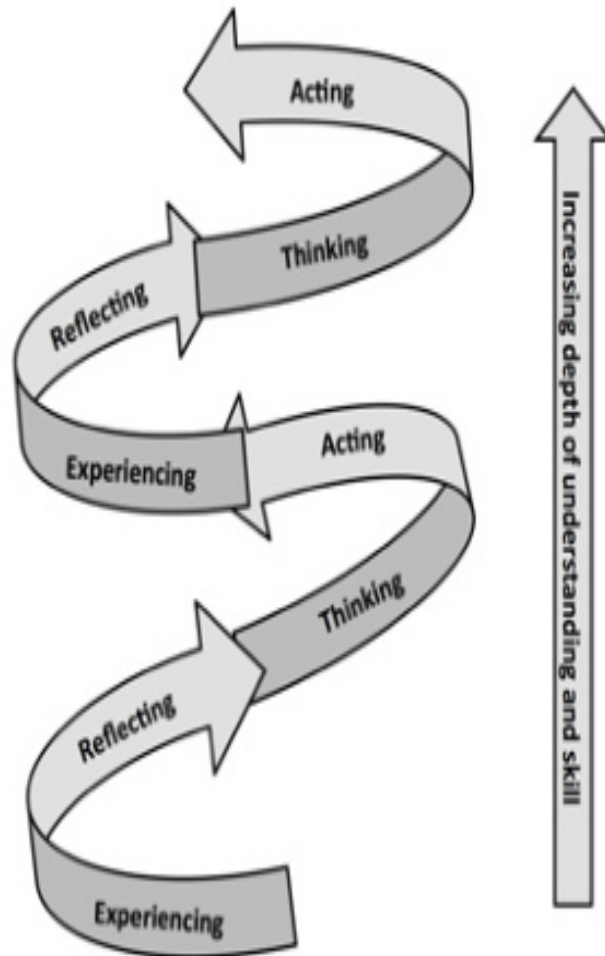
In addition to Piaget, John Dewey was also one of the most influential educational theorists who rejected the nineteenth-century-psychology conception of the mind as a blank slate and created a more active vision of humans as creators of meaning through their interaction with the world. Dewey’s contributions to experiential learning and the experiential learning cycle are basically related to the role of what he called “immediate experience” and “critical reflection and learning” in the learning process in addition to the relationship between critical reflection and concrete ‘pure’ experience (Kolb & Kolb, 2017). This has led to the creation of a dynamic view of learning driven by the resolution of the dual dialectics of action- reflection and experiencing- abstraction.

The ELT concepts of the learning cycle and learning styles were developed in the late 1960s as part of the curriculum development project to use experiential learning methods in a required organizational psychology course for MBAs at the Sloan School of Management at MIT based on Kurt Lewin’s laboratory method (Kolb & Kolb, 2017). Lewin’s T-group laboratory method and action research inspired the creation of the concept of the experiential learning cycle in the sense that these techniques “uncovered the importance of a dialectic tension between learners’ concrete experience and the expert’s conceptual knowledge of a subject matter in any given learning situation” (Kolb & Kolb, 2017, p. 17).

### **1.2.3. Spiral Learning in the Experiential Cycle**

Kolb and Kolb (2018, pp. 8-9) maintain that the most important aspect of the learning cycle is its recursive and spiral nature as opposed to the linear, traditional

information-transmission learning model used in most educational systems where information is directly transmitted from the teacher to the learner. In the cycle of learning, on the other hand, learners receive information through concrete experiences and transform it through reflection and thinking and then transform it again through their actions to create knowledge in an endlessly recurring process that would always open the door for new learning experiences. The more learners get involved in the learner cycle stages the more they increase the depth of their thinking, understanding, and skills and develop them. This idea is illustrated in Kolb & Kolb (2018, p. 9) through the following figure:



**Figure1.3. Experiential Learning Spiral (Kolb & Kolb, 2018, p. 9)**

The concept of experience plays a crucial role in ELT and the experiential learning cycle, however, this term is widely misunderstood and wrongly equated with doing or the experiencing mode of the learning cycle. This is wrong because according to Kolb and Kolb (2018), all the modes of learning are experiences from which learners can learn.

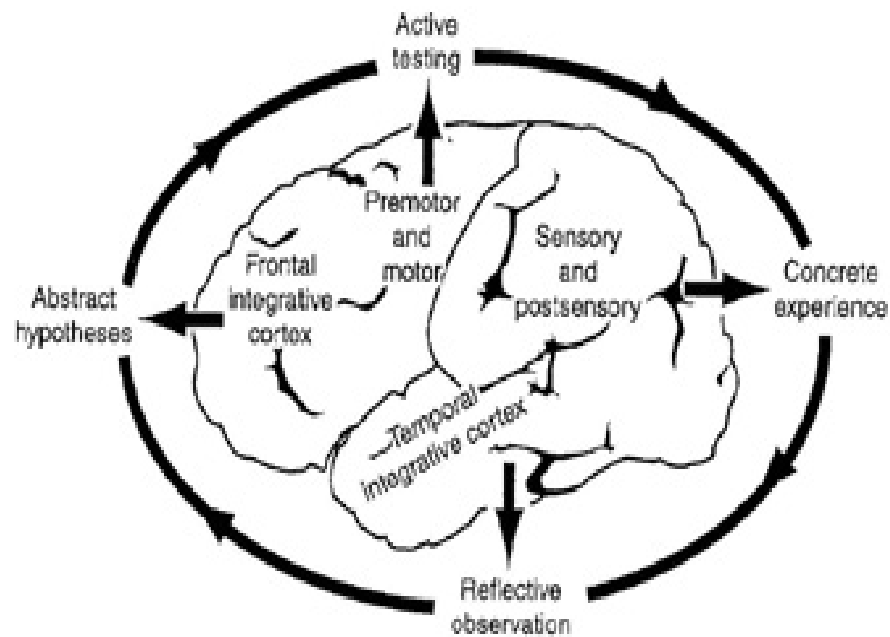
#### **1.2.4. Experiential Learning Cycle and the Brain Functioning**

Kolb and Kolb (2018) explain that there is a strong relationship between their experiential theory and its learning cycle and the brain functioning. They further maintain that neuroscience, mainly when combined with cognitive and developmental psychology and education, can provide a solid groundwork for experiential educators. Although many studies have attempted to examine the relationship between the learning cycle and the brain (Eagleton & Muller, 2011; McCarthy, 1987), James Zull's research reported in his two books, "The Art of Changing the Brain" (2002) and "From Brain to Mind" (2011) is considered as the most systematic inquiry into the neurological basis of experiential learning and the learning cycle (Kolb & Kolb, 2018).

Zull's research aims to understand and explain Piaget's constructive learning in neurological terms. As such he defines learning, in constructivist terms, as "a process that is built on the foundation of each individual's neuronal structure and thus every learner is unique and will interpret experience differently" (Kolb & Kolb, 2017, p. 58). He suggests that our perceptions and interpretations of experiences vary from one individual to another because of our individual differences regarding our neuronal structures. In other words, Zull's work is mainly built around the idea that "knowledge resides in networks of neurons in the neo-cortex constructed through learning from experience" (Kolb & Kolb, 2018, p. 10). This idea, according to Kolb & Kolb (2017) means that learning from experience physically affects and even changes the brain and

the neuronal structure of individuals through the modifications, pruning, and growth of neurons, synapses, and neuronal networks. To sum it up, the researcher claims a strong relationship between learning, experience, and the brain. That is to say, Zull proposes that individuals learn from experiences that would be differently perceived, processed, and even registered by the brain's unique neurons that would be themselves modified and changed by the type of experience being perceived and learned. For this reason, he defines education as the art of changing the brain (Zull, 2011).

In addition to that, Zull (2002; 2011) claims that the neurological structure of the brain is built on the experiential learning cycle saying that the: "learning cycle arises from the structure of the brain" ( Zull, 2002, pp. 18-19; Zull, 2011). He even relates the four learning cycle's modes to four regions in the brain that he claims to be involved heavily though not exclusively in the learning cycle modes. Consequently, Zull proposes that understanding the brain's structure and processes can help to better understand the learning cycle and experiential learning in general. The following figure shows the relationship between the ELT learning cycle and the process of brain functioning.



**Figure1.4. Learning Cycle and the Brain** (Zull, 2002; Kolb & Kolb, 2018)

Put into words, Zull (2002) and Kolb and Kolb (2017) explain that this figure means that the learning cycle starts with the Sensory and Post-Sensory cortex which receives concrete experiences and sensory information through the senses. The reflective observations and remembering appear then in the back integrative cortex where sensory information is integrated to create images and meaning. The Frontal Integrative cortex after that uses short-term memory (images and meanings) to theorize and create new abstract concepts used to choose, plan, problem-solve, and make decisions to achieve a goal. This part of the brain makes judgments and evaluations that direct the rest of the brain and the actions of the body. Action or active experimentation, finally, closes the learning cycle and reconnects the processing inside the brain with the world in the pre-motor and motor cortex. New experiences that begin the learning cycle anew are then created based on the results and consequences of the active testing generating the ELT spiral learning cycle.

To recapitulate, Zull's studies (2002; 2011) about the relationship between learning and the brain provide evidence that the human brain is built to learn from experience using a spiral learning cycle of four modes directly related to four regions in the brain. He also sustains ELT theory by confirming that the brain does not only learn from experience but is also rebuilt and physically changed by the type of learning experiences it is exposed to. In other words, Zull is a strong advocate of the ELT theory and his research about the human brain provides a considerable contribution to a better understanding of the importance of experience in learning, the learning processes, and learning flexibility and development.

### **1.3. Kolb Learning Style Model**

Learning style is another most known and used term in ELT alongside the learning cycle. Much of the research on ELT has focused on its concept of learning style and the related learning style inventory that is used to assess individuals' learning styles. It has been mentioned earlier that the learning process in ELT is based on the experiential learning cycle concept that portrays a learning spiral, where a learner ideally touches all the previously mentioned four modes of learning-Experiencing (CE), Reflecting (RO), Thinking (AC), and Acting (AE)- in a recurring way that is responsive to the learning situation, the learning demands, and the subject matter or what is being learned (Passarelli & Kolb, 2021 in press). The way learners go through the learning cycle differs from one learner to another where they have to choose one of the two opposing modes of the dimensions of transforming and grasping information based on their preferences.

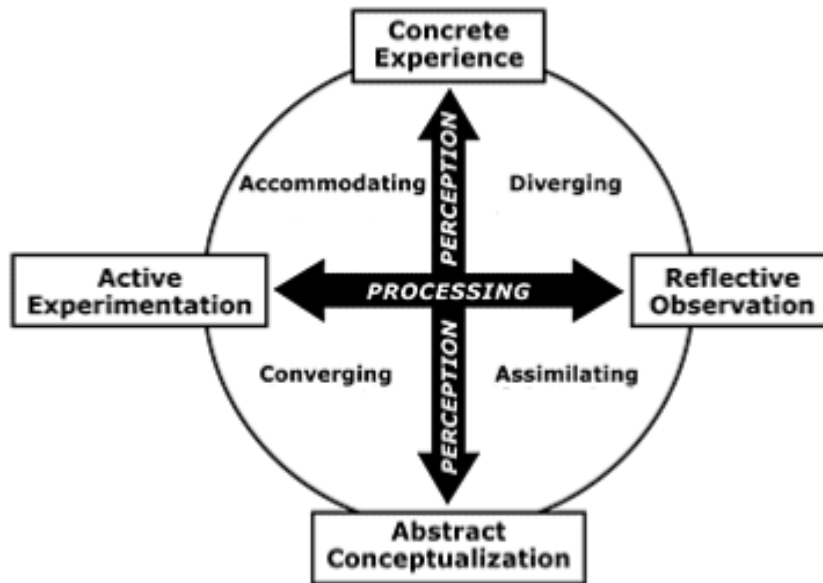
#### **1.3.1. Definition of Experiential Learning Style**

The unique way an individual moves spirally through the experiential learning cycle based on their preference for the four learning modes is called a learning style

(Passarelli & Kolb, 2021 in press). Learning styles are also defined as the creation of knowledge through the act of resolving creative conflicts between the dual dialectic learning modes (i.e. the conflict between being concrete or abstract and between being active or reflective) in coherent and typical ways (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014). Of course, since they are dialectic modes, this means that if one opts for one pole the other pole cannot be chosen at the same time.

These definitions of learning style mean that an individual's learning style refers to their regular preference for one of the two dialectic learning modes of both grasping and transforming information. That is, individuals have a preferred way of receiving information through Reflective Observation or Active Experimentation and a preferred way of grasping the received information through Abstract Conceptualization or Concrete Experience. The combination of the individual's preferred way of transforming and grasping information is what the term learning style means.

Consequently, Kolb and Kolb (2005) have identified four basic learning style groupings that result from the individual's preference among the four learning modes- Diverging, Assimilating, Converging, and Accommodating using their well known Kolb Learning Style Inventory 3.1 (Kolb & Kolb, 2013). A Diverging learner prefers Concrete Experience (CE) and Reflective Observation (RO) to process and grasp information while an Assimilating one opts for Abstract Conceptualization (AC) and Reflective Observation (RO). A Converging person uses Abstract Conceptualization (AC) and Active Experimentation (AE) modes and an Accommodating one, on the other hand, prefers Concrete Experience (CE) and Active Experimentation (AE) (Kolb & Kolb, 2005). The relation between the experiential learning cycle and the basic four learning styles is illustrated in the following figure:



**Figure1.5. Kolb’s Experiential Learning Cycle and the Four-Learning-Styles-Typology** (Sharma & Kolb, 2010, p. 61)

Kolb and Kolb (2017) admit that their accommodating and assimilating styles concepts were, in fact, inspired by Piaget’s (1950) definition of intelligence and his concepts of Accommodation (the ability to adapt concepts to fit the external world) and Assimilation (the ability to fit observations of the world into existing concepts). In addition to that, the Converging-Diverging styles concepts originated from “Guilford’s (1988) structure of intellect model as the central dialect of the creative process” (Kolb & Kolb, 2017, p. 49).

The preference for choosing among the four learning modes is developed based on the individual’s genetic and innate makeup, particular life experiences, and the present environment or learning demands (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014). Kolb and Kolb further explain that a learning style is “a habit of learning that is formed when one or more other learning modes are preferred over others to shape experience, resulting in a constriction and limiting of space around those modes”

(2017, p. 44). In fact, this recognition of learning styles as a habit, according to them, is what makes the experiential style preference a dynamic and non-static concept.

As such, in spite of the common belief that learning styles are innate fixed traits, ELT maintains that learning styles are “more like a habit of learning shaped by life experiences and choices” (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014, p. 215). Therefore, similar to any other habit, learning styles can be unconscious, automatic modes of learning, or they can be consciously modified and changed (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014; Kolb & Kolb, 2017). This view, consequently, opens potentiality and challenge for a development that aims to improve students’ abilities to integrate all four learning modes with their strengths and weaknesses in a more developed flexibility of learning that better serves the different learning situations and demands.

### **1.3.2. Factors that Influence Learning Styles**

Kolb and Kolb have thoroughly elaborated on the factors that shape the different patterns of behavior associated with the previously mentioned four basic learning styles (Kolb & Kolb, 2013, pp. 10-13; Kolb & Kolb, 2017, pp. 35-37). They propose that an individual’s learning style is shaped by repeated or habitual transactions between them and their environment at five different levels of behavior “personality, educational specialization, professional career, current job role, and adaptive competencies” (Kolb & Kolb, 2017, p. 35). The following table illustrates the relationship between these factors and the four basic learning styles represented by Kolb and Kolb (Kolb & Kolb, 2013, p. 10):

**Table1.1. Factors that Influence Learning Styles** (Kolb & Kolb, 2013, p. 10)

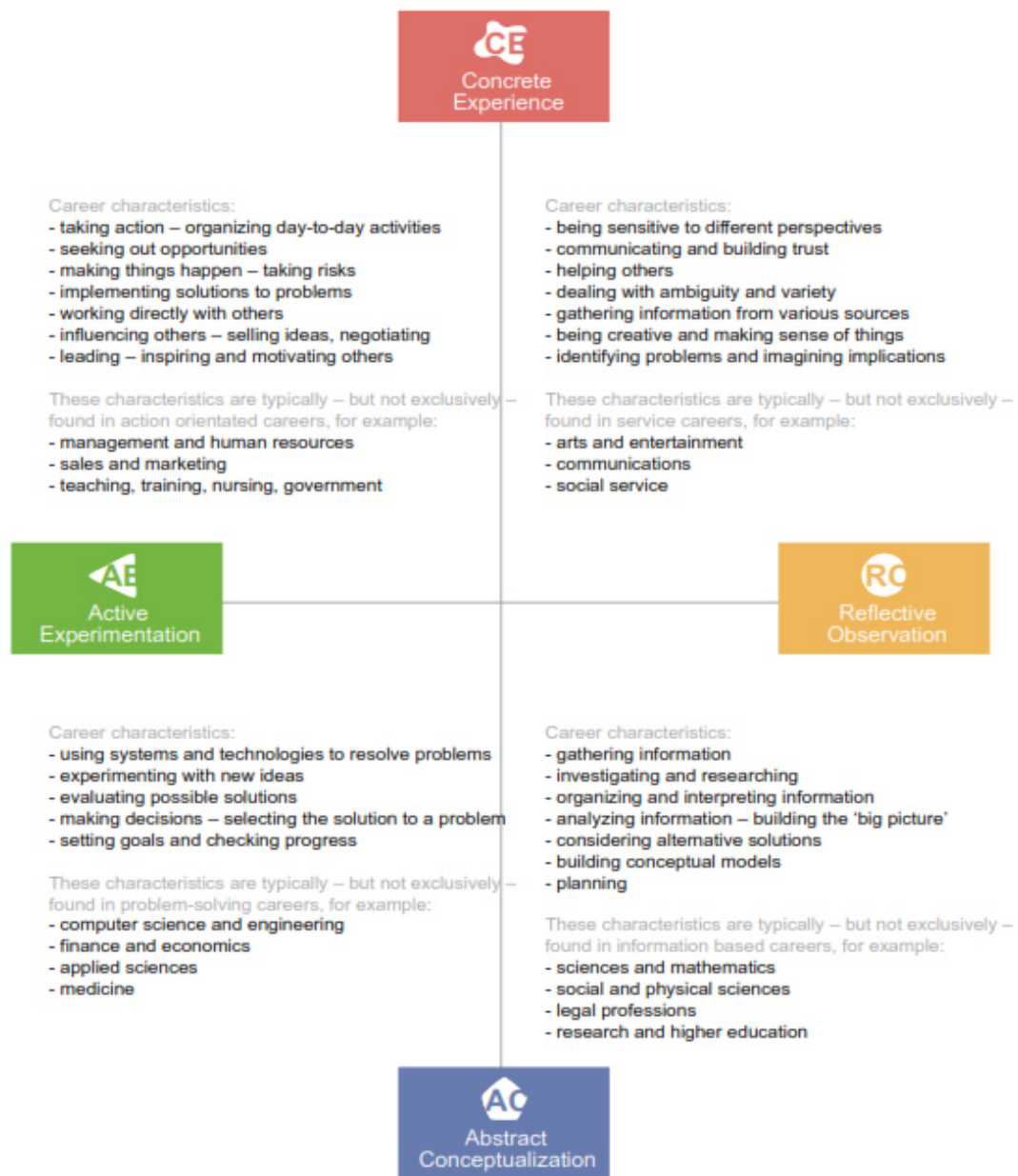
<b>Behavior Level</b>	Diverging: <b>CE &amp; RO</b>	Assimilating: <b>AC &amp; RO</b>	Converging <b>AC &amp; AE</b>	Accommodating: <b>CE &amp; AE</b>
<b>Personality Types</b>	Introverted Feeling	Introverted Intuition	Extraverted Thinking	Extraverted Sensation
<b>Educational Specialization</b>	Arts, English, History, Psychology	Mathematics, Physical Science	Engineering, Medicine, Technology	Education, Communication, Nursing
<b>Professional Career</b>	Social Service, Arts	Sciences Research Information	Engineering Medicine Technology	Sales Social Service Education
<b>Current Jobs</b>	Personal Jobs	Information Jobs	Technical Jobs	Executive Jobs
<b>Adaptive Competencies</b>	Valuing Skills	Thinking Skills	Decision Skills	Action Skills

*Personality* has a small but persuasive influence in nearly all situations. In addition to the works of Dewey, Lewin, and Piaget, ELT and its concepts of learning modes and learning styles were also influenced by Carl Jung’s psychological descriptions of individuals’ preferred ways of adaptation to the world. Kolb and Kolb (2017, p. 35) have stated that Jung’s Extraversion/ Introversion dialectical personalities correlate with the Active/ Reflective opposite modes of ELT. Similarly, the Feeling/ Thinking dimension of Mayer-Briggs Type Indicator (MBTI), a personality type indicator, correlated with the Concrete Experience/ Abstract Conceptualization dimension of the KLSI. The Concrete Experience and Active Experimentation dimensions are linked to the MBTI Sensing type and the Abstract (AC) and Reflective (RO) to the Intuitive type. The Feeling types on the other hand have a correlation with Concrete Experience and Reflective Observation and the Thinking types are highly correlated with Active Experimentation and Abstract Conceptualization (Kolb & Kolb, 2017, pp. 35-36). In other words, the individual’s type of personality affects their preferences for the dialectic learning modes, and thus, their learning style.

Kolb and Kolb (2013) also suggest that individuals' *educational experiences and specialization* have an important effect on the shape of their learning styles as they teach learners how to learn and introduce positive attitudes towards particular learning skills. After primary and elementary school, which tend to be more general, an increasing process of specialization of starts in high school and thrives at the university level. This specialization of education and training, according to Kolb and Kolb (2017), provides some special and recurring learning experiences and demands that would lead and train learners to use specific learning approaches and ways. As such, an individual's specialization in a specific discipline influences their orientation towards learning, thus, ensuing in a particular correlation between learning styles and previous educational field. Therefore, as shown in the previous table, individuals specializing in the social domain such as history, art, political science, psychology, and English tend to have a Diverging learning style (CE and RO). Those specializing in more abstract and applied areas such as engineering, and medicine use abstract and active modes of learning and hence have a Converging style. Learners with the Accommodating style are found specialties related to nursing, education, and communication. Finally, students with abstract and reflective (Assimilating) learning styles specialize in mathematics and physics (Kolb & Kolb, 2013; Kolb & Kolb, 2017).

Learning styles are also shaped by the *individual's professional career* as it “not only exposes one to a specialized learning environment, but it also involves a commitment to a generic professional problem” and allows having transactions and relations with professional peers who share a “professional mentality, and a common set of values and beliefs about how one should behave professionally” (Kolb & Kolb, 2017, p. 36). This professional orientation, according to Kolb and Kolb, helps individuals acquire habits from their “professional training and through a more

immediate normative pressure involved in being a competent professional” that helps shape one’s learning styles (Kolb & Kolb, 2017, p. 36). Consequently, as shown in the table above, individuals in certain professions tend to have certain learning styles that are related to that field of work. Similarly, the task demands and the pressure of the *current job role* influence one’s learning styles as they shape the individual’s adaptive orientation and skills required for that job such as decision-making, technical and problem-solving skills, etc. that are related to specific learning modes and styles. As a result, shown in the above table, certain types of jobs and professions tend to correlate with specific learning styles because of the nature of their adaptive orientations and *adaptive competencies*. This is better illustrated in the following figure that shows the relationship between the four learning modes and styles and the demands or characteristics required in the different jobs and careers:



**Figure 1.6. Learning Modes/ Styles and Job Demands (Kolb & Kolb, 2022, p. 25)**

In addition to the current job, Kolb and Kolb (2017) further highlighted the importance of the current problem or task an individual is working on considering it as the most important level of forces that form learning styles. They suggest that an effective performance in any task requires an effective match between the task demands and the learning modes and skills. This match is called *adaptive competence* (Kolb &

Kolb, 2013). Each learning style in the ELT theory comprises a set of adaptive competencies or skills that are related to the nature of its composing learning modes as illustrated in the above table. For example, the Accommodating style (AE and CE) encompasses action skills (e.g. leadership, initiative, and action skills) and the Assimilating style (RO and AC) is associated with thinking skills such as information gathering, analysis, and theory-building (Kolb & Kolb, 2013). This relationship between learning styles and skills is further explained and illustrated in section 1.3.4 and figure 1.9.

To recapitulate, an individual's learning style(s) or adopted learning modes depend heavily on the nature of his or her personality, and their previous and current educational and professional specialization. But most importantly, they depend on the nature of the current challenges and problems they face and the previous and current learning situations demands they are exposed to, especially in their academic and professional life. Thus, according to ELT, learning styles are, in many different ways, similar to what cognitive psychologists call cognitive strategies or competencies. Gagne (1984) in Boyatzis and Kolb (1995, p. 3) claim that they “enable learners to choose at appropriate times the intellectual skills and declarative knowledge they will bring to bear on learning, remembering, and problem-solving”. However, unlike cognitive approaches, the experiential learning style framework is more holistic including perceptual, behavioral, and affective strategies in addition to the cognitive ones. Boyatzis and Kolb (1995, p. 4) further claim that “learning styles are higher order heuristics for “learning how to learn” and represent the deep structure of the knowledge that is imparted in knowledge specialties and professions” showing the strong correlation between learning styles, learning strategies, and competencies, as well as specialties and professions.

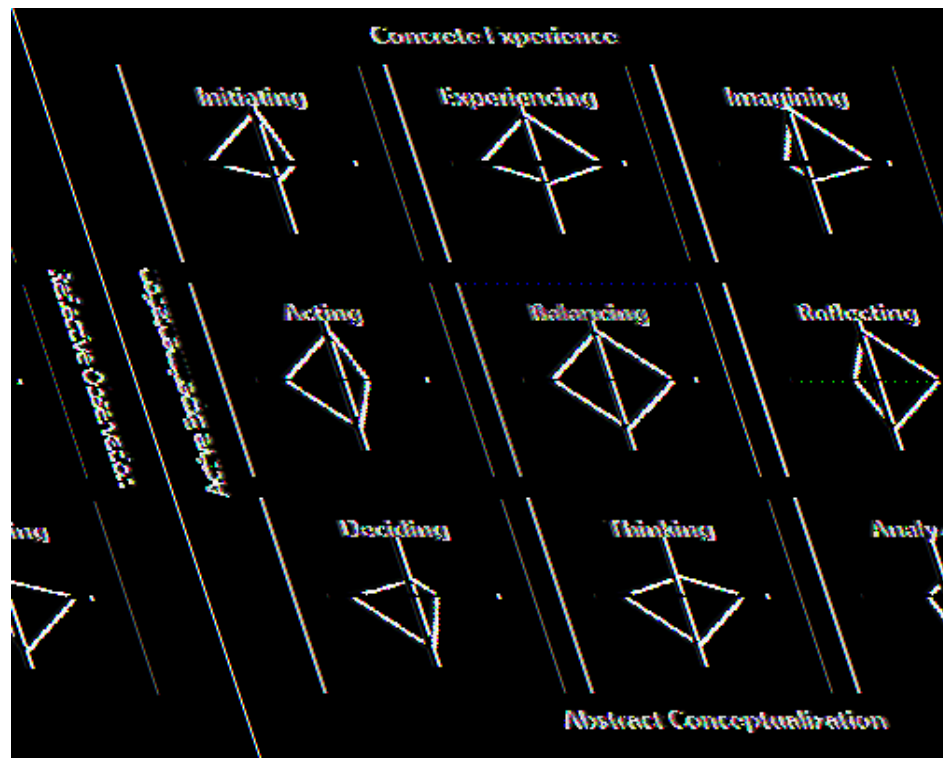
### **1.3.3. The Relationship between the Four Learning Modes and the Nine Learning Style Typology of the KLSI 4.0**

When the experiential learning style concept first appeared the terms “Diverger, Assimilator, Accommodator, and Converger” were used to refer to individuals’ preference for one of the dialectic modes of receiving and grasping information. However, in 1999 Kolb and Kolb changed the style names into “Diverging, Assimilating, Accommodating, and Converging styles” in order to emphasize his view of learning styles as flexible, dynamic, and non-static entities. They attempted to make his learning styles’ names reflect their changeable and developmental nature. They have also developed several versions of the Kolb Learning Style Inventory (KLSI) to best assess adult individuals’ learning styles.

Nevertheless, Kolb’s developmental and extensive research on experiential learning, learning cycle, and learning styles was not limited to these changes in the naming and assessment tool versions. Their attempts to have a better understanding of the relationship between the experiential learning cycle and individuals’ dynamic preferences gave birth to a new perspective on the experiential learning cycle in addition to a more sophisticated and precise understanding of the basic four learning styles that were elaborated to better show how they are dynamically flexible (Kolb & Kolb, 2017). In 2013, Kolb and Kolb introduced the new Kolb Learning Style Inventory (KLSI) 4.0 which clarifies that the original four-style typology – Accommodating, Assimilating, Converging, and Diverging styles- is further refined into a nine-style typology that provides a better definition of the unique patterns of learning styles reducing the confusions in the old four-style-typology (Kolb & Kolb, 2013).

Their journey towards the creation of this new typology as well as the KLSI 4.0 started when they first noticed a fifth “Balancing” style describing users who scored at the center of the learning style grid forming a balanced kite shape. After that, four other learning styles were also discovered. As a result, the new KLSI 4.0 has moved from a 4-pixel to a 9-pixel resolution for the types of learning styles. These learning style types are systematically set on a two-dimensional learning space defined by the four dialectic modes of learning: Concrete Experience- Abstract Conceptualization and Reflective Observation-Active Experimentation axes. These new nine styles are illustrated in the figure below showing the distinctive kite shape of each learning style. Kolb and Kolb (2017, pp. 47-48) provided a brief description of each style as follows:

1. The *Imagining style* combines the learning patterns of Concrete Experience (CE) and Reflective Observation (RO). As such, individuals with this type of learning are characterized by their ability to imagine different possibilities by observing and reflecting on experiences.



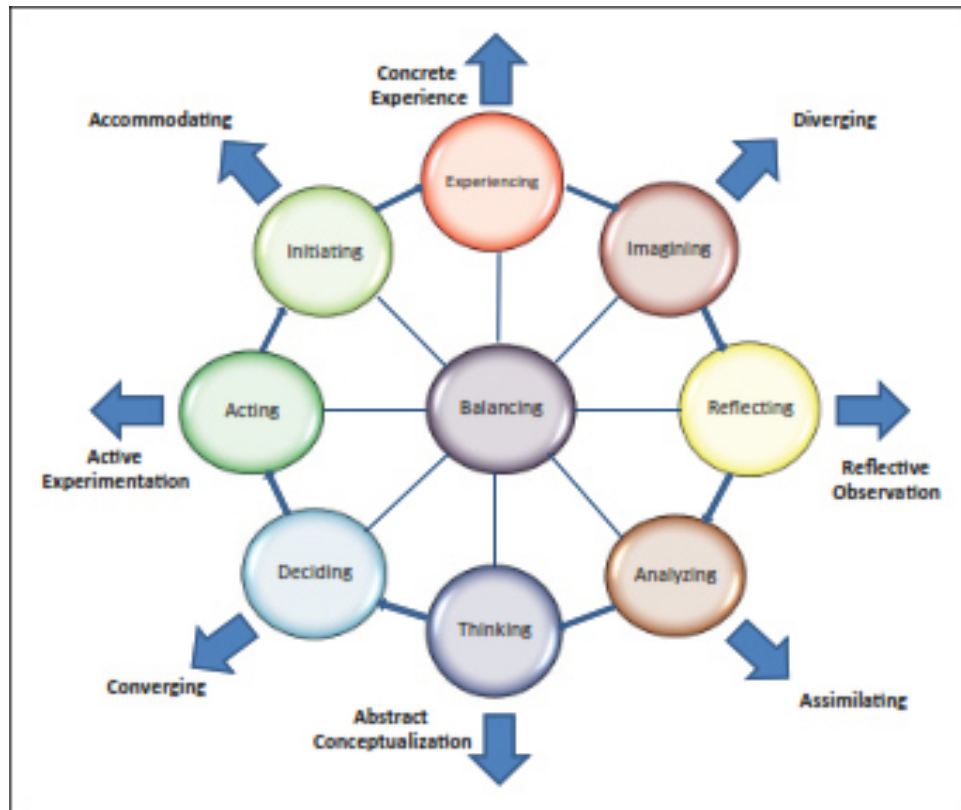
**Figure 1.7. Nine Learning Style Typology of the KLSI 4.0** (Kolb & Kolb, 2013, p. 14)

2. The *Analyzing style* draws on Reflective Observation (RO) and Abstract Conceptualization (AC). Consequently, this style is distinguished by the ability to systematize and integrate ideas through reflection.
3. The *Reflecting style* is characterized by the capacity to build links between ideas and experience through sustained reflection. This means that this style draws on Reflective Observation (RO) while balancing Concrete Experience (CE) and Abstract Conceptualization (AC).
4. The *Deciding style* combines Abstract Conceptualization and Active Experimentation. This style is known for the ability to use theories and models to decide on courses of action and problem solutions.
5. The *Thinking style* draws on Abstract Conceptualization while balancing Active Experimentation and Reflective Observation. Learners with this style are

distinguished by their capacity for disciplined involvement in logical and abstract reasoning.

6. The *Acting style* has a strong motivation for goal-directed action that integrates tasks and people. This style draws on Active Experimentation while balancing Concrete Experience and Abstract Conceptualization.
7. An *Initiating style* involves Active Experimentation and Concrete Experience. It is characterized by the ability to initiate action to deal with situations and experiences.
8. The *Experiencing style* draws on Concrete Experience (CE) while balancing Reflective Observation (RO) and Active Experimentation (AE).
9. The *Balancing style* is characterized by the ability to adapt, weighing the pros and cons of Acting versus Reflecting and Experiencing versus Thinking.

These changes in the learning style typology were also correlated with the new discoveries in the learning cycle dialectic tensions. The four-stage learning cycle is also developed and extended into a nine-stage cycle with *balancing* in the center. That is to say, in addition to the original dialectic tensions between *Abstract Conceptualization/Concrete Experience* and *Reflective Observation/Active Experimentation*. Kolb and Kolb added a new set of dialectics between *Diverging-Converging*, *Assimilation-Accommodation* plus the *Balancing* in the center. The new nine-learning style typology as well as the new nine-stage learning cycle are illustrated in the figure below.

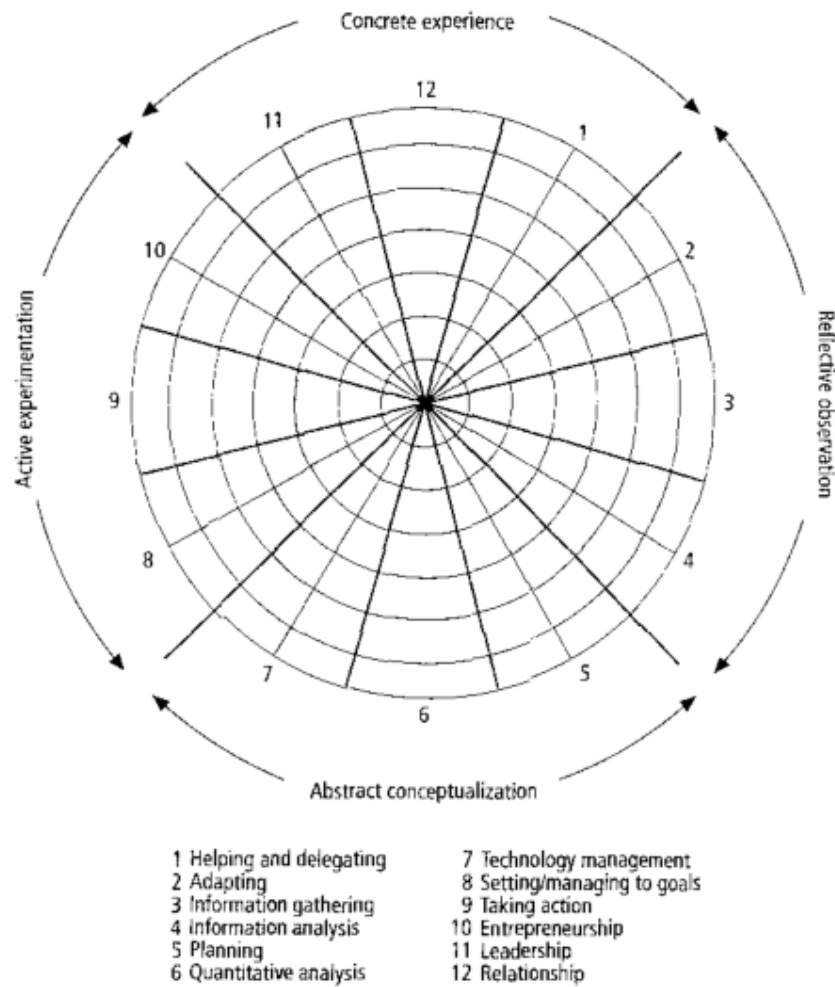


**Figure 1.8. Nine-Learning-Style Typology and the Four Dialectics of the Learning Cycle (Kolb & Kolb, 2017, p. 49)**

This figure shows that the Experiencing, Reflecting, Thinking, and Acting styles are actually based on the individual's preference for the primary dialectics AC-CE and RO-AE. On the other hand, the Initiating style has a strong preference for accommodation and active learning in context while the Analyzing style has a strong preference for assimilation or reflective conceptual learning (Kolb & Kolb, 2017). Moreover, the Imagining style is related to the individual's preference for diverging and opening different alternatives and perspectives on experience while the Deciding style has a strong preference for converging or concluding on the best option for action (Kolb & Kolb, 2017, p. 48).

#### **1.3.4. Relationship between Learning Styles, Strategies, and Skills in ELT**

Boyatzis and Kolb (1995, p. 3) assert that the holistic nature of the learning styles concept ‘allow a deeper study of human uniqueness’. They also assert that “learning styles are similar to what cognitive psychologists call learning strategies, executive control processes, strategic knowledge or cognitive strategies”. Gagne (1984, p. 38) even makes a link between learning skills and learning styles suggesting that “these strategies enable learners to choose at appropriate times the intellectual skills and declarative knowledge they will bring to bear on learning, remembering, and problem solving”. In other words, the KLS provide a concept that imply and include a number of other concepts related to how individuals learn. Boyatzis and Kolb (1995, p. 3) even suggest that “learning styles are a higher order heuristic for learning how to learn”. Learning styles in ELT are also associated and correlated with learning disciplines and learning skills. A learning skill in ELT is defined as “a combination of ability, knowledge, and experience that enables a person to do something well” (Boyatzis & Kolb, 1995, p. 4). This implies that learning styles include certain learning strategies and skills that are required for a specific situation and domain. The following figure shows how learning styles and abilities involve the use of certain skills that are required in certain domains as also illustrated earlier in figure 1.6.



**Figure1.9. Learning Styles and Learning Skills (Boyatzis & Kolb, 1995, p. 6)**

This figure shows that learners can rely on the CE and RO in learning situations that demand them to activate *helping and delegating* as well as *adapting* skills. While their reliance on RO and AC abilities would be effective for learning situations and domains that require *information gathering, analysis, and planning* skills. Likewise, the use of the AC and AE modes would be helpful in situations that necessitate *quantitative analysis, technology-management, as well as setting/ managing goals* skills. Finally, skills such as *taking action, entrepreneurship, leadership, and relationship* are involved in one's reliance on the AE and CE modes.

As a result, these correlations between learning abilities, styles, and skills imply that all of these concepts are domain specific. That is, each of these is required to

respond to the demands of specific learning situations and domains. And thus, certain learning styles and skills can fit or not certain learning situations and domains (figure 1.6.). It is also worth mentioning that Boyatzis and Kolb (1995, p. 5) further assert that learning skills can be intentionally developed by practice. This again indicates that the development of certain skills through practice or recursive exposure to certain learning situations can develop the related abilities and styles and vice versa. This point is further discussed in the following chapter in section 2.2.2. and illustrated in Figure 2.6.

#### **1.4. Experiential Education**

In order to overcome the different obstacles and difficulties in enhancing students' ability to learn, teachers as well as their students must have enough understanding and knowledge about the learning process in general and adult learning in particular. Although there are many learning theories and educational models, Knowles' (1980) andragogical model and Kolb's (1984) experiential learning model (ELM) are considered some of the most rational and famous frameworks offered for developing higher education and understanding the ways in which the teaching-learning processes and styles affect adult learning and development (Sims & Sims, 1995).

Suggesting that the pedagogical principles and practices do not fit adult learners, Knowle's (1980) andragogical assumptions about adult learning represent much that is essential about adult learning and development and shed light on the necessity of moving from the pedagogical to the andragogical model in higher education (Darkenwald & Merriam, 1982; Sims & Sims, 1995). As a result, Kolb's (Kolb D. A., 1984) Experiential Learning Model (ELM) builds on these assumptions and offers a rational and practical model to make this shift from the pedagogical approach to the andragogical approach that promotes flexibility and independent learning in higher

education (Sims & Sims, 1995; Zhang, Sternberg, & Rayner, 2012; Kolb & Kolb, 2017).

Based on the Experiential Learning Theory and its learning cycle and learning styles concept, many educational methodologies have been created and adopted. These methods include some well-known names that are commonly equated with experiential learning such as problem-based learning, cooperative learning, task-based learning, role play, simulation, gaming, action learning, active learning, etc. (McDonald, 2020) in addition to Kolb's Dynamic Matching Model (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014) that is further discussed in the following chapter in relation to learning development. In spite of the differences between these experiential methods, they all put learners in a central and active position in the teaching/ learning process.

#### **1.4.1. Definition of Experiential Education**

The Association for Experiential Education defines Experiential Education as “a teaching philosophy that informs many methodologies in which educators purposefully engage with learners in direct experience and focused reflection in order to increase knowledge, develop skills, clarify values, and develop people's capacity to contribute to their communities” (Association for Experiential Education). In other words, Experiential Education is a broad term that refers to any teaching approach that “first immerses learners in an experience and then encourages reflection about the experience to develop new skills, new abilities, or new ways of thinking” (Lewis & Williams, 1994, p. 5). As such, it is considered a powerful way to foster learners' individual potential and development. Because this approach puts the teachers as “a guide by the side” instead of a “sage on the stage”, learners are actively involved in a way that “nurtures collaboration, discovery, two-way communication, service to community, hands-on participation, deeper understanding and more importantly, commitment to

life-long learning” (McDonald, 2020, p. 2). McDonald (2020, p. 2) further explains that Experiential Education encourages learners to use “experience to achieve personal growth and development, emotional well-being, personal strengths, personal responsibility, maturity, self-fulfillment, self-esteem, self-confidence, sense of purpose, self-actualization, etc”. All this is accomplished through Experiential Education’s guided interactions between the learner’s preferences, the task demands, and the learning environment.

#### **1.4.2. Characteristics of Experiential Education**

Defining what experiential learning is, Chapman, Mcphee, and Proudman explain that:

Simple participation in a prescribed set of learning experiences does not make something experiential. The experiential methodology is not linear, cyclical, or even patterned. It is a series of working principles, all of which are equally important or must be present to varying degrees at some time during experiential learning. These principles are required no matter what activity the student is engaged in or where the learning takes place” (1995, p. 243).

In other words, Chapman et al. explain that Experiential Education does not simply mean “learning by doing” or the active involvement of the learner in learning activities and tasks. Rather, it depends on the implementation and execution of some principles and characteristics that define an experiential method or activity. These characteristics, according to them, include:

1. A balanced mixture of the process and content. That is, experiential learning is not exclusively based on experiential activities or practice, as it is wrongly conceived, but it must be also based on the underlying theory.

2. The establishment of a sense of openness, respect, and trust in students. Teachers need to create a safe space for students to work and learn through their process of self-exploration without being judged.
3. Students' engagement in purposeful endeavors. Students' personal needs and goals must be taken into consideration to make learning more significant for them.
4. Encouraging students to make connections between learning and the world. Students must be able to see the connections and relationships in complex systems and discover how to work within them.
5. Ongoing reflection on the learning process. The role of reflection is crucial in experiential learning. As such, students should be continuously provided with opportunities to reflect on their learning and discuss their experiences to be able to bring "the theory to life".
6. Full immersion of the student in the learning experience. The learning process must involve the student's intellect, feelings, and senses.
7. Students should be allowed to regularly re-examine their values, needs, and goals.
8. Establishing meaningful relationships. Students' reflection on their learning needs to start by showing their relationships with themselves, their teachers, and the environment.
9. Learning outside one's comfort zone. "learning is enhanced when students are given the opportunity to operate outside of their own perceived comfort zone". (Chapman, McPhee, & Proudman, p. 243).

All of these characteristics are based on the experiential learning theory and its previously discussed principles and concepts that emphasize the holistic, integrative,

and dynamic nature of the learning process. Many educational methodologies have adopted Experiential Education principles to varying extents and are therefore considered experiential methodologies. The task-based method and cooperative learning method are among the most adopted and famous methods in EFL. In this research, the dynamic matching method is adopted in this study to test its effectiveness in developing EFL students' learning abilities and flexibility. This method is thoroughly discussed in the following chapter in relation to learning development.

### **Conclusion**

This chapter provides an introduction to ELT and its basic principles and concepts. Thus, it delves into the main cornerstones that frame experiential learning theory and Experiential Education. To sum it up, Experiential Education is considered one of the most rational and practical models designed for adult learners in general and higher education in particular. This claim is justified by its holistic, dynamic, and developmental view of learners and learning. The following chapter, on the other hand, introduces learning development as the main objective of Experiential Education and summarizes the main roles, guidelines, and tips for Experiential Educators as suggested in Kolb's Dynamic Matching Model "of teaching around the learning cycle" to develop students' learning.



## Chapter Two: Learning Development in Experiential Education

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## Chapter Two

### Learning Development in Experiential Education

#### Introduction

It has been mentioned earlier in the previous chapter, that one of the most distinguishing aspects of experiential learning is its dynamic and developmental nature. Consequently, Experiential Education's ultimate goal is to help learners develop their learning. This includes learners' development of their abilities to use the different four learning modes and thus, their learning styles and flexibility level. In this chapter, the flexibility feature of learning styles is thoroughly introduced and discussed as it is considered the most important indicator of students' learning development and the ultimate goal of Experiential Education. That is, the concept of learning flexibility is highly stressed and even equated with learning development in this research because it can reflect the levels to which learners can use both of the different learning modes and styles in response to different learning situations and demands. Kolb's experiential Dynamic Matching Model "of teaching around the learning cycle" is recommended in this study to develop students' learning. Consequently, this chapter summarizes the experiential educators' roles, guidelines, and tips suggested in Kolb's Dynamic Matching Model to promote students' learning development.

#### 2.1. Learning Development

The current research aims to evaluate the effect of Experiential Education through the Dynamic Matching Model on students' learning development. As a result, this section attempts to introduce the concept of learning development in light of the experiential learning theory, adult development, and Experiential Education. Consequently, the concept of learning development is first introduced in relation to

adult development in experiential, after that, the term is thoroughly defined in relation to its use in this research, and then its importance is finally discussed.

### **2.1.1. Definition of Learning Development**

One of the most important features of experiential learning is its developmental nature or the learner's ability to develop their use of the different learning modes in a way that ultimately helps them flex from one learning style to another in response to the different learning situations and demands. Therefore, Experiential Education aims to help learners develop a more holistic, integrative, and sophisticated learning approach that helps them adapt to different learning situations and demands (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014). It has also been mentioned earlier that a learner's level of development is indicated by their level of flexibility. Therefore, the term learning development is equated with learning flexibility in this research being the main indicator of learners' level of development and integration of the four learning modes.

The term learning flexibility refers to "the extent to which an individual adapts his or her learning style to the demands of the learning situation" (Kolb & Kolb, 2013, p. 27). Consequently, this ability to adapt to different learning situations helps individuals acquire a better efficiency to learn independently without being limited to any specific style or type of materials.

Kolb and Kolb (2017; 2013) further explain that a learning style is a consistent specialized approach to learning; hence, its effectiveness is limited to the specific learning situations that require the strengths of the adopted learning modes. This means that an individual's effective learning requires his or her ability to modify their adopted learning modes in a way that matches the learning mode's strengths with the learning situation's demands. However, many learners feel that their learning style is static and consistent in all learning situations which gives them the impression that their ways are

sometimes ineffective and may even hinder their learning. However, other learners feel more confused about their preferred style of learning mainly because they, in fact, tend to adopt different learning approaches in different learning situations. These learners, as such, according to Kolb and Kolb (2013), are called flexible learners. To sum up, based on all that has been said earlier, the term learning development refers to the learner's level of flexibility or ability to adapt his/her learning style to the different learning demands through the integration of the four modes of the learning cycle.

### **2.1.2. Stages of Learning Development and Adult Development in Experiential Education**

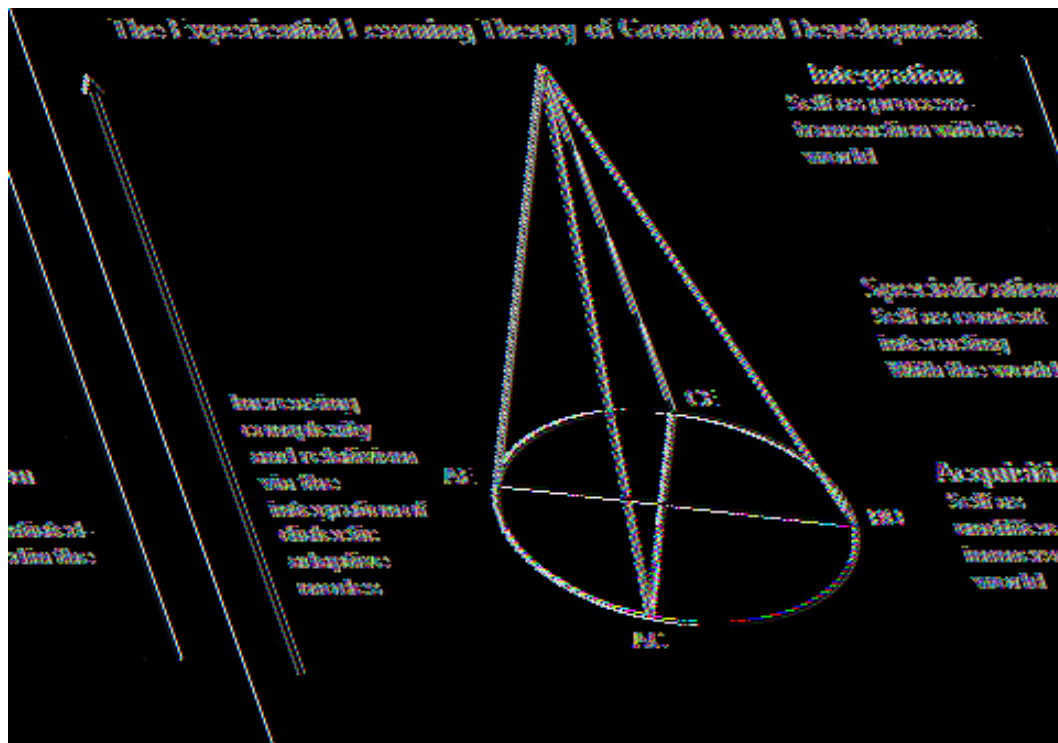
As reviewed earlier, Zull's (2011; 2002) studies about the relationship between ELT and the brain have provided evidence that the human brain is not only built for experiential learning but is also physically changed and developed through the modifications, pruning, and growth of neurons, synapses, and neuronal networks. In other words, Zull (2011) proposes that individuals learn from experiences that would be differently perceived, processed, and even registered by the brain's unique neurons that would be themselves modified and changed by the type of experience being perceived and learned. For this reason, he defines education as the art of changing the brain (Zull, 2011). These studies, consequently, suggest that the four regions of the brain, being related to the four modes of the learning cycle, can be fostered and developed by engaging them in different types of learning experiences through the learning cycle. This, as a result, would help the brain develop a more flexible and integrative way of learning that would help individuals learn more effectively in different learning situations. Learning development, as such, according to these neurological studies, is indicated by the individual's brain flexibility or its ability to use effectively each of the

four regions in the brain depending on the nature of the learning situations and demands.

The ELT model of development, following Jung's theory, identifies three stages moving from a specialized way of adaptation to a more holistic and integrated phase of individuation (Kolb D. A., 1984; Kolb & Kolb, 2013). Jung's model, according to Kolb and Kolb (2013, p. 24) defines three different stages:

1. *The acquisition* stage starts from birth to adolescence during which basic cognitive structure and abilities develop.
2. *The specialization* phase is where social, educational, and organizational socialization forces impose the development of a particular and specialized learning style as mentioned earlier in the factors that influence individuals' learning styles (educational specialization and job career). This stage starts from formal schooling through the early work and personal experiences of adulthood.
3. *The integration* stage in mid-career and later life. During this phase, the non-dominant modes of learning are developed and integrated during professional and personal life. This stage identifies the process of learning not what is being learned.

The individual's development in these stages is not related to age in ELT, but it's rather correlated with the individual's level of learning flexibility. It is, therefore, characterized by increased integration of the dialectic conflicts between the four primary modes of learning and increasing complexity and relativism in adapting to the world (Kolb & Kolb, 2017).



**Figure 2.1. Learning Development Model in ELT (Kolb & Kolb, 2013, p. 25)**

Kolb and Kolb (2017, p. 86) also maintain that learning development in ELT “is not an internal process of maturation but results from transactions between the person and environment”. This means that an individual’s learning development is not an automatic process that happens internally with time and age without the influence of external factors. On the opposite, many different factors related to the individual’s cultural contexts and systems of social knowledge can lead to many individualized and specialized paths of development. This means that learning development in ELT is more context-specific and less age-related.

The development and integration of the four learning modes, according to Kolb and Kolb (2017), develop the epistemological and ontological directions of development that lead to lifelong learning. The epistemological approach is focused on “having”, acquiring, storing, abstracting, and deferring generalized knowledge that is created through Abstract Conceptualization. While the ontological approach, intuitive

knowing occurs through “being” with direct Concrete Experiences that would be constructed, substantiated, and responded to.

To recapitulate, the ELT development model is related to and indicated by the individual’s level of learning flexibility and their ability to integrate the four learning modes in a creative way that is responsive to contextual demands. The ability to use each of the four learning modes of experiencing, reflecting, thinking, and acting provides valuable perspectives on the learning task in a way that deepens and enriches knowledge (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014). As a result, education is to focus on facilitating integrated development in the affective (CE), perceptual (RO), cognitive (AC), and behavioral (AE) realms. In other words, effective education should go beyond the cognitive knowledge of facts to include the development of emotional and social maturity (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014). Consequently, Kolb and Kolb, Passarelli, and Sharma (2014) suggest that the dynamic model of teaching around the learning cycle could be an effective way for achieving this goal of education.

### **2.1.3. Importance of Learning Development**

In her comparison between the learning demands of adult education and children's education, Dunn (2000, p. 3) claims that at least 25% of first-year university students fail or are placed on probation when they need to intuit what’s important in the lecture or from what they read, take notes, remember three-quarters of what they read or hear in the lecture, do their tasks and research, and even prepare for exams and tests simply because they find themselves in a different learning situation that has quite different learning demands than what they are used to in their previous educational stages, namely in high, middle, and primary schools. In other words, these students fail

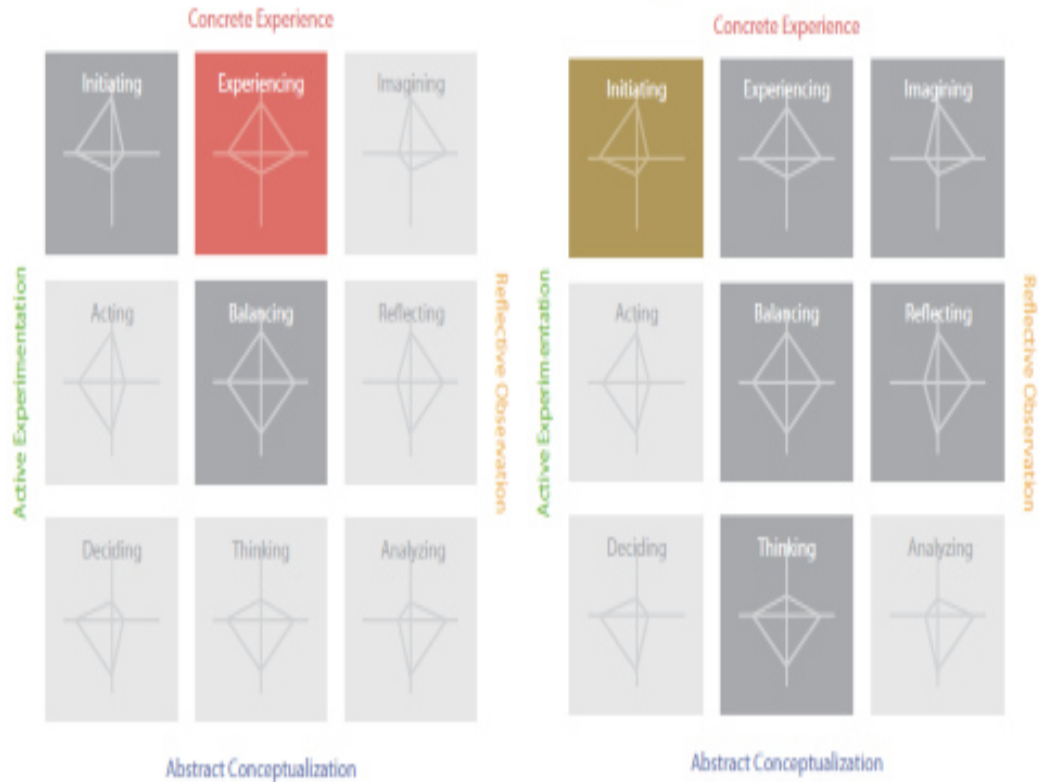
to adapt their learning styles to the new learning demands of higher education that require the development of more active and efficient learning abilities.

Similarly, Kolb and Kolb (2013, p. 23) also assert that many students arrive at university “conditioned by their previous educational experiences to be passive recipients of what they are taught” which hinders the learning development process. Yet, what exacerbates the problem is the fact that “the way university teachers approach their teaching in a range of large first-year classes in higher education is associated with the way their students approach their learning in those classes” as stated in Prosser and Trigwell’s research (1999, p. 159). In other words, university teachers find themselves obliged to adapt their teaching to students’ learning ways. Hence, they reinforce their students’ passivity when they continue to spoon-feed them instead of helping them develop and overcome their learning weaknesses while, in fact, students should have been “expected to be mature enough to guide their educational experience” (Sims S. J., 1995, p. 151). Sims S.J also suggests that “there is a need for flexibility in education and a new approach to adult learners” (1995, p. 151). Purkiss (1995, p. 96) even adds that “style is a predictor of success in different academic disciplines” emphasizing the importance of the match between students’ learning styles and their disciplines’ demands. These claims, according to them, shed light on the importance of students’ and teachers’ awareness and consideration of adult learning principles and demands as well as the importance of learning flexibility and development.

Consequently, this development of one’s ability to move freely around the learning cycle modes and to modify one’s learning style to match the demands of the different learning situations provides learners with different perspectives on the learning task in a way that deepens knowledge and understanding (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014). It also capitalizes on the strengths of each learning style,

broadens the learning comfort zone, and allows learners to operate more effectively and comfortably (Kolb & Kolb, 2013). This, in turn, would promote deep learning and development. In addition, the learning flexibility level results from the learner's ability to move around the learning cycle and, thus, have more ability to integrate the four learning modes. As a result, the learner will have more flexibility to move toward a wider variety of backup styles in case his/her preferred style does not suit a specific learning situation.

As illustrated in the figure below, an experiencing learner with low flexibility might show flexibility toward the Initiating and Balancing styles for example (the regions shed on the figure on the left). The figure on the right, on the other hand, shows how an Initiating learner with high flexibility level would have more backup styles such as Experiencing, Imagining, Balancing, Reflecting, and Thinking (i.e. the four regions shed on the figure on the right). That is to say, flexible learners tend to move into the balancing region which encompasses all four primary learning phases, and as such, they are more effective learners showing more readiness to engage fully in Experiencing, Reflecting, Thinking, and Acting.



**Figure 2.2. Examples of Backup Styles for Low and High Learning Flexibility Learners (Kolb & Kolb, 2013, p. 28)**

As a result, it is necessary not only to know one's learning style but also to assess his or her flexibility level and find out their back-up styles to have a better understanding of one's learning process and development in order to find ways to improve them. The KLSI 4.0, as such, doesn't only assess individuals' learning styles but also measures their learning flexibility level and indicates their backup learning styles.

## **2.2. Learning Development through Kolbs' Experiential Education of the Dynamic Matching Model**

It has been mentioned earlier that Experiential Education is widely used as a general term that refers to any educational model that respects the characteristics of experiential learning. It is however noticed that the only experiential model that

rigorously respects the experiential learning principles and characteristics and directly targets the development of individuals' learning development is Kolbs' Dynamic Matching Model "of teaching around the learning cycle". Also termed Experiential Education (Kolb & Kolb, 2017), this model has been recently introduced by Kolb and Kolb to guide teachers and educators to adopt the experiential learning theory and put its principles and concepts into practice. Consequently, this model is adopted in the current research to test its effectiveness in developing EFL students' learning. In other words, in its attempt to develop students' learning, an educator-role framework has been created in ELT to support educators apply its concepts of the learning cycle and learning style in a Dynamic-Matching model "of teaching around the learning cycle" (Kolb & Kolb, 2017). The educators' role framework identifies four roles for educators in response to the four learning modes of the learning cycle as illustrated in the following figure:



**Figure2.3. Educator Roles and Learning Modes (Kolb & Kolb, 2022, p. 2)**

This framework prescribes four main roles for the teacher as Facilitator, Subject-Expert, Standard-Setter/ Evaluator, and Coach. These four teaching roles are designed with the aim of helping learners move around the four learning modes of the learning cycle. As such, teachers must adapt their roles moving from being a Facilitator, to Subject-matter Expert, to Standard-Setter/ Evaluator, until being a Coach in a spiral way that is correlated to the learners' spiral learning cycle and the task demands. Kolb and Kolb (2017, pp. 366-367) summarize these four roles as follows:

**a. The Facilitator Role**

Adopting this role, according to Kolb and Kolb (2017, p. 366), the educator helps them use their Concrete Experience and Reflective Observation learning modes to get in touch with their personal experience and reflect on it. Teachers adopt a warm affirming teaching style to draw out learners' interests, self-knowledge, and intrinsic motivation. Small group conversations are usually used and personal and trusting relationships with learners are created by educators as facilitators.

**b. The Subject-Expert Role**

As Subject-Experts, educators, according to Kolb and Kolb' description (2017, p. 366), work on the learners' Reflective Observation and Abstract Conceptualization learning modes to help learners organize, connect and integrate their reflections on their personal experience to new concepts and knowledge of the subject matter. Experts adopt a logical, authoritative style relying on lectures, readings, and written assignments that aim to encourage critical thinking and analysis.

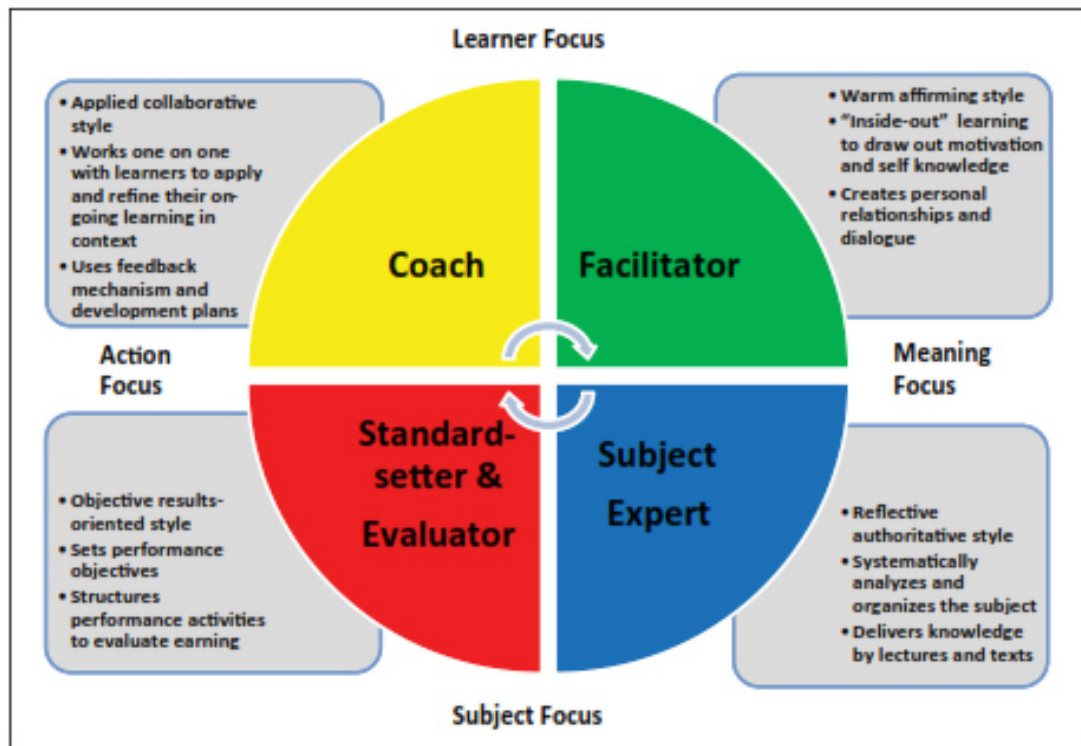
**c. The Standard-Setter/ Evaluator Role**

Based on Kolb and Kolb's model (2017, pp. 366-367), adopting this role, educators address the learners' Abstract Conceptualization and Active Experimentation modes by helping them master the application of knowledge and skills to solve

problems. Standard-setters and evaluators set standards and knowledge requirements necessary for quality performance by adopting a structured results-oriented style. They create performance activities such as laboratories and graded homework assignments for learners to evaluate their learning and provide feedback about it.

**d. The Coaching Role**

According to Kolb and Kolb’s prescription (2017, p. 367), in a Coaching role, educators help learners use their Active Experimentation and Concrete Experience modes to apply acquired knowledge to achieve their personal goals. Relying on an encouraging, collaborative style, Coach educators tend to work one-on-one with individuals to assist them learn from their real-life experiences and create personal development plans and provide them with ways to get feedback on performance. Field projects, role plays, and simulations are often used to put learners’ knowledge into action.



**Figure2.4. Educator Role Profile** (Kolb & Kolb, 2017, p. 366)

According to Kolb and Kolb (2017), most teachers use each of these roles in their teaching practices to some extent while trying to decide whether to focus on the learners' experience or the subject matter or to focus on the effective performance and action or deep understanding of meaning. They, however, insist that educators must focus on all of these aspects (learner, subject matter, action, and meaning) instead of choosing among them by adopting all of the above-mentioned teaching roles (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014).

### **2.2.1. Kolb Educator Role Profile**

The Kolb Educator Role Profile (KERP) is a self-assessment instrument created to help teachers broaden their awareness of their teaching preferences or roles. Such awareness also aims at helping them enhance their teaching practices by deliberately choosing the right role for every teaching-learning situation using the Dynamic Matching Model (Kolb & Kolb, 2017).

Kolb A. Y., Passarelli, and Sharma (2014) explain that while the concept of teaching style as personal characteristics and teaching methods in the classroom has been the focus of most previous studies about individual differences in education (Trigwell & Prosser, 1996; Grasha, 1994; Kember & Gow, 1994), the KERP goes beyond teaching in the classroom to other life roles using the term "educator". They further clarify that education occurs in almost all life situations and domains and not only in educational institutions. Therefore, though focusing on formal education, the KERP was aimed to apply more generally to all relationships at work and even in personal life as parents and spouses. In addition to that, "the educator role framework shifts the educational paradigm from the educator acting *on* the learner to the educator acting *with* the learner" (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014, p. 222). This

means that the educator and the learner in ELT are entwined and therefore they both need to cooperate and be flexible and active to achieve their developmental goals.

The educator’s roles, in fact, are introduced as bridging strategies between learning modes instead of matching equivalents of the four learning modes (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014). The same authors also maintain that both learners and educators have the ability to develop flexibility in their learning modes and teaching roles respectively. It is also worth mentioning that the KERP not only reveals the educators’ individual teaching practices but also reveals their beliefs and goals as illustrated in the table below.

**Table2.1. Examples of Beliefs, Goals, and Practices Associated with Educator Roles** (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014, p. 222)

<b>Educator Role</b>	<b>Beliefs:</b> “Learning occurs best when...)	<b>Goals:</b> “My students develop....”	<b>Style:</b> “As a teacher, I prefer to be....”	<b>Practices:</b> “Instructional forms I often include..”
<b>Facilitator</b>	It begins with the learners’ experience	Empathy and understanding of others	Creative, warm, affirming	Class discussion, journals, personal stories
<b>Expert</b>	New concepts are integrated into existing mental frameworks	Analytic and conceptual abilities	Logical, authoritative	Lectures, readings, written assignments
<b>Evaluator</b>	Clear standards and feedback are provided	Problem-solving skills	Structured, outcome-oriented, objective	Laboratories, graded homework, assignments
<b>Coach</b>	It takes place in a real-life context	Ability to work productively with others	Applied, collaborative, risk-taking	Field projects, role plays, simulations

### 2.2.2. Learning Development and the Match-Mismatch Debate in the Practice of the Dynamic Matching Model

Although it offers educators with complex yet realistic, practical, and guiding model, experiential learning, or Experiential Education (Kohonen, Jaatinen, Kaikkonen,

& Lehtovaara, 2014), is still widely confused with two oversimplifications: teacher as facilitator and matching teaching style with learning style (Kolb & Kolb, 2017). Kolb A. Y., Kolb, Passarelli, & Sharma, (2014) also maintain that these two inadequate characterizations of ELT, though partially true, offer some over-simplified advice for experiential educators considering that:

1. Experiential Education means that teachers' role is limited to helping learners learn from experience.
2. A learner-centered approach means that teachers are to match their teaching style to their learners' learning styles which is the unique aim behind the assessment of students' learning styles using the KLSI.

Experiential Education, however, is wider and more sophisticated, yet realistic, than this simple prescription to facilitate the learning process and match teaching styles with learning styles. Kolb and Kolb (2017) further explain that traditional education where the teacher is a Subject-Matter Expert whose role is to directly transmit knowledge and information using a passive 'outside-in' approach that sharply contrasts the Experiential Facilitator role of educators adopts an active 'inside-out' approach. The latter, according to them, aims to raise learners' intrinsic motivation and internal curiosity and help learners reflect on and create meaning from the learning experience and thus aid the 'drawing out' process that is considered as "the root meaning of the word educate" (Kolb & Kolb, 2017, p. 373). This means that learners, according to them, are able to learn by themselves and do not need to be provided with knowledge and answers or even advice and directions. The experiential Facilitator's role, therefore, is to create a suitable atmosphere and conditions and eliminate obstacles for learners (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014). Nonetheless, Experiential Education is not limited to facilitating the learning process but it exceeds it to other equally

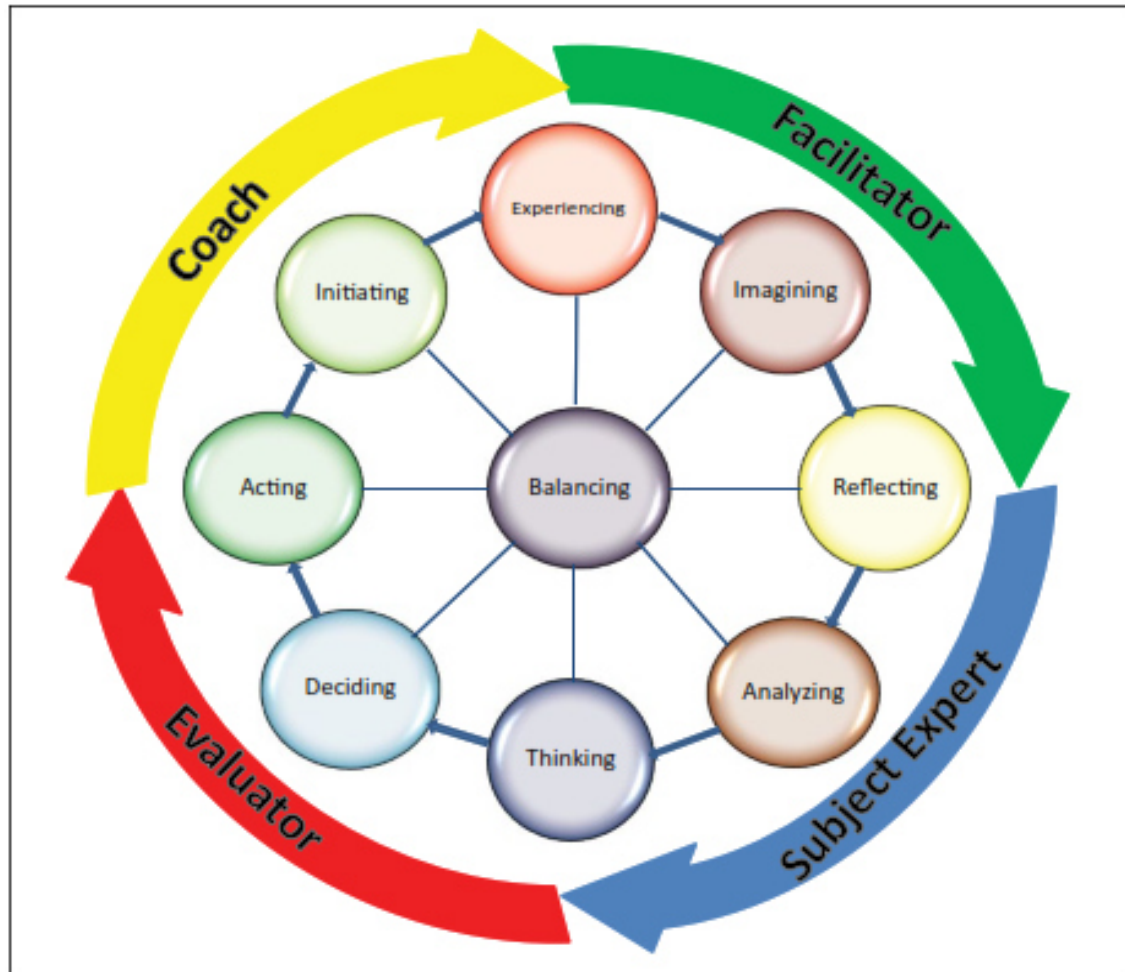
important roles that include providing “expert knowledge input, evaluation, and coaching on learning strategies” (Kolb & Kolb, 2017, p. 373).

Matching teaching style with learning style is another oversimplification of Experiential Education in spite of its importance. Kolb and Kolb (2017) and Kolb A. Y., Kolb, Passarelli, & Sharma (2014) maintain that matching teaching styles and learning styles is only important to engage learners and connect with them yet ELT learning cycle recommends the Dynamic Matching Model of ‘teaching around the learning cycle’ that implies both a match and mismatch between teaching styles and learning styles. This model suggests that instead of matching teaching styles and learning styles, educators need to teach around the learning cycle regardless of their learners’ learning styles in a way that touches all of the four modes of the learning cycle. In other words, educators should rely on a variety of activities that sometimes match learners’ styles and sometimes challenge and stretch learners to use less-preferred styles (Kolb & Kolb, 2017; Kolb & Kolb, 2018).

Many recent studies also maintain that the aim of the different learning and teaching style assessments is not to match educators’ teaching styles with learners’ learning styles but to gain a better understanding of the learning-teaching process, promote conversations about learning and teaching, increase students’ engagement, develop learners’ and teachers’ metacognitive capacities, and help struggling learners (Silver, Strong, & Perini, 1997; Varlas, 2010; Kolb & Kolb, 2017; Kolb A. Y., Kolb, Passarelli, & Sharma, 2014; Kolb & Kolb, 2018). They also argue that teaching to the full range of learning styles is more efficient than limiting instruction to any specific teaching or learning style (Varlas, 2010).

The figure below shows how the Dynamic Matching Method “of teaching around the learning cycle” proceeds in a way that each of the four educator roles

addresses and matches three learning styles. The Coach role, for example, matches the Experiencing, Imagining, and Reflecting learning styles whilst the Reflecting, Analyzing, and Thinking styles are matched with the Subject-Expert role.



**Figure2.5. Educator Roles and the Nine-Style Learning Cycle** (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014, p. 226)

As illustrated in the table below, it is suggested that matching teaching techniques to learners' preferred styles helps engage learners and connect with them as it encourages them to actively move through the rest of the learning cycle (Kolb & Kolb, 2017; Sims & Sims, 1995; Zhang, Sternberg, & Rayner, 2012; Raschick, Maypole, & Day, 1998). Kolb and Kolb (2017) explain that



Individual learning styles can be an entry point through which learners enter a particular learning space, but most learning requires that they continue to actively move around the learning cycle using other learning styles to acquire increasingly complex knowledge and skills and capacity to adapt to the wider demands of a given learning environment (p. 375).

**Table2.2. Educator Role, Learning Styles, and Instructional Techniques** (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014, p. 227)

<b>Teaching Roles</b>	<b>Instructional Techniques</b>	<b>Learning Styles</b>
<b>Facilitator</b>	Journals, group discussion, brainstorming, perspective taking, personal examples	Experiencing, Imagining, Reflecting,
<b>Expert</b>	Lectures, readings, written assignments, model critiques	Reflecting, Analyzing, Thinking
<b>Evaluator</b>	Laboratories, case studies, simulations, graded homework	Thinking, Deciding, Acting
<b>Coach</b>	Fieldwork, site visits, applied projects, practicum experiences	Acting, Initiating, Experiencing

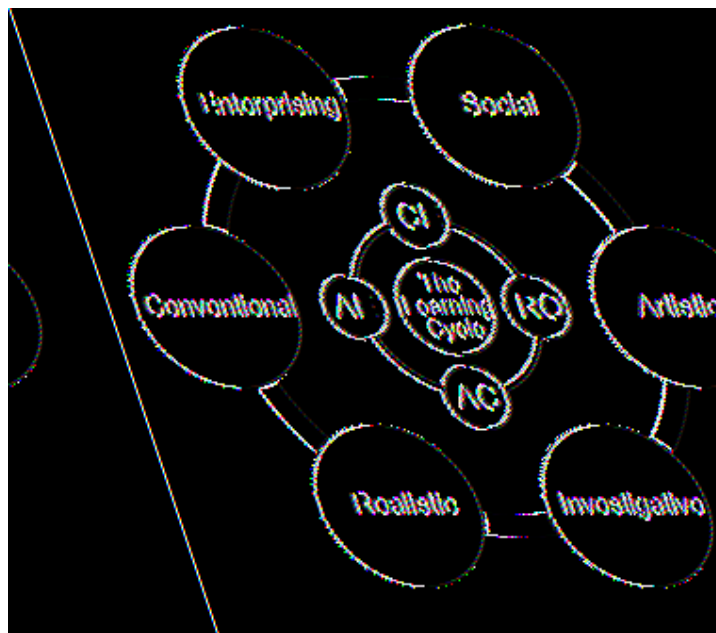
In other words, the Dynamic Matching Model “of teaching around the learning cycle” provides teachers and educators with a starting point that facilitates the introduction of the subject content, helps engage students in the learning process, and encourages them to move through the rest of the learning cycle when matching teaching roles with learning styles (Raschick, Maypole, & Day, 1998). At the same time, it challenges learners to stretch and adapt their learning styles to less-preferred ones and develop their learning flexibility and capacities when educators’ roles mismatch learners’ learning styles (Kolb & Kolb, 2018). Therefore, teaching around the learning

cycle using the four educator roles in a recursive way that simulates the recursive nature of the learning cycle is an efficient model for acquiring the content of subject matters and developing students' learning ways that help them adapt to the different learning situations and demands.

The previous figure (2.5) shows an idealized sequential progression of teaching roles and learning styles that may be adapted to fit the learning demands, activities, and objectives of the subject matter (Kolb & Kolb, 2018). Consequently, it is very important to consider the nature of the subject-matter in addition to the relationship between educator -s and instructional techniques and learning styles. That is, while adopting the four educator roles and moving through the learning cycle it is necessary to make sure that instructional techniques and learners' learning styles match the learning demands of the subject matter. Willingham (2005; 2009) and Kolb and Kolb (2017) even consider that the match between learning approach and subject matter is more important than the match between teaching and learning styles. The following figure illustrates how the different learning modes correlate with the different academic and professional fields depending on their characteristics and demands:



**Figure 2.6. Educator Roles and Learning Demands and Characteristics (Kolb & Kolb, 2022, p. 25)**



**Figure2.7. Learning Modes and Learning Demands (Kolb & Kolb, 2022, p. 24)**

To put it simply, it is claimed that, in designing a curriculum or even a lesson, educators must consider for each part or segment of the subject matter which role to adopt, which learning style to engage, and which instructional techniques are most suitable for the teaching role, learning style, and the subject demands (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014). For example, domains with precise performance demands such as software development and surgery necessitate the adoption of a Standard Setter/evaluator educator role and require the development of Thinking, Acting, and Deciding learning styles (Eickmann, Kolb, & Kolb, 2004).

Nevertheless, according to Kolb and Kolb (2017), education is not only about providing specialized academic training but is also about stimulating students' growth and creativity which can be achieved by teaching around the learning cycle and considering students' learning styles' weaknesses to develop their ability to learn from different learning perspectives. They also insist that the ELT educators' principal role is "to facilitate learners' integrated development in affective, perceptual, cognitive, and behavioral realms. Our primary role as educators then is to guide learners around the

learning cycle and transform the way they feel, perceive, think, and act in a sustained manner.” (Kolb & Kolb, 2017, p. 376). Such a transition, according to them, can be accomplished through a scaffolding technique that is based on the dynamic model of teaching around the learning cycle that provides the structure and support needed to meet individual needs and progressively develop their knowledge and capacities. Kolb and Kolb further state that the different roles educators play in relation to learning styles and learning objectives can help learners develop and transform their ways of learning-feeling, perceiving, thinking, and behaving (Kolb & Kolb, 2017).

### **2.2.3. Learning Development and Dynamic Matching**

The ELT Dynamic Matching Model admits that both teachers and learners have preferences for the roles and learning styles they use in the teaching and learning processes respectively and yet, it suggests that both teachers and learners need to adopt other roles and styles they do not favor going through the four modes of the learning cycle. This implies that both teachers and students do have the ability to develop and adapt their teaching and learning ways to one another as well as to the learning situation and demands.

#### **2.2.3.1. Educator Role Flexibility Development**

Many studies have shown that educators tend to teach the way they learn (Davidson, 1990; Hartel, 1995; Allinson, Hayes, & Davis, 1994; Onwuegbuzie & Daley, 1998). A correlational study between educators’ teaching roles and their own learning styles as assessed by the KERP and the KLSI 4.0 has revealed a highly significant relationship between educators’ learning styles and their preferred teaching role (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014). The educators’ abstract learning styles of Deciding, Thinking, and Analyzing, for example, were found to be correlated with their preferences for dealing with ideas and adopting the Expert and Evaluator

roles while the Facilitator teachers were actually concrete feeling-oriented learners (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014).

Although teachers tend to teach the way they prefer to learn, many other studies have also proved that educators are also capable to choose to teach in other ways that are quite different from their preferences (Baker, Simon, & Bazeli, 1987; Kosower & Berman, 1996). A study conducted by Milne, James, Keegan, & Dudley (2002) to assess the impact of a training program designed to teach trainers to teach around the learning cycle on the trainers' and their trainees' transaction patterns has revealed that trainers' adopted roles have significant effects on the trainees related learning modes. The results of this study have led to the conclusion that this training and the educators' adopted roles maximized the trainees' learning outcomes and promoted their ability to engage in the full range of the learning cycle.

To recapitulate, research about educator roles has shown that instructors tend to teach the way they learn, yet they have the capacity to use any other role to respond to their learners' styles and learning-teaching objectives and demands. However, it is also undeniable that adopting such a variety of roles can be highly complex, challenging, and even risky (McGoldrick, Battle, & Gallagher, 2000; Harrelson & Leaver-Dunn, 2002). As such, Kolb and Kolb (2017) clarify that

Most of the risks associated with the experiential method contend the authors, can be mitigated through careful planning, unambiguous course structure, establishing of clear expectations, and firm deadline for each class activity. Furthermore, learners will have differing levels of interest as well as difficulties with certain stages of the learning cycle. It is incumbent upon the educator to grasp the diverse needs of learners and be aware of the challenges that some will face in the various phases of the cycle (p. 228).

### **2.2.3.2. Learning Style Flexibility Development**

As discussed earlier in the review of literature, several studies have asserted that learners are capable to style-flex depending on the nature of the learning situation and the demands of the different tasks (Kolb & Kolb, 2017). They suggest that learners can develop their learning abilities and adapt their learning styles to meet the learning demands of a particular discipline (Cornett, 1983; Entwistle, 1981; Kolb D. A., 1984; Ornstein, 1977). Jones, Reichard, and Mokhtari (2003) study is one of the most important studies that sustain Kolb's (1984) claims that learning styles are discipline specific. They reveal that students majoring in four different subject-area disciplines (English, math, science, and social studies) were able to switch their learning styles in response to their discipline-specific demands. This suggests that the EL Dynamic Matching Model "of teaching around the learning cycle" can guide teachers' practice to help students develop their flexibility to engage in the full range of the learning cycle modes and promote their learning EFL learning outcomes.

### **2.2.4. Experiential Educators' Guidelines and Tips for Learning Development**

It has been explained previously that the Dynamic Matching model "for teaching around the experiential learning cycle" is based on the idea that teachers need to successively adopt all of the four teaching roles that lead learners to address the full range of the experiential learning cycle and thus, help them develop their learning. This means that teachers are to address all nine learning styles, regardless of their learners' preferences, with activities that sometimes match students' styles and sometimes mismatch them in a way that challenges learners to stretch themselves to use less-preferred styles (Kolb & Kolb, 2017).



In other words, just as the four learning modes, all four educator roles are interrelated and equally important in the educational process that aims to develop learners; and “the best practice within a given role includes the use of other roles” (Kolb & Kolb, 2017, p. 382). Yet, it is important for teachers to have enough knowledge about the four educator roles in order to be able to conduct each role and sustain the creative tension between them. While there is no magic bullet to mastering the four educator roles, Kolb and Kolb (2017) provide detailed definitions and descriptions of the four roles as well as some of the best advice and tips that may guide teachers’ and educators’ practices.

#### **2.2.4.1. Subject- Matter Expert**

Kolb and Kolb (2017) claim that having extensive knowledge and experience about a specific domain is a prerequisite for the profession of a teacher yet it is not a sufficient criterion to consider an educator as a true experiential expert. Influenced by Dewey’s vision (1933) and dual-knowledge notion, Kolb and Kolb (2017) and Bain (2004) and many other researchers agreed that a Subject-Matter Expert, in addition to their expertise and mastery of the subject-matter knowledge, needs to acquire knowledge of the nature of thinking within their field, understanding of teaching methods, in addition to deep comprehension of student learning in order to gain to the ability to convey their superior knowledge to learners. Kolb and Kolb (2017, p. 388) state that as “subject-matter experts, we are constantly required to grapple with the multiple demands of our knowledge domain, state-of-the-art educational methods, and a deep understanding of how students learn”.

#### 2.2.4.1.1. Tips for the Subject-Matter Expert Role

Although there is no magical recipe for how to master the Subject-Matter role, the following tips as prescribed by Kolb and Kolb (2017, pp. 388-391) can get educators closer to the experiential vision of this role.

1. *Connect subject matter to students' interests.*

Extending their interest and knowledge of other fields beyond their specialties and areas of expertise can help educators capture students' attention and find an access point into their interests and passions and gradually direct them toward the subject-matter objectives and goals (Bain, 2004; Kolb & Kolb, 2017).

2. *Organize subject matter around concepts central to the discipline.*

“Students’ will be able to clear each milestone if they are provided with meaningful and rich experiences that will enhance their abilities to reason at a higher level” (Kolb & Kolb, 2017, p. 389). It is suggested, thus, that teachers need to focus their efforts on developing students’ higher-order reasoning abilities by helping them grasp the abstract fundamental and complex concepts required to succeed in their field of study and future profession.

3. *Imagine students' minds.*

It is helpful for educators to mentally visualize the mental steps students would need to achieve the learning goals so they can adjust their teaching content and strategies in a way that better meets students’ mental needs (Green, 2014). That is, understanding students’ minds and how they learn would help teachers predict their students’ capacities, weaknesses, questions, interests, difficulties, etc., and thus, help them anticipate how to better achieve their goals.

4. *Less is more.*

Kolb and Kolb (2017, p. 389) assert that “too much input causes the unprocessed information in working memory to be lost”. Therefore, teachers should provide students with as much information as their working memory can process in order to achieve better outcomes in the learning process. That is, learning needs to be more meaningful and more about quality rather than quantity.

5. *Draw out mistakes.*

Teachers can benefit from students’ mistakes to better understand how they learn and correct learners’ misunderstandings and clear confusion by drawing students’ attention to them and opening up the subject to class discussion. This view is widely spread among Japanese teachers to correct their students’ misunderstandings (Green, 2014).

6. *Punctuate the experience.*

This can be done by highlighting the main points and making students summarize and share what they learned and understood at the end of the session. This helps teachers better understand what they have accomplished, gives students the opportunity learners organize, connect, and revise their thoughts and concepts, and allows them to learn and understand each other by sharing their summaries and ideas with their classmates. This strategy is also widely used by Japanese teachers according to Green (2014).

7. *Study Learning.*

Kolb and Kolb (2017) assert that a Subject-Matter Expert role requires teachers to have an extended understanding and knowledge of the learning process and the different teaching methods. Following the Finnish and Japanese experience, teachers can rely on well-researched educational theories, methods, and practices,

and receive professional training and supervision (Sahlberg, 2010). They can also work in collaboration with other teachers to test their practices and receive each others' critiques and feedback and even make use of their students' ideas to improve their teaching experience and achieve learning goals (Green, 2014).

#### **2.2.4.2. The Facilitator**

Emphasizing the vital relationship between facilitation and learning, Kolb and Kolb (2017, p. 391) state that “facilitation is the critical starting point of our dynamic engagement and effort to promote significant change and learning in our students”. In their description of the relationship between teachers and students, Kolb and Kolb adopt Rogers' view of facilitation who defined it as a “certain attitudinal quality which exists between the facilitator and the learner” (Rogers, 1969, p. 106). Rogers, as cited in Kolb and Kolb (2017, pp. 391-393), identified three essential intrinsic qualities to establish such a trusting relationship between facilitators and their learners- genuineness, prizing the learner, and emphatic understanding.

##### *1. Genuineness.*

This quality means “being themselves, genuinely being able to live and accept what they are experiencing” when entering into relationships with learners (Kolb & Kolb, 2017, p. 391). Kolb and Kolb also clarify that this means that they have the freedom to be real and to experience and express their true positive or negative feelings such as enthusiasm, disappointment, and empathy without imposing them on their students. Such a quality aims to reinforce trust between teachers and students and find solutions and support.

##### *2. Prizing the learner.*

Facilitators accept and appreciate their students for their flaws and potentialities and deeply care about them in a non-possessive way (Kolb & Kolb, 2017). They

develop “a trusting attitude toward their students, prizing their feelings and opinions as separate individuals with worth in their right” (Kolb & Kolb, 2017, p. 392).

3. *Empathic understanding.*

A facilitator, according to (Kolb & Kolb, 2017, p. 392), is “able to see how a student feels and reacts from inside”. Such an understanding should be accepting free of any aim of correcting, evaluating, analyzing, or judging learners’ behavior or attitude. This quality aims for students’ self-initiated change and development and deepens trust and confidence in learners.

**2.2.4.2.1. Tips for the Facilitator Role**

Incorporated with the previously mentioned qualities, according to Rogers (1969) and (Kolb & Kolb, 2017), the following tips can help educators become true facilitators.

1. *Establish a climate of trust and safety.*

As a facilitator, it is important to show your students that you believe in them and trust their capacities and willingness to learn and develop. This trust according to Kolb and Kolb (2017) will give them self-confidence and a positive high esteem and make them do their best to pursue their dreams and deeply held interests.

2. *Elicit and support a meaningful purpose of learning.*

In addition to showing their trust in learners, teachers also need to be open to their student’s individual learning interests and aims and support them in pursuing their set goals. Learning is more significant when learners set and pursue their own learning aims because they would be intrinsically motivated to accomplish them.

3. *Promote inside-out learning.*

Before supporting students' interests, a facilitator needs to help their students find their interests from the inside out by providing them with rich resources and opportunities. Kolb and Kolb (2017, p. 394) state that traditional teaching fails to hold learners' attention and interest because teachers "often run the risk of "making things interesting" from outside in after the subject matter has been thoroughly organized by the teachers' perspective and expect learners to "get interested" in the materials or activities". This approach is misguided according to them because the teaching content is organized without taking learners' genuine interest into account therefore, students' attention is only helpful for a brief moment. In effect, significant learning must "help learners make connections and appreciate the relationships with what they already value" (Kolb & Kolb, 2017, p. 394). In other words, a facilitator needs to allow and guide his/her students to find out, by themselves, what attracts them to the subject matter.

4. *Encourage expressions of thoughts, feelings, and emotions.*

Kolb and Kolb also maintain that learning is enhanced and facilitated when teachers allow their learners to express their deep thoughts and feelings about the learning process. This authentic expression of thoughts, feelings, and emotions aims to reinforce the relationship between teachers and their students, but more importantly, to support learners' intellectual maturity.

5. *Make yourself available as a learner.*

Once the teacher-student relationship of trust and acceptance is established, teachers can share their genuine reactions, thoughts, and feelings of learners' experiences as a member of the class without making any judgments or evaluations (Kolb & Kolb, 2017). This is important to strengthen the relationship between the

teachers and the learners and improve their understanding of the learning experience.

6. *Accept your own limitations.*

Teachers must be honest with themselves and accept that like learners they have limitations and flaws, especially in following the previously mentioned tips. This acceptance is a necessary first step towards developing themselves. In other words, “you can engage in authentic and growth-promoting interaction with your students” only when you accept your limitations (Kolb & Kolb, 2017, p. 395)

#### **2.2.4.3. The Coach**

According to Kolb and Kolb (2017), coaching is the most emergent and active role as it mainly aims to help learners put their knowledge into practice to achieve their learning objectives. Adopting this role, “educators are required to balance the creative tension among four key interconnected learning components: the coaching relationship, the content, the learning goal, and the learning context, to guide learners to achieve their purposes” (Kolb & Kolb, 2017, p. 395).

Many coaching models were proposed in a variety of domains based on ELT and coaching around the learning cycle as a framework (Chapman, 2006; Gallimore & Tharp, 2004; Matsuo, 2014; Schemp, McCullick, & Mason, 2006). Effective coaching implies the adjustment of the subject matter content to students’ skill level while supervising their development and progress toward acquiring higher-order skills within a specific learning context (Kolb & Kolb, 2017). As a result, educators are required to continuously move through the learning cycle with their learners “while actively exploring and experimenting with effective ways to transfer knowledge, the best way to apply domain-specific skills and help learners achieve their goals.” (Kolb & Kolb, 2017, p. 395).

#### 2.2.4.3.1. Tips for the Coaching Role

Coaching is very fluid, dynamic, and highly contextual as it operates in real life and “requires educators to hold the dialectic tension among four key components: the coaching relationship, content, learning objectives, and context” (Kolb & Kolb, 2017, p. 397). Because the coaching role is highly contextual and often influenced by the unique learning context demands in which educators operate, it is difficult to set a definite list of precise and detailed principles applicable to all contexts. However, Kolb and Kolb attempted to provide educators with some tips that can be applied in different learning contexts and are worth considering in planning and designing activities and lessons.

1. *Establish a trusting learning relationship.*

Trust, according to Kolb and Kolb, is a cornerstone of any educator-learner relationship. The relationship between educators and learners must be based on mutual agreement and understanding of the required learning objectives. Getting the learners’ commitment to an effective learning relationship requires their trust in the educator’s commitment to lead them to achieve the learning goals. This means that both educators and students need to trust each other to fulfill their objectives and goals.

2. *Create a learning contract in conversation.*

It is important in the coaching role to have open and explicit conversations with learners about learning and learning-how-to-learn that can be used as an entry point into the learning cycle. Educators and learners need to share their perspectives and agree upon the learning objectives and agenda to be accomplished as well as the course of actions and procedures to achieve the set goals (Chapman,

2006). Having these regular conversations is also very important to constantly revisit the contract and examine its progress. (Kolb & Kolb, 2017)

3. *Define learning goals.*

Setting clear and definite objectives and goals for the educational process is an elementary and critical step in planning and designing the curriculum and activities. Teachers must clearly articulate the learning objectives they want their learners to achieve by the end of each, semester, course, or even session. Setting clear goals help learners and teachers monitor the progress of learning progress in a more effective way (Kolb & Kolb, 2017)

4. *Get to know the learner.*

A coach must study and analyze his/her learners' individual learning styles, temperaments, attitudes, mental readiness, and skill level. This gives educators an entry point into learners' minds and hearts. Spending time to know them gives learners the impression that their coach values them and thus, would be more willing and committed to engage in the learning process. As said: "once you get to know your students well, you can make them learn practically everything" (Kolb & Kolb, 2017, p. 403)

5. *Help learners identify and define the problem.*

Educators must avoid immediately guiding their learners in the right direction. Instead, let them think, try, and struggle first to give them an opportunity to find their way out on their own.

6. *Be a disciplined observer.*

Careful observation of learners is the best way to analyze learners' skill levels, identify the problem areas that need improvement, and plan for the right teaching strategy that helps achieve their goals.

7. *You haven't taught until they have learned.*

The primary aim of any teaching process is to make learners learn something new. The Coach role's main objective is more than the simple delivery of knowledge, instead, it aims to help learners put a specific knowledge they have learned into practice in a specific context. That is, if an ELF teacher, for example, is preparing his students to communicate and teach English, he/she must have them communicate and teach the language. Therefore, unless he/she achieves this goal, the teacher cannot be considered a coach.

8. *Failure to prepare is preparing to fail.*

Bain (2004) and Kolb and Kolb (2017) found that outstanding educators spend as much time researching, studying, and testing the best pedagogy that fosters student learning outcomes as they spend mastering their domain expertise. Although, as mentioned earlier, the Coach's role is highly contextual, it is very important to prepare and plan for the lesson following the “just in case” approach to get ready for unusual situations.

9. *Modeling.*

Modeling or teaching by our actions is a very effective strategy in the coaching role. Educators need to demonstrate to learners the example of how to transfer knowledge into practice through their own actions.

10. *Encourage deliberate practice.*

As Gallimore and Tharp (2004, p. 133) assert that deliberate practice or drilling is “intended to achieve an automaticity or mastery of fundamentals that opens up opportunities for individual creativity and initiative”.

#### **2.2.4.4. The Standard-Setter/ Evaluator**

Many traditional teachers share the same narrow and dogmatic view of grades as the main criteria to evaluate and assess learners because of the educational system that has been centered around rank-ordering students into ‘successful’ and ‘unsuccessful’ based on “a simplistic measurement of how well they were able to parrot back what they were taught” (Bain, 2004; Kolb & Kolb, 2017, p. 406).

Kolb and Kolb maintain that

In contrast to a lecture-based traditional education that relies primarily on the the-one-size-fit-all evaluation of the abstract dimension of the students’ performance outcomes, experiential learning conceives learning as a holistic process in which the evaluation of the learning outcomes needs to be based upon students’ effective integration of affective, perceptual, cognitive, and behavioral dimensions of learning (p. 407).

Consequently, according to Kolb and Kolb (2006), diverse, complex, and authentic assessment methods are required in experiential learning to adequately evaluate students’ integrated learning functioning and match the multidimensional teaching and learning strategies applied in the classroom.

As education started to move from traditional methods toward more modern and progressive ones, a growing need to innovate more comprehensive methods to assess teaching and learning outcomes has appeared (Litchfield & Dempsey, 2015; Angelo & Cross, 1993; Boud & Falchikov, 2006; Boud, 2013; Santos, Cook, & Hernandez-Leo, 2015). Consequently, many researchers from Asia, China, Hong Kong, Macao, Singapore, Japan, Taiwan, and South Korea appeared to lead the initiative to replace the traditional methods of evaluation toward a learner-centered education with a

particular focus on creating a holistic and relevant assessment (Koh, Tan, & Ng, 2012; Koh & Luke, 2009).

#### **2.2.4.4.1. Tips for the Standard-Setter/ Evaluator Role**

The following tips can guide the experiential evaluator/standard-setter educator.

##### *1. Authentic outcome assessment.*

“the best predictor of the ability to do something is the actual doing of it-not multiple-choice answers about what to do, or knowing what to do, saying I would” (Boyatzis, Cowen, & Kolb, 1995). In other words, educators have to assess students for the objectives they are teaching them. If an EFL teacher’s objective, for example, is to make students able to communicate using the English language then they must have them communicate in real-life contexts to evaluate their performance and see whether they had met the set standards. A simple multiple-choice assessment would not be enough then. Therefore, authentic assessment and authentic standards are key elements in the Standard/Setter Evaluator role as it brings education closer to real life. The term authentic, according to Kolb and Kolb (2017), means that learners should be able to demonstrate their ability to transfer the skills and knowledge they have learned in real-life contexts.

##### *2. Learner focused.*

According to Kolb and Kolb (2017), helping students to take full responsibility of their learning to become autonomous lifelong learners is the ultimate goal of education. As such, educators should help learners acquire meta-learning skills to understand the way they learn-their learning styles and skills, beliefs, habits, as well as their own attitudes. This understanding will provide them with a set of skills transferable to a wide range of life contexts. In effect, learners must be also involved in the self- and peer-assessment process. Kearney and Perkins (2014)

assert that when students are actively engaged in every step of the creation of their evaluation criteria, they better understand the learning objectives and are effectively able to use peers' and teachers' feedback in their future work.

### 3. *Teacher-focused.*

As seen earlier, educators are also subject-matter experts in addition to being evaluators and standard setters. Therefore, it is important for them to evaluate their own teaching to better monitor their teaching and students' learning. Kolb and Kolb (2017, p. 409) suggest some helpful questions to evaluate teaching: "(1) Is the material worth learning? (2) Are students learning what I am teaching? (3) Am I encouraging my students to learn? (4) Am I encouraging my students to trust their own experiences?" These questions according to them will bring educators' teaching to a clear focus by "improving their ability to set meaningful learning objectives and authentic standards from which to evaluate students' work".

### 4. *Context specific.*

A truly authentic assessment, according to Kolb and Kolb, promotes effective and high-quality learning as it strengthens the connection between content knowledge and real-life application (Brown, Collins, & Duguid, 1989; Darling-Hammond & Snyder, 2000; Kearney & Perkins, 2014). Real-life-close learning requires careful yet flexible organization and planning of learning tasks, selection of materials, and time allocation activities to reduce real-life context mess and complexity (Kolb & Kolb, 2017). Kolb and Kolb also assert that the "quality of student learning in a real-life context can be greatly enhanced by the educator's ability to flexibly adjust their teaching to meet students' needs and contextual demands" (p. 409).

5. *Ongoing.*

The main purpose of assessment is to enhance the quality of student learning and not only to evaluate or grade students' performance at a fixed point in time (Kolb & Kolb, 2017). As such, an evaluator educator needs to assess students in an ongoing way that allows educators to get informed about what and how students are learning. That is, continuous assessment in dynamic teaching aims to provide teachers with information that can help them improve their teaching and make it more relevant and congruent with students' needs on an ongoing basis. Thus, in spite of the fact that ongoing assessment is effort and time-consuming, it remains a very effective way to understand and promote learners' emotional, physical, and intellectual development (Kolb & Kolb, 2017).

6. *Setting authentic standards.*

Cited in Kolb and Kolb (2017), Wiggins (1989) noted that an authentic standard simulates and replicates what engineers, doctors, historians, and musicians do, not just what they know. This means that authentic assessment must be based on authentic standards that put the learned knowledge into real-life action. While conventional assessment focuses on students' acquisition of knowledge, authentic assessment focuses on students' application of knowledge in real-life contexts that meet three criteria: "ability to construct knowledge, disciplinary inquiry, and value beyond school" (Kolb & Kolb, 2017, p. 411). Authentic learning and evaluation engage learners in higher-order thinking to find answers and solve problems. Therefore, assessment in the Dynamic Matching Model does not only evaluate but it also teaches.

## Conclusion

As shown in this chapter, learning development has great importance in an individual's educational, professional, and even personal life. It has also been clarified that an adult's level of development is indicated by his/her level of learning flexibility. That is, the learning flexibility level is the most appropriate indicator of students' learning development as it is also related to the level of integration of the four modes of the learning cycle as well as to the backup styles range. Consequently, in this research, the two terms learning development and learning flexibility are used interchangeably. Moreover, it is suggested that a student's learning can be developed and promoted through the adoption of the Dynamic Matching Model of "teaching around the learning cycle" (Kolb & Kolb, 2013). Consequently, this chapter introduces the two concepts and how the Dynamic Matching Model can be best used to foster EFL students' learning development. The following chapter aims to introduce the research methodology and design.



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## Chapter Three

### Research Methodology and Design

#### Introduction

It is widely agreed that the validity and quality of any research depend on the appropriateness of the research methodologies and methods used in its development. As such, this chapter determines the design, population, sample, instruments, data collection and analysis procedures as well as methodological considerations adopted in this research.

#### 3.1. Research Questions and Hypotheses

The current research is designed to answer the following research questions and test the related hypotheses.

##### 3.1.1. Research Questions

1. What are first-year EFL students' perceptions of their learning experience in higher education?
2. What are EFL teachers' perceptions about learning development in higher education?
3. What is the Educator's Role Profile of EFL teachers as assessed by the KERP?
4. What is first-year EFL students' learning style profile as assessed by the KLSI 4.0?
5. To what extent would the integration of Experiential Education (the Dynamic Matching Model) affect first-year EFL students' learning development as assessed by the KLSI 4.0?

6. What are first-year EFL students' views concerning the effects of Experiential Education (the Dynamic Matching Model) on their learning development?

### **3.1.2. Research Hypotheses**

Following the research questions of this study, it is hypothesized that:

#### **1. Alternative Hypothesis ( $H_1$ )**

If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model) they would demonstrate development in their learning as assessed by the KLSI 4.0.

#### **2. Null Hypothesis ( $H_0$ )**

If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model) they would not demonstrate development in their learning as assessed by the KLSI 4.0.

#### **3. Alternative Hypotheses 2**

**H<sub>1.1</sub>**. If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model), there would be significant differences in the experimental group's learning as assessed by the KLSI 4.0 between the pre-test and post-test.

**H<sub>1.2</sub>**. If first-year EFL students are taught using Experiential Education (The Dynamic Matching Model), there would be significant differences in terms of students' learning as assessed using the KLSI 4.0 between the experimental group and the control group.

#### **e. Null Hypotheses 2**

**H<sub>0.1</sub>**. If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model), there would be no significant differences in terms of

learning as assessed by the KLSI 4.0 between the experimental group's pre-test and post-test.

**H<sub>0.2</sub>**. If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model), there would be no significant differences in terms of students' learning as assessed using the KLSI 4.0 between the experimental group and the control group results.

### **3.2. Research Variables**

A Variable, according to Hatch and Lazaraton (1991, p. 51) is defined as “an attribute of a person, a piece of text, or an object which “varies” from person to person, text to text, object to object, or from time to time”. Khotari (2004) also defines it any concept that can take various values.

#### **1. Independent Variable**

Experiential Education also called the Dynamic Matching Model of teaching around the learning cycle is the independent variable that affects the dependent one(s).

#### **2. Dependent Variable(s)**

EFL students' learning development as assessed by the KLSI 4.0 is the main dependent variable as it is the main consequence of the independent variable, namely Experiential Education. This variable includes the students' use of the four learning modes (abilities), their learning style typology, and backup styles with more focus on their learning flexibility level as it is considered the most important indicator of one's learning development level and the main goal of Experiential Education.

### **3.3. Research Design**

The success and validity of any investigation depend on the appropriateness of its research design (Kenneth & Bruce, 2011). A research design is defined as the conceptual structure blueprint or plan followed to investigate the research questions or

hypotheses in a logical, economical, and coherent way (Kothari, 2004). In addition to that, Henning, Van Rensburg, & Smit (2004) further maintain that the research design is the ‘descriptor’ of the way in which the investigation is developed and the research findings are presented. That is, it includes a detailed description of all the procedures followed in the research starting from writing the research hypothesis and ending with the data analysis and interpretation (Kothari, 2004). The research design is determined by the notion of ‘fitness for purpose’ (Cohen, Manion, & Morrison, 2007). This research aims to investigate the effect of Experiential Education through the integration of the Dynamic Matching Model on first-year EFL students’ learning development at the Department of English Language and Literature at Mohamed Lamine Debaghine Setif 2 University. Therefore, for the purpose of the present study, three different research designs are adopted. First, this research involves first-year students at the Department of English Language and Literature at Mohamed Lamine Debaghine Setif 2 University which means that a single-site case study is required for the sampling design. Second, because this study investigates the effect of Experiential Education on students’ development, the quasi-experimental design is also used. Finally, since this inquiry relies on both qualitative and quantitative data collection instruments, a mixed-method design is also adopted.

### **3.3.1. Quasi-Experimental Design**

An experimental design stands on a cause-effect relationship between the dependent and the independent variables. That is to say, it is a kind of research in which variables are manipulated to test a hypothesis (Cohen, Manion, & Morrison, 2007) that predicts the effect of an independent variable on a dependent one. A true experimental also called hypothesis-testing research design requires control over three principles: (1) the principle of replication; (2) randomization of exposure principle; (3) and the

principle of local control (Kothari, 2004). When experimental research lacks control over the randomization of exposure it is termed quasi-experimental research (Cohen, Manion, & Morrison, 2007). This design, in fact, is the most common in educational research as it is quite impracticable to rely on random selection or assignment of schools and classes. That is, both true experimental and quasi-experimental designs test a cause-effect relationship hypothesis with manipulation of treatment with the difference that the true experimental research necessitates random assignment while the quasi-experimental does not (Bhattacharjee, 2012). Random assignment “involves selecting at random from a list of the population (a sampling frame) the required number of subjects for the sample” (Cohen, Manion, & Morrison, 2007, p. 110). This technique gives all members of the population equal chances to be selected to take part in the research. In this research, such randomization was unfeasible mainly because of students’ different and full timetables that did not allow for scheduling the necessary treatment sessions for randomly assembled groups. Therefore, there was no other choice but to choose full groups that were already assembled by the Department of English Language and Literature at Mohamed Lamine Deghine Setif 2 University.

As a result, the current study is a quasi-experimental research because it has attempted to test the research hypothesis saying that the integration of Experiential Education through the Dynamic Matching Model would enhance students’ learning development without using a random sampling technique in its assignment of the experiment and control groups (Kothari, 2004; Cohen, Manion, & Morrison, 2007). This quasi-experimental research involved one control group and one experimental group that were not randomly or equivalently assigned for several reasons and constraints. However, the two groups were evaluated before and after the treatment using a pre-test and a post-test to assess the effect of Experiential Education on

students' learning development. As such, this research, according to Cohen, Manion, & Morrison (2007), can also be said to adopt a pretest-post-test non-equivalent group design (NEGD) as it relied on non-equivalent experimental and control groups that both took a pre-test and a post-test. This design is defined as a quasi-experimental research that comprises a treatment, a treatment group, and a comparison group, that is, it involves the integration of the dependent variable and evaluation of the experiment and control groups before and after the treatment using a pre-test and post-test (Campbell & Stanley, 1963; Trochim, 2006).



**Figure3.1. Pre-test/ Post-test Non-Equivalent Group Design (Cohen, Manion, & Morrison, 2007, p. 283)**

### 3.3.2. Single-Site Case Study Design

“A case study design is employed to gain an in-depth understanding of the situation and meaning for those involved. The interest is in the process rather than outcomes, in context rather than a specific variable, in discovery rather than confirmation” (Merriam, 1998, p. 19). Yin (2003, p. 13) further clarifies that a case study research is “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident”. In other words, a case study is an in-depth research that attempts to investigate a real-life phenomenon in its real-life context. Although the results of case studies may not be generalized beyond the case being studied, they are useful in the sense that they provide authentic data and results about features that may be missed in large-scale studies. As such, this design was also used in the present study because it allowed an intensive investigation and insights regarding

the effect of experimental education on first-year EFL students' development in an authentic classroom context. This case study research also opted for a single site which is the Department of English Language and Literature at Mohamed Lamine Debaghine Setif 2 University- Algeria. Therefore, it is also considered as a single-site case study research which refers to the investigation conducted in one single setting rather than multiple different settings (Yin, 2003). The latter, i.e. the research conducted in multiple settings, is called a multiple-sites case study. The single-site case study was opted for because multiple case studies would require more financial costs, effort, and time.

### **3.3.3. Mixed Method**

Based on the nature of the data, data collection instruments, and data analysis, research designs can be classified into three categories: quantitative, qualitative, and triangulation design which mixes qualitative and quantitative methods. The mixed-method approach is considered as the ultimate quest of answering the research questions as it provides "different but complementary data on the same topic" (Morse, 1991, p. 122). That is, a variety of insights and perspectives regarding the phenomenon being under investigation is presented to strengthen the validity of results (Creswell, 2005) and help overcome the weakness of single methods (Dörnyei, 2007). Although they serve different purposes, the quantitative and qualitative data complete and strengthen each other. The triangulation design's features and advantages are better clarified in Denscombe's (2008) words:

It can increase the accuracy of data; provide a more complete picture of the phenomenon under study than would be yielded by a single approach, thereby overcoming the weaknesses and biases of single approaches; enable the researcher to develop the analysis and build on the original data. (p. 272)

As mentioned earlier, the present inquiry is quasi-experimental, thus, quantitative by nature. However, being an educational research that deals with human beings (students and teachers), it is inevitable to investigate the phenomenon under study from an additional humanistic perspective that goes beyond numbers and statistics to seize the participants' personal insights, perceptions, and attitudes in a qualitative way. Accordingly, in this research, both qualitative and quantitative approaches to data collection and data analysis were utilized. The quasi-experimental study relied on the Kolb Learning Style Inventory 4.0 as a pre-test and post-test instrument providing quantitative as well as qualitative data about students' learning style typologies, their learning modes, level of flexibility and backup styles, in addition to the Personal Application Assignment that aims to evaluate students' experiential learning progress. The pre-experimental phase made use of two questionnaires that provided quantitative as well as qualitative data about teachers' and students' perceptions regarding the learning difficulties, instructional practices, and learning development in higher education in addition to the KERP. The qualitative approach was also integrated through the focus group discussion that was used in the post-experiment phase in addition to the quantitative data of the post-treatment questionnaire.

### **3.4. Research Locale**

During the academic year 2021-2022, this research was conducted at the Department of English Language and Literature- the Faculty of Letters and Literature at Mohamed Lamine Debaghine Setif 2 University- Algeria. The department subscribed more than a thousand and two hundred students and sixty teachers.

### **3.5. Participants**

Both EFL students and teachers were involved in the accomplishment of this inquiry. Their integration in the study is as follows:

### **3.5.1. Participants in the Exploratory Phase**

Before engaging in the quasi-experimental study, an exploratory study was conducted with the aim of exploring the EFL classroom reality to have a better understanding of the problem using two questionnaires and depict the research problem. The first one was administered and answered by 46 first-year EFL students while the second one involved 15 EFL teachers of first-year students. The two questionnaires were at first pilot tested by three teachers and ten students for time and word clarity. Modifications were applied to the suggestions of the pilot tests. In addition to that the same 15 teachers who answered the teachers' questionnaire participated in the KERP inventory that was used to explore teachers' role profiles.

### **3.5.2. Participants in the Pre-Experimental Phase**

The research sample consists of two first-year classes of 38 first-year students: a group of 20 students as the EG and another of 18 students as the CG. Both groups were concerned with the pre-testing phase and took and answered the KLSI 4.0. The KERP was also taken by the researcher prior to the treatment in order to evaluate her use and balance of the four educator roles.

### **3.5.3. Participants in the Experimental Phase**

The EG including 20 students underwent the research treatment using the Dynamic Matching Model of teaching around the learning cycle of Experiential Education throughout 12 sessions. The CG was taught using the traditional method; thus, they were not actually involved in this phase.

### **3.5.4. Participants in the Post-Experimental Phase**

After the treatment phase, both EG and CG took the post-test. In addition to that, the 20 students of the EG undertook the post-treatment questionnaire and six

students of them volunteered to participate in the focus group discussion to explore the EG's reflections about the whole experiment experience.

### **3.6. Research Population and Sample**

Sim and Wright (Sim & Wright, 2000, p. 111) define the target population as “the collection of cases in which the researcher is ultimately interested and to which he or she wishes to make generalization”. Hence, the population of this study involves first-year students at the Department of English Language and Literature at Mohamed Lamine Debaghine Setif 2 University in 2021-2022. The population of 290 students was divided into 14 groups.

The choice of this population was based on a number of reasons such as:

1. It is believed that the first year at university is a critical phase in which students are supposed to move from pedagogical education to andragogical education. According to Dunn (2000) and Kolb and Kolb (2013), first-year students face difficulties and even fail to adapt to the new teaching methods at university because of their previous passive learning experience at secondary school. Therefore, it was important to, first of all, check the accuracy of these claims in the Algerian classroom reality in higher education; and then try to find solutions that would help new students better adapt to the new educational experience, succeed in their studies, and get prepared for the professional life. That is, first-year students were seen to be the ones who probably need more support and help.
2. Although it might seem more logical to apply this research on third-year or master students as they have more experience at university, it is believed that students need as much training and help as possible to develop their learning and integrate the four learning modes and develop their learning flexibility as

possible. Therefore, it seemed more logical to start as early as possible before students start to get frustrated with their learning experience in higher education and help them succeed in their studies at university.

### **3.7. Research Sample**

“A sample is a small subgroup chosen from the larger population (Kenneth & Bruce, 2011, p. 163). Because it is not practicable to include the whole population for cost and other reasons, it is necessary to limit the study to a smaller number of representative participants. Although sampling limits the generalization of the results, it remains the only way to save time, costs, effort, and human resources and make the research feasible. Therefore, two first-year groups of eighteen and twenty students each were chosen amongst a population of fourteen groups to participate in the quasi-experimental study. The groups were divided by the administration. Mainly for financial reasons, it was not possible to involve more groups of participants because the KLSI 4.0 which is used in the pre-test and post-test is a paid tool.

The sample consists of thirty-eight students, thirty-three females (86.84%) and five males (13.15%). Twenty students attended regularly in the EG, seventeen females (85%) and three males (15%); and eighteen students in the CG, sixteen females (88.88%) and two males (11.11%). Their ages range between eighteen and twenty-one years. The sample represents about 15% of the whole population.

Fifteen teachers, ten females (66.67%) and five males (33.33%), were also involved in the exploratory phase. They were all permanent teachers at the Department of English Language and Literature at Mohamed Lamine Debaghine Setif2 University with a magister degree and a teaching experience of 2-10 years. Their ages range between 28 and 46 years.

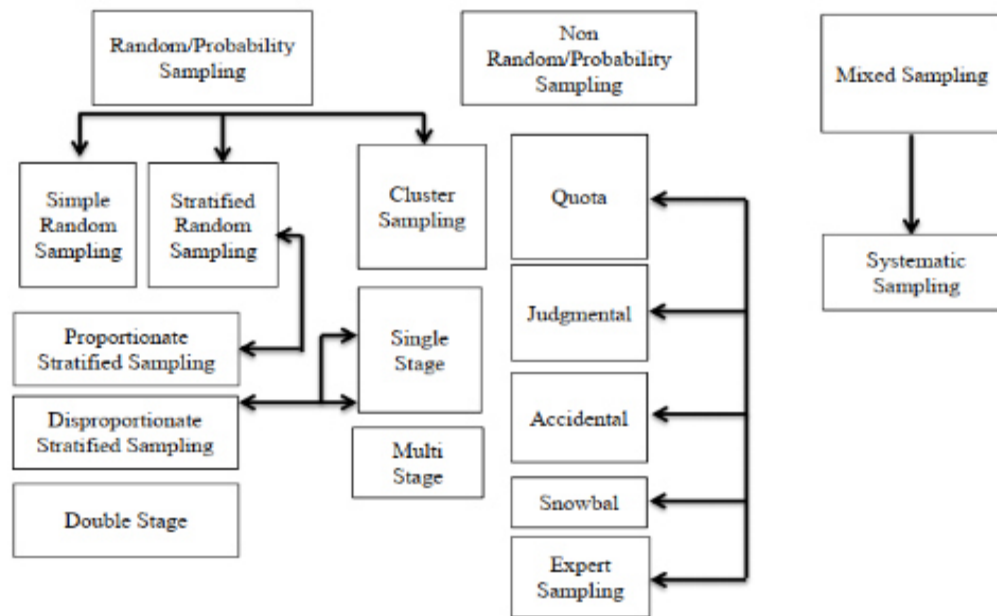
### 3.8. Sampling Technique

For generalization purposes, random or probability sampling is considered the optimal procedure to identify any research participants. However, unfortunately, it is very rare to meet random sampling in educational and psychological fields (Cohen, Manion, & Morrison, 2007; Kenneth & Bruce, 2011). Similarly, true random sampling was not possible in the present research mainly because it was not possible to schedule additional sessions for randomly selected students from all the groups in a timetable that suits the researcher and all the participants, especially during the Covid-19 pandemic period. Therefore, another type of non-probability sampling technique was used, namely convenience sampling.

“Convenience sampling-or, as it is sometimes called, accidental or opportunity sampling- involves choosing the nearest individuals to serve as respondents and continuing that process until the required sample size has been obtained or those who happen to be available and accessible at the time” (Cohen, Manion, & Morrison, 2007, pp. 113-114).

The convenience sampling technique in this study was the most appropriate especially since the experiment took place during the Covid-19 pandemic period. Two of the classes that were taught by the research were to be involved in this research because it was not possible to schedule additional sessions out of the students’ officially scheduled timetable. As such, the chosen groups participated in the study, after taking their consent, during the scheduled oral expression sessions. The EG was taught using the Dynamic Matching Model “of teaching around the learning cycle” while the CG was traditionally taught. This kind of sampling was the most convenient technique for this research in the already mentioned circumstances as it guarantees that the participants would regularly attend the treatment sessions in a normal context.

The figure below summarizes the techniques of random and non-random sampling techniques:



**Figure3.2. Types of Sampling Techniques in Quantitative Research (Kumar, 2011, p. 181)**

Although the choice of the sample was not random, the attribution of the two sample groups into EG and CG was random.

### 3.9. Data Collection Instruments

As mentioned earlier, a triangulation approach is used for the purpose of this research using quantitative as well as qualitative data collection instruments. First, questionnaires, namely the students' and teachers' questionnaires in addition to the KERP, were used in the exploratory phase in order to depict and ground the research problem. The students' questionnaire, on the one hand, was administered to two groups in order to explore their perceptions about learning styles and learning development in higher education. On the other hand, the teachers took the teachers' questionnaire that also aimed at exploring their perceptions about learning styles and learning

development in higher education. The third questionnaire is, in fact, adopted a printed version of the KERP (Kolb Educator Role Profile) that aims to assess teachers' or educators' preference for the use of the four experiential learning roles (Kolb & Kolb, 2017). Second, the KOLSI 4.0 (Kolb Learning Style Inventory version 4.0) was used in the pre-experimental phase in order to assess students' preference for the four learning modes, their preferred learning style, their learning flexibility level, as well as their backup learning styles (Kolb & Kolb, 2013). Third, the Kolb PAA (Personal Application Assignment) was also adopted in the experimental phase to evaluate the experimental group's experiential learning and contribute to the development of the experiential learning modes. Finally, in the post-experimental phase, the same pre-test was adopted as a post-test to assess students' development in addition to a post-treatment questionnaire and a focus group discussion that aim to explore the experimental groups' perceptions and reflections related to the experiment and the Dynamic Matching Model. The research instruments adopted in this study are presented in the following sections according to the different phases they were used at.

### **3.9.1. The Exploratory Phase**

The exploratory phase came, after a thorough reading of the literature related to learning theories, experiential learning theory, and adult learning and development, to explore the Algerian higher education reality and depict the existing problem regarding students' learning development within the target population. For this aim, two questionnaires in addition to the KERP were used to collect the necessary data.

#### **3.9.1.1. Students' Questionnaire**

The students' questionnaire was developed in order to explore their perceptions about their learning styles as well as learning development in higher education. Forty-six first-year EFL students at Mohamed Lamine Debaghine-Setif 2 University were

conveniently chosen to take part in the exploratory phase that primarily aimed to depict the research problem. The questionnaire was first pilot tested with the participation of ten students and some changes related to the language and types of questions were made based on the participants' feedback. Open-ended questions were avoided because it was noticed that the majority did not answer them. Some terms and words were changed because they did not understand them. The questionnaire was finally administered to students in its final version with two major sections and a total of 28 questions that varied between yes/ no questions, multiple choice questions, and three-point Likert-scale questions (Agree, Not Sure, Disagree). The questionnaire's reliability and validity were also evaluated in order to make sure that it collects valid data (see Appendix A).

### **3.9.1.2. Teachers' Questionnaire**

Fifteen teachers are also involved in this research's exploratory phase. They were conveniently chosen for their availability and were asked to answer a questionnaire of twenty-five questions that were primarily designed to gain insights about teachers' perceptions of learning styles and learning development in higher education; and thus, answer the second research question. The questionnaire included a mixture of yes/no questions and multiple choice questions divided into two main sections related to the purpose of the questionnaire. Its validity and reliability were also assessed (see Appendix B).

### **3.9.1.3. The Kolb Educator Role Profile (KERP)**

The Kolb Educator Role Profile (Kolb & Kolb, 2017) was also adopted in this phase in order to assess teachers' use and preference of the four teaching roles defined by the Kolb Experiential Education Model. The KERP is an online instrument, however, the researcher preferred to administer it to teachers in a printed version to

make sure that teachers would answer it and also to be able to directly receive their results' reports on her e-mail (see Appendix D). Hence, the teachers' answers were copied on the online version, and feedback reports were received on the researcher's e-mail and then forwarded to the participants so that they could see their educator role profile (see Appendix J). The KERP consists of 32 item pairs in each step or item pair the participant has to make a forced choice between two statements or items related to the four educator roles' preferences, teaching styles, practices, goals set for learners, and philosophy (cf. Appendix D).

Concerning the reliability of the instrument, Kolb, Kolb, Passarelli, & Sharma (2014) assert that:

Split-half reliability scores were computed for the four role preferences and four combination scores in the normative sample of 221. Coefficients for Coach (.74) and Facilitator (.82) were good but weak for Expert (.59) and Evaluator (.59). All four combination scores had good coefficients—Learner—Learner focus (.088), Subject focus (.70), Action focus (.70) and Meaning Focus (.81). (p. 224)

These results show that the KERP is a reliable instrument for data collection and can be safely used for the research aim. The Educator Role Profile was therefore adopted in this research to evaluate the EFL teachers' use of the four educators' roles and thus, their adoption of Experiential Education.

### **3.9.2. Experimental Phase Instruments**

#### **3.9.2.1. Pre-test/ Post-Test**

During the pre-experiential phase, both experimental and control groups took the KLSI 4.0 as a pre-test to assess their use and preference for the four learning modes, their learning styles, learning flexibility level, and backup styles. The pre-test aims to

assess the dependent variable before exposing the EG to the treatment and thus neutralize any effect of pre-existing differences between the CG and the EG on the results of the experiment (Lodico, Spaulding, & Voegtler, 2006). Because the KLSI 4.0 is a paid online instrument, the researcher opted for administering the instrument in a printed version in order to make sure that all participants would answer the inventory in the classroom in the researcher's presence in case they faced difficulties or had questions and more importantly to avoid any turbulence related to internet access and load (see Appendix H). As a result, the inventory instructions and items were typed and printed and then administered to the thirty-eight participants of the experimental and control group. The participants' answers were entered or copied on the Korn Ferry database through the researcher's account that was created for the current research project as a result of having the permission and paying the fees to use the KLSI 4.0 as a research instrument in this study (cf. Appendices E, F, G). The experiment group's feedback reports of the KLSI 4.0 were then received by the researcher and forwarded, afterward, to the participants' e-mails (see Appendix I). The results were then explained and discussed with the participants in order to deepen their understanding of their learning.

After the treatment phase, the two groups were exposed to the same pre-test as a post-test following the same procedures in order to avoid or at least control the threat of dissimilarity between the pre-test and the post-test in terms of the degree of ease or difficulty that may result in a threat of the internal validity of this research (Cohen, Manion, & Morrison, 2007; Lodico, Spaulding, & Voegtler, 2006). In addition to that, it was, in fact, inevitable to use the same test as it is the only possible way to make the necessary comparison between the pre-test and the post-test results mainly because the KLSI 4.0 is an adopted instrument that cannot be modified. Besides, the KLSI 4.0

cannot be replaced by another instrument because it is the only instrument that provides the measurements of the dependent variables of learning styles, modes, and flexibility. However, to avoid the participants' familiarity with the pre-test threat that might affect their answers in the post-test, a relatively distanced time interval of almost six months was established between the administration of the pre-test and the post-test (the pre-test was administered on the 14<sup>th</sup> of December 2021 and the post-test on the 7<sup>th</sup> of June 2022).

#### **3.9.2.1.1. The Kolb Learning Style Inventory KLSI 4.0**

The KLSI 4.0 is the last version of the Kolb Learning Style Inventory's six versions published over the last 40 years. The original version was created in 1969 as an experiential educational exercise developed to help learners understand the experiential learning process as well as their individual learning styles of learning from experience (Kolb & Kolb, 2013).

Kolb and Kolb (2013, p. 43) assert that the KLSI 4.0 is "the first major revision of the KLSI since 1999 and the third since the original LSI was published in 1971". This revision was, in fact, a result of many years of research including scholars and studies from all over the world and data collected from many thousands of respondents. While the old versions of the KLSI were limited to the assessment of the four learning modes and a four learning style typology, the new KLSI 4.0 includes the following four major additions as stated in Kolb and Kolb (2013, p. 43):

1. A new Nine Learning Style Typology. Based on many empirical and clinical studies over the years, the original four learning style types –Accommodating, Diverging, Assimilating, and Converging, were further refined into a nine-style typology "that better defines the unique patterns of individual learning styles and reduces the confusions introduced by borderline cases in the old four style

typology. The new nine learning styles are Initiating, Experiencing, Imagining, Reflecting, Analyzing, Thinking, Deciding, Acting, and Balancing”

2. Assessment of the Learning Flexibility Level. Based on the principle that “experiential learning styles are not fixed traits but dynamic states that can “flex” to meet the demands of different learning situations. For the first time, the KLSI 4.0 includes a personal assessment of the degree to which a person changes their style in different learning contexts”. The learning flexibility assessment also reveals the backup styles that the individual uses in addition to his/her preferred and dominant learning style type. “This information can help individuals improve their ability to move freely around the learning cycle and improve their learning flexibility”.
3. An Expanded Personal Report. The new KLSI 4.0 feedback report includes an expanded personal report that includes all the necessary, details, information, theory, and even examples needed for a better understanding of the learning style profile. It also includes details related to each learning style’ description, strengths and weaknesses, and instructions on how to improve learning effectiveness. This report aims to help learners “take charge of their learning with a planning guide for learning and tips for application in work and personal life”.
4. Improved Norms and Psychometrics. It is stated that:

This revision includes new norms that are based on a larger, more diverse, and representative sample of 10423 LSI users. The KLSI 4.0 maintains the high scale reliability of the KLSI 3.1 while offering higher internal validity. Scores on the KLSI 4.0 are highly correlated with



scores on the previous KLSI 3.1 thus maintaining the external validity that the instrument has shown over the years. (Kolb & Kolb, 2013, p. 43)

#### **3.9.2.1.2. Kolb Learning Style Inventory Purpose**

The KLSI is a self-assessment exercise and tool that was created for two main purposes according to Kolb and Kolb (2013, p. 40):

1. To serve as an educational tool to enhance individuals' comprehension of the process of learning from experience and individuals' unique approach to learning.
2. To provide an investigation tool for enriching the literature and research related to experiential learning theory and individual learning styles characteristics.

Therefore, it is worth mentioning that the KLSI "is not a criterion-referenced test and is not intended for use to predict behavior for purposes of selection, placement, job assignment, or selective treatment" (Kolb & Kolb, 2013, p. 40)

#### **3.9.2.1.3. Kolb Learning Style Inventory 4.0 Format**

The KLSI 4.0 is an instrument designed to assess a learner's preference for experiential learning styles and modes as well as the level of their learning flexibility. Kolb and Kolb (2013) claim that the KLSI 4.0 is characterized by three design parameters:

1. The test is precise and concise, making it useful and easy for research and discussion of the learning process and related feedback.
2. The test is constructed in a way that makes the respondents answer the same way as they reply to a learning situation as they are required to solve the tension between the four dialectic modes. That is, respondents are "to rank order their preferences for the abstract, concrete, active, and reflective orientations" (Kolb & Kolb, 2013, p. 44).

3. The KLSI attempts to predict, through learning styles' measurements, behavior in a consistent way with the theory of experiential learning.

In addition to these additions, the KLSI 4.0 is determined by the following features according to Kolb and Kolb (2013, p. 44):

- A short instrument that consists of 20 items -12 of them aim at assessing learning styles preferences and 8 items are used to evaluate learning flexibility.
- The KLSI 4.0 is only available in an online version because of its complex scoring formula for learning flexibility.
- As far as its language is concerned, the KLSI items are directed to the 7<sup>th</sup>-grade reading level with a very simple vocabulary and sentence structure.
- The KLSI is intended for teenagers and adults only, therefore, children are not concerned with it.
- The KLSI has been translated into many different languages including Arabic, Chinese, French, Japanese, Italian, Portuguese, Spanish, Swedish, and Thai;
- Many cross-cultural studies have been done using the KLSI (Yamazaki, 2002).

#### **3.9.2.1.4. The Forced-Choice Format of the KLSI**

As mentioned earlier, the KLSI 4.0 consists of twenty forced-choice format items where the respondents have to rank order their relative choice preferences among the four modes of the learning cycle. This forced-choice format was imposed by the primary purpose of the instrument as well as the holistic and dynamic nature of the Experiential Learning Theory. That is, the forced choice format of the KLSI imitated the process of conflict resolution among the four interdependent modes and dimensions of the learning cycle, as such; the choice one mode imposes not choosing the opposite pole. Consequently, choosing one preference from each item imposes not choosing the

other preferences at the same time though they are all interdependent, hence, rank ordering them is the best solution.

The rank-ordering of the relative preferences among the four learning modes provides information about individuals' learning approaches by making intra-individual comparisons between their preferences.

### 3.9.2.1.5. Reliability and Validity of the KLSI 4.0

The instrument's reliability and validity are one of the primary concerns of any research as they reflect the validity and reliability of the research itself as well as its results. Therefore, it is very important to make sure that the research instruments mainly the pre-test and post-test are reliable and valid tools testing exactly what they are intended to test consistently.

#### 3.9.2.1.5.1. Internal Consistency Reliability

Studies about the KLSI 4.0's internal consistency reliability revealed that it has a high scale reliability with an average scale of (Cronbach Alpha) = .81. The following table shows the alpha coefficient for the normative group and sub-groups.

**Table 3.1. Internal Consistency Alphas for the Scale Scores of the KLSI 4.0** (Kolb & Kolb, 2013, p. 52)

	<b>N</b>	<b>CE</b>	<b>RO</b>	<b>AC</b>	<b>AE</b>
<b>Total Norm Group</b>	10423	.83	.83	.83	.83
<b>Medical Students</b>	670	.82	.83	.85	.77
<b>Nursing Students</b>	38	.84	.88	.88	.86
<b>Law Students</b>	166	.79	.78	.84	.73
<b>University Undergraduate</b>	500	.82	.83	.80	.73

<b>University Graduate</b>	1478	.83	.83	.81	.72
<b>Adult HE E-learning</b>	663	.84	.80	.78	.72
<b>Managers</b>	1724	.84	.84	.82	.78

### 3.9.2.1.5.2. Test-Retest Reliability

In spite of the long-standing debate about the meaningfulness of the test-retest reliability of the KLSI, there have been some studies that attempted to assess the KLSI. Due to the high correlation between the KLSI 3.1 and the KLSI 4.0, results about the KLSI 3.1 are seen to be applicable for the KLSI 4.0. Veres, Sims, & Locklear’s study (1991), as explained in Kolb and Kolb (2013, pp. 52-53), included initial (N=711) and replication (N=1042) groups of business employees and students administered the KLSI 3.1 three times with 8weeks interval. The test-retest results, as illustrated in the table below, have shown correlations well above .9 in all cases. This means that very few students changed their learning style from one administration to the other.

**Table 3.2. Test-Retest Reliability for KLSI 3.1. (Veres, Sims, & Locklear, 1991; Kolb & Kolb, 2013, p. 53)**

Time	Concrete			Reflective			Abstract			Active		
	1	2	3	1	2	3	1	2	3	1	2	3
<b>Initial Sample (N=711)</b>												
1												
2	.95			.96			.91			.95		
3	.92	.96		.93	.91		.94	.91		.91	.91	
<b>Replication Sample (N=1042)</b>												
1												
2	.96			.98			.91			.99		
3	.99	.96		.91	.99		.96	.96		.91	.99	.96

Data source: Veres et al. (1991). Reproduced with permission. Time between tests was 8 weeks. Note: Kappa coefficients for the initial sample were .81 for Time 1-Time2, .71 for Time 1-Time 3 and .86 for Time 2-Time 3. These results indicate that very few subjects changed their learning style classification from one administration to the other.

Ruble and Stout (1991), on the other hand, revealed very different results by administering the LSI to 253 undergraduate and graduate business students and found test-retest reliabilities that averaged .54 for the six LSI scales. The study, as shown in the table below, indicated that 47% of students with a Kappa coefficient of .36 altered their learning style type on the re-test.

**Table 3.3. Test-Retest Reliability for KLSI 3.1. (Ruble & Stout, 1991)**

Sample	N	CB	KO	AC	AB	AC-CB	AB-KO
UG&Grad business majors	253	.81	.59	.61	.58	.48	.60

*LSI was readministered but in different order than KLSI 3.1. Time between tests was 5 weeks. Kappa coefficient was .36 placing 53% of respondents in the same category on retest.*

The discrepancy between the results of the two studies is difficult to explain, according to Kolb and Kolb (2013), however, it does not undervalue the value or the reliability of the KLSI as both studies' coefficients ranged between moderate and excellent reliability. Besides, both results correspond with ELT which suggests that learning styles are relatively stable but can be changed depending on the learning situation and demands.

### 3.9.2.1.5.3. Internal Validity

Studies have shown that the KLSI 4.0 and the KLSI 3.1 have highly correlated scores which means that validity research with previous KLSI versions applies to the KLSI 4.0 maintaining the external validity that the instrument has shown over the years. The average correlation between the two scales equals .92.



**Table3.4. Correlation Scores between KLSI 4.0 and KLSI 3.1 Scales (Kolb & Kolb, 2013, p. 54)**

		CE4	RO4	AC4	AE4	ACCE4	AERO4
KLSI 3.1 Concrete Experience	Pearson Correlation	.786**	-.454**	-.464**	.067**	-.753**	.329**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	10423	10423	10423	10423	10423	10423
KLSI 3.1 Reflective Observation	Pearson Correlation	-.230**	.965**	-.166**	-.476**	.034**	-.879**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	10423	10423	10423	10423	10423	10423
KLSI 3.1 Abstract Conceptualization	Pearson Correlation	-.372**	-.179**	.990**	-.431**	.829**	-.118**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	10423	10423	10423	10423	10423	10423
KLSI 3.1 Active Experimentation	Pearson Correlation	-.126**	-.432**	-.428**	.938**	-.187**	.787**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	10423	10423	10423	10423	10423	10423
KLSI 3.1 AC-CE	Pearson Correlation	-.663**	.144**	.857**	-.297**	.920**	-.254**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	10423	10423	10423	10423	10423	10423
KLSI 3.1 AE-RO	Pearson Correlation	.072**	-.825**	-.131**	.801**	-.123**	.965**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	10423	10423	10423	10423	10423	10423

ELT and its related KLSI maintain that learning is based on two dialectic bipolar dimensions of grasping and transforming knowledge. Consequently, the following predictions are made according to Kolb and Kolb (2013, pp. 52-53):

1. AC-CE and AE-RO should be uncorrelated.
2. CE and AC scales should not correlate with AE-RO and the AE and RO scales should not correlate with AC-CE
3. The dialectic poles ACCE and AERO “should be negatively correlated, though not perfectly since the dialectic relationship predicts the possibility of developmental integration of the opposite poles.

4. The cross-dimensional scales –CE/RO, AC/AE & AC/RO—should not be correlated as highly as within dimensions scales.

Thus, the internal validity of this instrument is determined by the inter-correlation of the different modes, poles, and scales of the KLSI4.0. The following table shows these critical scale inter-correlations for a sample of 10423 that give evidence of the KLSI internal validity by showing excellent correspondence with the ELT predictions.

1. The AC-CE and AE-RO are statistically independent with a negative correlation of (-.09) between the dialectic poles AE-RO and AC-CE.
2. RO is unrelated to ACCE but AE correlates negatively with AC-CE with (-.169)
3. AC and CE have very low correlations with AE and RO as ELT proposes.
4. As predicted in ELT both AC and CE (-.369) and AE & RO (-.418) are highly negatively correlated.
5. The cross-dimensional scales, CE/AE, CE/RO, and AC/RO have very low correlations as expected, but AC/AE has a higher negative correlation (-.407) than predicted.

To sum up, these results show that the previously mentioned inter- correlations predicted in ELT compel with validation study results which means that the KLSI 4.0 is internally valid.

**Table 3.5. Inter-Correlation of the KLSI 4.0 Scale (Kolb & Kolb, 2013, p. 52)**

		CE4	RO4	AC4	AE4	ACCE4	AERO4
<b>CE4</b>	<b>Pearson correlation</b>	1					
	<b>Sig. (2tailed)</b>						
	<b>N</b>	10423					
<b>RO4</b>	<b>Pearson correlation</b>	-.225**	1				
	<b>Sig. (2tailed)</b>	.000					
	<b>N</b>	10423	10423				
<b>AC4</b>	<b>Pearson correlation</b>	-.369**	-.210**	1			
	<b>Sig. (2tailed)</b>	.000	.000				
	<b>N</b>	10423	10423	10423			
<b>AE4</b>	<b>Pearson correlation</b>	-.137**	-.418**	-.407**	1		
	<b>Sig. (2tailed)</b>	.000	.000	.000			
	<b>N</b>	10423	10423	10423	10423		
<b>ACCE4</b>	<b>Pearson correlation</b>	-.822**	.006	.833**	-.169**	1	
	<b>Sig. (2tailed)</b>	.000	.566	.000	.000		
	<b>N</b>	10423	10423	10423	10423	10423	
<b>AERO4</b>	<b>Pearson correlation</b>	.071**	-.870**	-.086**	.812**	-.095**	1
	<b>Sig. (2tailed)</b>	.000	.000	.000	.000	.000	
	<b>N</b>	10423	10423	10423	10423	10423	10423

\*\* *Correlation is significant at the 0.01 level (2-tailed)*

In addition to the already discussed internal validity, evidence has also proved the high external validity of the KLSI in relation to age, gender, educational level, educational specialization, and culture.

### 3.9.2.2. The Personal Application Assignment

According to Kolb and Kolb (2017), the PAA is “a holistic evaluation method that gives equal weight to all four modes of the learning cycle” (p. 465). It aims to both strengthen students’ insights acquired from experiential learning and help teachers evaluate students’ learning. They also state that it is a journal or essay assignment where students have to go around the four modes of the learning cycle by choosing some experience, reflecting on it, developing theories that make sense of the experience, and finally creating future action plans based on what they have learned. These steps, going through the learning cycle, would strengthen the learners’ understanding of the learning cycle and help evaluate students’ learning from experience.

As such, this instrument is used in this research as both a growth-promoting process and an evaluation tool of the experimental group’s learning from experience. In other words, the experimental group was required to write an essay where they had to choose some experience from their personal or academic life and try to express their subjective feelings, reactions, interpretations, and reflections of the incident as well as their objective concepts and theories and finally develop some action plans for the future. Kolb and Kolb (2017) provide detailed descriptions and prescriptions for this assignment (see Appendices M, L). This assignment was given to the experimental group during the third week and after a short training program that was used at the beginning of the treatment phase to explain aspects of ELT and learning styles (Kolb & Kolb, 2017). Generally speaking, the PAA has four main elements:

1. *Concrete Experience.* Students are required in this part of the paper to briefly describe the events of the chosen experience, the feelings, thoughts, and perceptions during the experience both in objective and subject ways.

2. *Reflective Observation.* At this stage, the student has to try to find possible meanings and interpretations or explanations of the observed events, feelings, and thoughts described in the experience. They need to look at that experience from different perspectives in a neutral objective way and reflect on their observations to find out the personal meaning that the situation had for them.
3. *Abstract Conceptualization.* Students, in this part of the paper, try to relate their previous readings, knowledge, and lectures to the target experience to better understand and explain the experience. Concepts and theories are to be utilized to find the logic behind the experience events and observation. In other words, students need to relate their concrete experiences and reflective observations with abstract concepts and theories. As such, participants were advised to think first of some theoretical concepts that interest them and then search out a personal experience that relates to these concepts to make sure they would be able to fulfill this element of the task as it is believed that this is the most complicated element of the assignment.
4. *Active Experimentation.* The last section of the essay starts with a summary of the new personal insights and practical lessons learned from the experience and then they should try to find out how to better and more effectively deal with similar experiences in the future. Detailed action plans for the future are then to be described with specific steps.

The students were provided with detailed prescriptions and descriptions of the assignment in addition to hints, guidelines, and examples to help them understand it in a better and more precise way.

### **3.9.3. Post-Experimental Phase Instruments**

After the treatment phase and the post-test, two other instruments were used--a post-treatment questionnaire and a focus group discussion. These two instruments' main aim is to explore the experimental group's reflections and attitudes regarding the treatment experience.

#### **3.9.3.1. Post-Treatment Questionnaire**

The post-treatment questionnaire aims to explore the experimental group's perceptions about the treatment and its effect on their learning development. It consists of 21 questions with a three-point Likert scale. The questionnaire is opted for at this point because it is a time-saving technique that allows tackling several points in a precise and structured way with a larger sample (see Appendix L). The post-treatment questionnaire was pilot-tested with five students and a few modifications were done at the level of the terminology and the number of questions used. Its validity and reliability were also assessed.

#### **3.9.3.2. Focus Group Discussion**

The focus group discussion is used along with the post-treatment questionnaire in order to answer the sixth research question. Being a less structured interview, the FGD helps to better communicate and discuss the participants' insights, perceptions, and reflections related to the treatment phase and its effect on their learning. This instrument was used as a complementary step to delve in-depth into students' reflections that were already tackled in the post-treatment questionnaire. The FGD protocol was pilot-tested with two students from the EG but there were no modifications or changes to be done (see Appendix M).

### **3.10. Data Collection Procedures**

Having presented and described the research instruments in the previous section, this part of the research describes the implementation of the data collection procedures. Thus, the instruments are presented based on the research phase.

#### **3.10.1. Exploratory Phase**

The research problem was first depicted using the focus group discussions and informal observations mentioned in the statement of the problem when the study's research project was first being written. However, to further delve into the current population's perceptions and update the already collected data, exploratory tools involving the students' teachers' questionnaires and the KERP were administered during the academic year 2021-2022 as follows:

##### **3.10.1.1. Students' Questionnaire**

The students' questionnaire aimed to explore students' perceptions about their ways of learning and learning experience in higher education. The purpose behind using it was to depict the problem and investigate the participants' perceptions about the topic; and thus, answer the first research question. The questionnaire was administered to the participants by the end of the first semester (7<sup>th</sup> of December, 2021) of the academic year 2021-2022 to depict their perceptions about their learning experience at university during that semester in relation to their previous experiences of learning in secondary school. The participants were supposed to have enough time to have a good idea and experience about learning in higher education. The questionnaire's aims and anonymity and confidentiality rights were explained to the participants. The respondents were asked to answer the questionnaires at their own pace and they were permitted to ask for any ambiguities while replying to the questionnaires.

### **3.10.1.2. Teachers' Questionnaire and the Kolb Educator Role Profile (KERP)**

The teachers' questionnaire and the KERP were administered to teachers in their free time during the period between the 16 and the 30<sup>th</sup> of October 2021. Both questionnaires were explained to the participants. The respondents were asked to answer the questionnaires at their own pace with the researcher's presence for any ambiguities while replying to the questionnaires.

### **3.10.2. Experiment Phase**

#### **3.10.2.1. Pre-Test**

After contacting the Hay Group, signing a Conditional Use Agreement (Appendix F), filling a Research Application form (Appendix E) that was exposed to the Hay Group scientific committee, and paying all the fees, written permission to use the KLSI 4.0 was given (Appendix G) and an account on their database was created for the researcher to facilitate and organize the conduction of the research in a way that allows the researcher to organize the research project into different files (control and experiment groups' pre-test and post-test), send invitations of participation, send the interpretive report related to the KLSI 4.0 results on the researcher as well the respondents' e-mails.

The KLSI 4.0 was, however, not administered to the participants online as it was supposed to because many of the participants declared that they did not have the internet at home and the internet load was not strong enough at the university cyber to open the inventory link. Consequently, the researcher preferred to administer the instrument in a typed version where all the 20 items were typed with the related choices and instructions, and their answers then were copied down on the online versions of the inventory. This step was also used to make sure that respondents would answer the inventory with the researcher's presence for any required clarifications. More

importantly, because the database makes sure that the respondents receive their own copy of the interpretive report in their emails, the researcher preferred the typed copies to make sure that CG does not receive their reports to avoid the feedback's influence on their learning.

The participants of the experimental group sat for the typed version of the KLSI 4.0 that was used as a pre-test on the 14<sup>th</sup> of December, 2021 at 9:30 while the control group sat for it on the same day at 14:00. The test was administered to them during the last 30 minutes of the scheduled oral expression session. Before that, the research purpose, the test aim, its importance, and instructions were explained and it was emphasized that there were no right or wrong answers in that test. Their anonymity and confidentiality rights were also clarified. The majority finished their tests in less than 20 minutes.

### **3.10.2.2. Treatment Phase**

The treatment phase went through three main phases in order to implement Experiential Education.

#### **3.10.2.2.1. Experiential Learning Sessions Phase**

The treatment started with two Experiential Learning Sessions that are already designed by Kolb and Kolb (2017, pp. 455-464). These two sessions are some sort of experiential learning workshops that aim to develop students' capacity to learn around the full learning cycle. It is based on the direct practice or implementation of the Dynamic Matching Model of Experiential Education. Before these two sessions, it was compulsory to first administer the KLSI (the pre-test) and get the participants' interpretive feedback as it was one of the most important materials of these sessions. The researcher followed Kolb and Kolb's design and guidelines and explained the KLSI 4.0 feedback report to help learners understand their individual learning styles

and flexibility. Each of the participants received a feedback report that was explained to them. As such, the students were categorized and grouped based on their preferred learning styles. A number of activities were then done by definite learning styles groups following the already mentioned design. The first session lasted for 1 hour and 15 minutes and took place during the last week of the first semester (21<sup>st</sup> of December 2021). In the second session of the same week, two oral expressions were officially scheduled per week; the objective was to increase understanding of the foundation of the experiential learning cycle modes. There were a number of activities that were done where learners actually used the different learning modes to do each activity. By the end of the session, the PAA was given to the participants as homework. As mentioned earlier, the PAA was not only meant to evaluate students' experiential learning but also to develop it and allow them to put the four learning modes into practice.

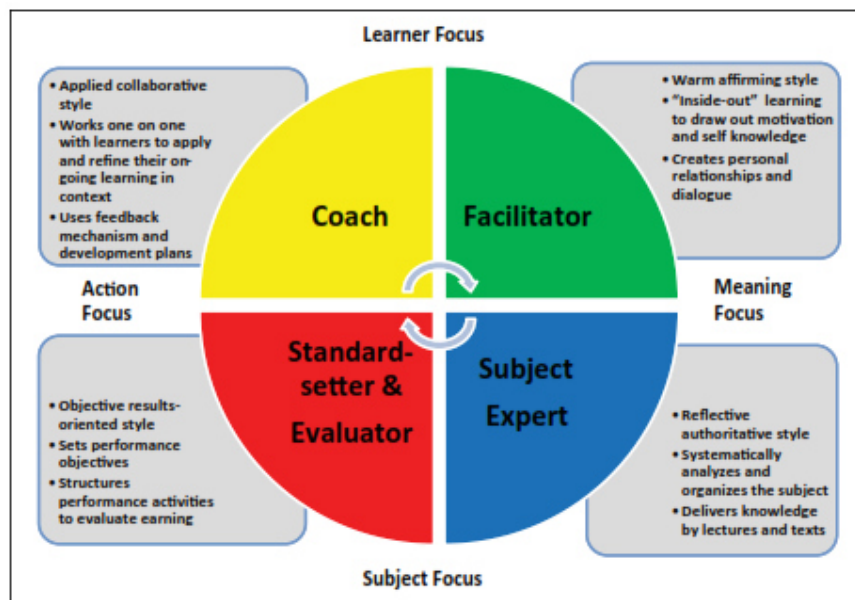
#### **3.10.2.2.2. The Personal Application Assignment (PAA)**

The Personal Application Assignment was given to the EG students on the 22<sup>nd</sup> of December, 2021 during the last session of the first semester as a kind of progress test. The students had two sessions of experiential learning in which they received explanations and made discussions about ELT and their learning styles. The PAA was given by the end of the second session as homework to be submitted on the first session of the second semester (17<sup>th</sup> of March, 2022). The participants were invited to make contact with the researcher via e-mail, Facebook, or phone for any questions or ambiguities as they were to do the PAA at home during the winter holidays. The PAA was explained many times to some students who were given several chances to redo the assignment because they did not clearly understand the instructions. Therefore, it actually took them a long time before submitting their final papers.

### 3.10.2.2.3. Implementation of the Dynamic Matching Model

The implementation of the Dynamic Matching Model took place during the second semester. It lasted for five weeks. Two different sessions were scheduled for the oral expression per week. This means that the Dynamic Matching Model was applied in ten different sessions in addition to the experiential learning two sessions, as such; the whole treatment was implemented in twelve sessions.

The oral expression sessions were designed under the premise of Experiential Education and the Dynamic Matching Model “of teaching around the learning cycle”. As explained in the previous chapter, the Dynamic Matching Model aims to foster learning by moving through the four stages of experiential learning adopting four different teaching roles that target these learning modes.

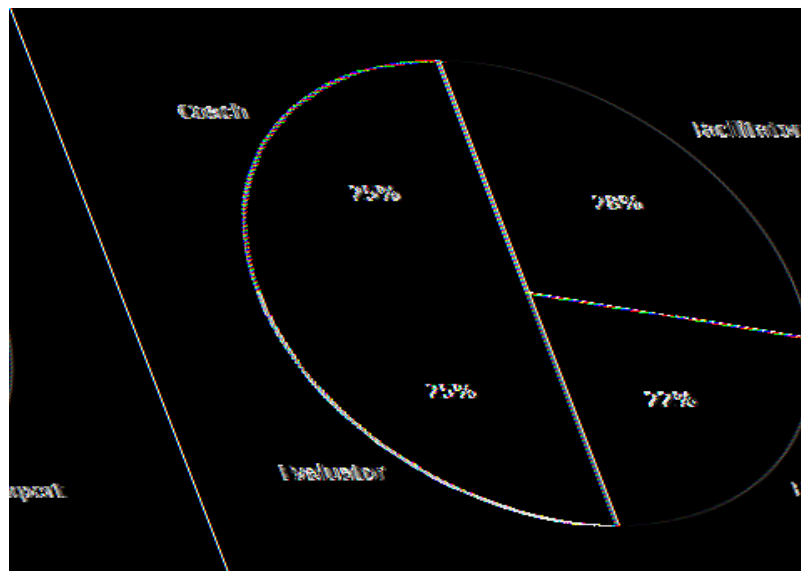


**Figure 3.3. Educator Role Profile** (Kolb, Kolb, Passarelli, & Sharma, 2014, p. 220)

Each of these roles relies on a number of beliefs, goals, and strategies that were adopted by the researcher in the treatment phase in a balanced and recursive way that imitates the recursive nature of the learning process. The most important characteristic of the Dynamic Matching Model “of teaching around the cycle” is the balanced

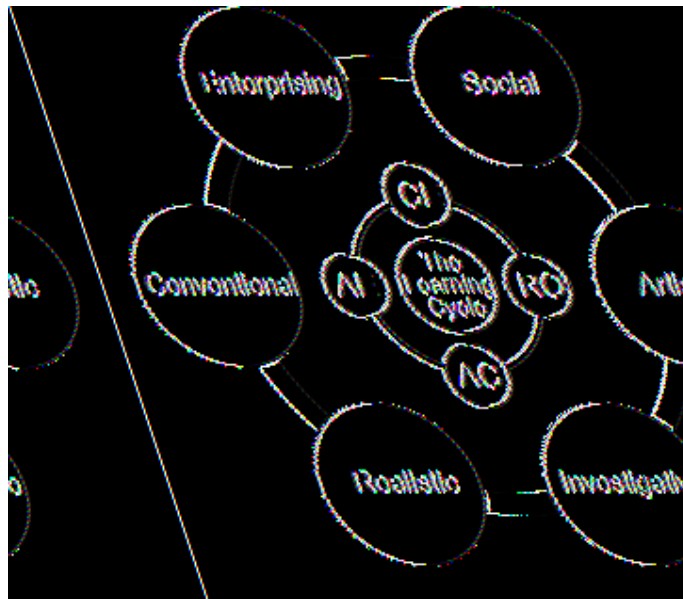
integration of the four teaching roles and learning modes. As such the course lesson plans were planned in a way that touches all four learning modes and thus matches students' learning sometimes and mismatches them at other times in a way that facilitates students' stretch of their less-preferred styles.

Prior to the implementation of the experiment, the researcher took the KERP in order to evaluate her use of the four learning modes. The results showed that the four educator roles were preferred and used in a balanced way as recommended by the Dynamic Matching Model (Kolb A. Y., Kolb, Passarelli, & Sharma, 2014) (cf. Appendix J). The figure below illustrates the researcher's KERP results.



**Figure3.4. Researcher's Preference for the Four Educator Roles (KERP Report)**

These results show a relatively higher preference for the Facilitator role at the expense of the Expert which might be attributed to the communicative nature of the oral expression course and its demands (Jones, Reichard, & Mokhtari, 2003).



**Figure3.5. Learning Modes in Relation to the Different Fields (Kolb & Kolb, 2022)**

The table below shows a sample of the task and techniques that were used in the implementation of the Dynamic Matching Model “of teaching around the learning cycle”.

**Table 3.6. Sample of a Dynamic Matching Model Session Tasks**

<b>Educator Role</b>	<b>Learning Styles and Modes</b>	<b>Instructional Techniques</b>	<b>Learning Goal</b>	<b>Examples of Treatment tasks Unite 4: In a Restaurant Objective:</b>
<b>Facilitator</b>	<b>CE+RO</b> Experiencing Imagining, Reflecting	Personal examples, group discussions, perspective taking	Develop empathy and understanding of others	<ol style="list-style-type: none"> <li>1. Students are asked to think of and share some personal incident they experienced at a restaurant be it good, bad, or funny.</li> <li>2. The incident is then discussed with the whole trying to look at it from the different points of view of the major actors trying to explain and reflect on their behavior.</li> <li>3. The students were invited to identify or reflect on the</li> </ol>

				expressions that were used in those incidents and give examples about what should have been said, the tense used, the pronunciation of some related words, etc.
<b>Expert</b>	<b>RO+AC</b> Reflecting, Analyzing, Thinking	Readings, lectures, rules	Develop analytic and conceptual abilities	<ol style="list-style-type: none"> <li>1. The students listen to an audio and identify the jargon and expressions used at a restaurant from the audio using a checklist that was provided to them.</li> <li>2. They deduce and then receive a list of expressions that can be used at a restaurant to order, complain about the service, short talks after the meal, to pay through examples and exercises.+ listening exercises</li> <li>3. “I’d like” grammatical rules and use are introduced+ listening Exercises</li> <li>4. The pronunciation of the schwa+ listening exercises</li> </ol>
<b>Coach</b>	<b>AE+CE</b> Acting, Initiating, Experiencing	Simulations, Roleplay	Develop the ability to work productively with others	<p>Students are asked to make a group (customers, waiter(s), manager) and role-play a conversation in a restaurant and</p> <ol style="list-style-type: none"> <li>1. Ask for/ discuss the menu</li> <li>2. Order food</li> <li>3. Make a complaint about the food and /or the service.</li> <li>4. offer to pay or split the bill with (a) companion (s)</li> </ol>
<b>Evaluato r</b>	<b>AC+AE</b> Thinking, Deciding,	Graded homework assignments	Develop problem- solving skills	<ol style="list-style-type: none"> <li>1. The students are asked to complete a checklist of (can do) and (need more practice) that</li> </ol>

	Acting			<p>evaluates students' achievement of the set goals and whether they can:</p> <ol style="list-style-type: none"> <li>a. Understand explanations of dishes on a menu.</li> <li>b. Offer to pay</li> <li>c. Complain effectively if there is a problem</li> <li>d. Understand restaurant reviews.</li> </ol> <p>2. Assignment: Students are asked to make groups and create and perform a scene of a fussy food reviewer visiting a restaurant. How would the restaurant staff deal with him/her?</p>
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### 3.10.3. Post Treatment Phase

#### 3.10.3.1. Post-Test and Post-Treatment Questionnaire

The post-test was administered to students on the 7<sup>th</sup> of June 2022 at 11:00 during an extra session that suited them. The time allotted for the test was 30 minutes but it only took them 20 minutes to complete it. The post-treatment questionnaire was administered after that during the same session and the students had 30 minutes to complete it with the researcher's presence for any questions, ambiguities, or even translations.

#### 3.10.3.2. Focus Group Discussion

The focus group discussion session was held 12:30 on the 9<sup>th</sup> of June 2021 with the participation of six students who volunteered to discuss their opinions and insights regarding the experiment and their perceptions about its effect on their learning. The

discussion took place in an informal and friendly settlement for about 45 minutes. The participants, including the researcher, were seated in a circle to enable them to see each other during the discussion. The issue of confidentiality and anonymity was explained prior to the discussion in addition to the aim and procedures of the FGD. The discussion was audio-recorded and notes were taken by the researcher.

### **3.11.Data Analysis Procedures**

The collected data were analyzed in two different ways depending on their nature.

#### **3.11.1. Analysis of the Quantitative Data**

The quantitative data were also statistically analyzed and represented using the Statistical Packages for the Social Sciences (SPSS.25 version). The t-test was used to test the research hypotheses and establish and evaluate the cause-effect relationship between the independent and the dependent variables by making different comparisons between the results obtained from the CG and the EG in the pre-test and post-test. These results were presented in the form of percentages, means, mean differences, and observed significance values (sig. /p-value) that were also discussed and analyzed using the normative approach. The significance value of the t-test is set at  $\alpha \leq 0.05$  for social and human sciences. More details about the t-test values are included within the analysis of data as they differ depending on the nature and size of the sample. Cronbach's Alpha analysis was also used to test the reliability of the adopted questionnaires (the students' and teachers' questionnaires and the post-treatment questionnaire). Their internal validity, however, was evaluated using the Spearman correlation.

### 3.11.2. Analysis of the Qualitative Data

The qualitative data were thematically analyzed. The interpretive approach data analysis was also used to interpret and understand the meaning perspectives of the participants in the search for patterns of meanings-in-action (Patton, 1990). The participants' answers mainly thematized, juxtaposed, and compared to each other, to the quantitative data as well as to the related literature of ELT.

The following steps were followed in order to analyze the Focus Group Discussion and open-ended questions data:

- After listening to the group interview and reading the respondents' answers, the researcher clustered together similar topics.
- Suitable headings for each topic were given and the topics were put into categories.
- The data that fell under the same topic were grouped together (Creswell, 1994:155)
- The data were finally analyzed and interpreted.

These steps were used in order to answer the sixth research question related to students' reflections and perceptions about the effect of the Dynamic Matching Model of Experiential Education.

### 3.12. Ethical Considerations

Ethical considerations and issues, especially in the human sciences including the field of education, are increasingly accentuated and multifaceted (Streubert & Carpenter, 1999; Kenneth & Bruce, 2011). Hence, a discussion of some of the ethical issues that were taken into account during this study is included in this section.

- *Informed consent*: in addition to the informed consent to use the KLSI and the KRP from the Hay Group, consent to take part in the research was also obtained

from all the participants after receiving detailed information about the research, its purpose, procedures, duration, etc. The right of free choice was guaranteed to all participants (Appendix O).

- *Anonymity and Confidentiality Right:* confidentiality and anonymity are guaranteed through the protection of the participant's identity. Although complete anonymity was not possible because of the nature of the study where it was important to have the participants' names and e-mails, especially in the pre-test and post-test data collection phase, the research was cautious about using codes and aliases in the presentation, interpretation, and analysis of the data to protect the participants' identity and confidentiality. In addition, the recording of the FGD as well as the pre-test and post-test documents were only used by the researcher.
- *Balancing costs and Benefits:* The participants did not assume costs and they were not put at any physical or moral risks, especially since the experiment was conducted during the officially scheduled sessions of the oral expression course. They also had the right to withdraw at any time they wanted. More importantly, the participants benefited from the free use of the KLSI 4.0 although a normal use of it would have cost 25\$ a use. This use of the KLSI 4.0 as a pre-test and then a Post-test allowed the students, through the feedback report that was distributed to all of them, to better know about their learning modes, styles, and flexibility, as well as their styles' strengths and weaknesses. In addition to that, the feedback report provided the participants with valuable instructions and advice about how to better benefit from their styles inside and outside the classroom and even how to develop their learning flexibility.

### 3.13.Limitations

As with any other research, this study has some limitations including the following ones:

- This study was limited in terms of the sample. First, this study is a single-site case study and was restricted to a small sample size of 38 students which might limit the generalizability of the results because of the high costs of time and money.
- Unfortunately, like most education research, the sample of this study was not randomly chosen because it was not possible to schedule sessions that would suit all randomly selected representatives of the population.
- Another major limitation of this study is its conduction during the pandemic period of Covid-19 which has affected the enrolment of the study, especially in terms of the number and duration of the scheduled sessions because of the quarantine in addition to the students' psychological state. Thus, it was necessary to conduct the study during the students' official sessions to respect the quarantine. Fortunately, none of the participants was infected by the virus.
- Time constraints prevented conducting more treatment sessions, especially as mentioned earlier with the pandemic circumstances. Having more sessions would have given more training, and thus, effect on students' learning development.
- The absence of any similar studies adopting the Dynamic Matching Model the KLSI 4.0 to develop EFL students' learning flexibility affected the analysis of the data as it was not possible to make comparisons with this research's findings and previous studies findings.

### **3.14. Delimitations**

To reduce the threat of the mentioned limitations, some measures were taken to reinforce the validity of the results. Concerning the time constraints, experiential learning sessions were scheduled before the beginning of the second semester to gain some additional time and sessions and to give the EG practical and direct training over the learning modes and styles concepts before the application of Experiential Education and its Dynamic Matching Model. The administration of the PAA, as well as some other relevant documents such as the feedback report and some articles and handouts related to ELT and learning styles, was also meant to strengthen and reinforce students' understanding of the different learning modes, learning styles, as well as learning flexibility and backup styles. As a matter of fact, these steps were also part of the treatment procedures. Concerning the random assignment of the participants, although the participants themselves were not randomly selected, the CG and the EG were selected in some sort of haphazard way. Another step that was meant to reduce the threats, was the adoption of a strongly reliable and valid instrument.

### **Conclusion**

To recapitulate, this chapter exposes the research designs, instruments, and procedures adopted in each stage of this study to collect and analyze the necessary data to answer the research questions and test its hypothesis. It presents the research questions, hypotheses, variables, the different designs adopted, details about the population, the sample, and the sampling techniques, in addition to the research stages, instruments and procedures followed. The ethical considerations as well as the limitations and delimitations related to this inquiry are also highlighted alongside some other methodological details and aspects. The data collected based on this research methodology are presented and analyzed in the coming chapter.



## Chapter Four: Results and Discussion of Findings

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## Chapter Four

### Results and Discussion of Findings

#### Introduction

This chapter represents and discusses the collected data using the students' questionnaire, the teachers' questionnaire, the KERP, the KLSI 4.0 in the pre-test and post-test phases as well as the PAA as a progress test, in addition to the post-treatment questionnaire and the focus group discussion (FGD) in the post-experiment phase. The one-sample and paired-sample t-tests were utilized to draw comparisons between the results of the control and experiment groups in the pre-test and post-test, and descriptive statistics presenting frequencies, percentages, and means were calculated in the exploratory and post-experimental phases.

#### 4.1.Exploratory Phase: Students' and Teachers' Perceptions of Learning

##### Development in Higher Education

The exploratory phase in this research was mainly concerned with exploring the classroom reality as related to EFL students' and teachers' perceptions of learning development in higher education from the students' and teachers' perspectives. Consequently, three instruments were used, namely the students' questionnaire, the teachers' questionnaire, and the KERP.

##### 4.1.1. Students' Questionnaire

The students' questionnaire was opted for in order to answer the first research question that aimed to explore the EFL students' perceptions about the learning experience and developmental practices in HE through their beliefs about their styles and their learning experience in higher education. Consequently, it was divided into two main sections to cover these two main points.

#### 4.1.1.1. Questionnaire Internal Validity

The internal validity of the students' questionnaire has been assessed by calculating the Spearman correlation coefficient using the questionnaire's scores as illustrated in the following table:

**Table 4.1. Spearman Internal Validity of the Students' Questionnaire**

	Correlation	Significance
<b>Internal Validity of the Tool</b>	<b>0.75</b>	<b>0.01*</b>

\*Significant at the  $p = 0.01$  level

The table above shows that the Spearman correlation coefficient is statistically significant at the 0.01 level, as such; the students' questionnaire is highly consistent and internally valid with a 0.75 correlation coefficient value. Consequently, this instrument is suitable and true for the aims of the study.

#### 4.1.1.2. Students' Questionnaire Reliability

The questionnaire's internal reliability is determined by the internal stability level across the sample of respondents through Cronbach's Alpha analysis as shown in the table below:

**Table 4.2. Cronbach's Alpha Reliability of the Students' Questionnaire**

Reliability Statistics	
Cronbach's Alpha	N of Items
<b>0.98</b>	<b>39</b>

Because a reliability level of 0.90 is considered satisfactory, then this questionnaire's reliability index as shown above reflects a high reliability with a 0.98 coefficient.

### 4.1.1.3. Students' Questionnaire Data Analysis

As mentioned earlier, the students' questionnaire was organized into two main sections. The first explores their perceptions about learning styles, basically, their developmental nature, while the second section is devoted to their perceptions regarding their learning experience at university.

#### Section One: Students' Perceptions of the Learning Process

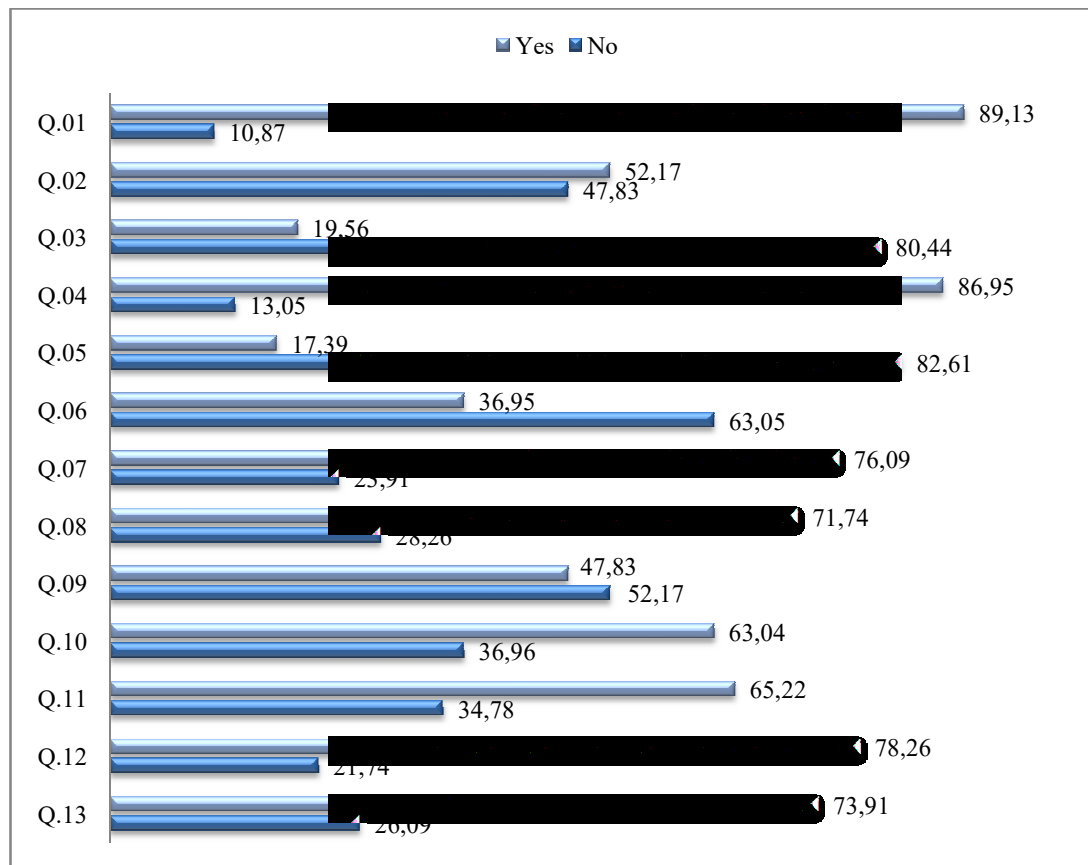
Students' understanding and awareness of the concept of learning styles, mainly, their nature and importance, is an essential aspect of students' learning development. Therefore, this section of the students' questionnaire attempts to explore their perceptions about learning styles in general as well as their awareness of their own individual ways of learning. This section's data are reorganized depending on the nature of the adopted questions in a way that facilitates the presentation of the yes/no questions in one table.

**Table 4.3. Students' Perceptions about their Learning Ways**

Questions	YES		NO	
	F	%	F	%
1. Do you know what a L.S. is?	41	89.13	5	10.87
2. Do you know what your learning style is?	24	52.17	22	47.83
3. Do you believe that L.Ss. are flexible?	9	19.56	37	80.44
4. Do you think that understanding one's L.S.'s strengths and weaknesses is important?	40	86.95	6	13.05
5. Do you think that your L.S. is effective for learning independently outside the classroom?	8	17.39	38	82.61
6. Do you think you can adapt your L.S. to different learning situations and demands?	17	36.95	29	63.05
7. Have you ever felt that your L.S. does not fit the demands of certain courses?	35	76.09	11	23.91
8. Have you ever faced any problems because of the mismatch between your learning styles and teachers' teaching style?	33	71.74	13	28.26
9. Do you think that teachers must match and adapt	22	47.83	24	52.17

their teaching styles to your learning style				
10. Do you think that teachers must use various teaching styles	29	63.04	17	36.96
11. Do you think that teachers should match their teaching style and methods to the learning demands of the course	30	65.22	16	34.78
12. Do you think that students need to adapt their learning styles to the teachers' teaching style	36	78.26	10	21.74
13. Do you think that learners need to change their L.S. depending on the nature of the learning situation?	34	73.91	12	26.09

As illustrated in Table (4.3) above and Figure (4.1.) below, the majority of the participants (89.13%) claim that they know what the term learning style means and 52.17% believe that they know what their learning styles are. This means that the majority of the participants are, at least, aware of the existence of this concept and have some basic knowledge about it. However, only 19.56% realize that learning styles are flexible and can be changed and developed versus the 80.44% who believe that learning styles are innate fixed traits that cannot be changed or developed. This in fact can be attributed to their limited knowledge and perceptions about learning styles as being restricted to the widely known sensory modalities of learning such as the auditory, visual, kinesthetic, and tactile styles which are considered stable preferences. But still, a majority of 86.95% of the participants are also aware of the importance of understanding one's learning ways, strengths, and weaknesses. This, according to Sims and Sims (1995) and Kolb and Kolb (2022), is an essential step toward students' development.



**Figure4.1. Students’ Perceptions of their Learning Ways**

As far as students’ perceptions about the effectiveness of their learning styles is concerned, 82.61% of the participants admit that they do not find that their learning styles are effective for learning independently outside the classroom. In addition to that, 63.05% acknowledge that they cannot adapt their ways of learning in response to the different learning situations and demands. Moreover, the majority (76.09%) also believe that they do feel that their learning styles do not fit the demands of certain courses and 71.74% also add that they have previously faced difficulties because of the mismatch between their learning styles and their teachers’ teaching styles. All of these data confirm Kolb and Kolb’s (2013) and Dunn’s (2000) previously mentioned claims about the difficulties and struggles faced by first year students in coping with higher education demands.

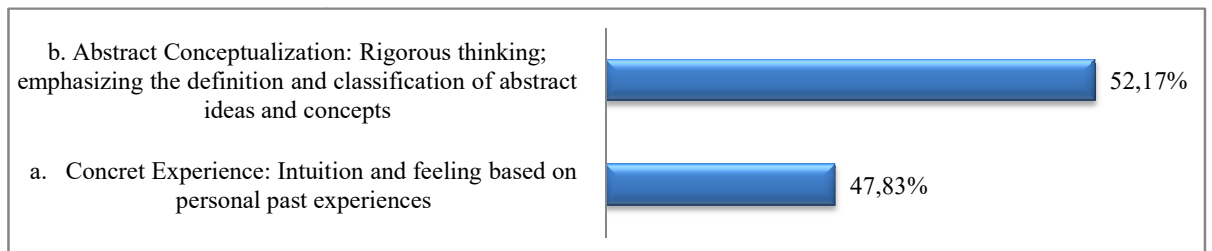
When asked about their perceptions about how to deal with learning styles in the classroom, 52.17% think that teachers must match their teaching styles to the students' learning styles and only 36.96% suggest that teachers should adopt a variety of teaching styles in the classroom. These data indicate that the participants have misguided perceptions about how teachers are to deal with their students' learning styles compared to Kolb and Kolb's (2017) proposition that matching teaching styles to learning styles should be only adopted at early stages to engage learners and that teacher should adopt a variety of roles instead. Nevertheless, the majority (65.22%) are aware that their teachers are supposed to match their teaching styles and methods with the learning demands of the courses as suggested by Kolb and Kolb (2017) who insist that matching teaching to the learning demands is even more important than matching teaching styles with learning styles. 78.26% representing the majority of the participants also believe that they are required to adapt their learning styles to their teachers' teaching styles. At the same time, the majority (73.91%) also believe that they must accustom their learning ways in a manner that suits the nature of their courses' demands which reflects students' considerable awareness about the importance of matching learning styles with learning situations, demands, and requirements.

The following tables and figures also reveal students' perceptions about their preferences among the four learning modes as defined by ELT.

**Table 4.4. Students' Perceptions about Their Preferences for Information**

**Grasping Modes**

<b>Learning Modes: I learn best by.....</b>	<b>Frequency</b>	<b>Percentage</b>
a. Intuition and feeling based on personal past experiences	22	47.83
b. Rigorous thinking; emphasizing the definition and classification of abstract ideas and concepts	24	52.17



**Figure4.2. Students’ Perceptions about Their Preferences for Information**

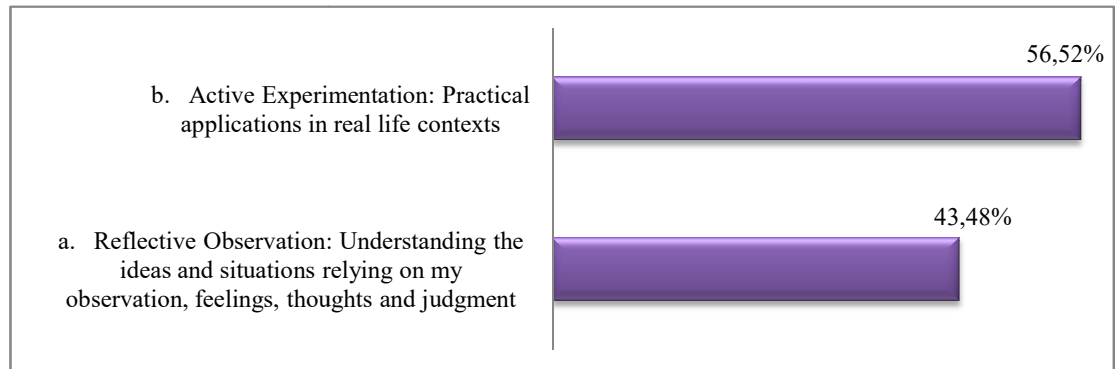
**Grasping Modes**

The students were asked about their preference among the information grasping dimension modes (CE and AC) by providing them with these two modes' definitions to choose from them. The participants claim their approximate preference for the two learning modes (47.83% vs. 52.17%) although the majority (52.17%) has more preference for rigorous thinking and emphasis on the definition and classification of abstract ideas and concepts; thus, they prefer Abstract Conceptualization through lectures, readings, and written assignments for grasping information.

**Table4.5. Students’ Perceptions about Their Preferences for Information**

**Processing Mode**

I prefer.....	Frequency	Percentage
b. Understanding the ideas and situations relying on my observation, feelings, thoughts and judgment	20	43.48
c. Practical applications in real life contexts	26	56.52

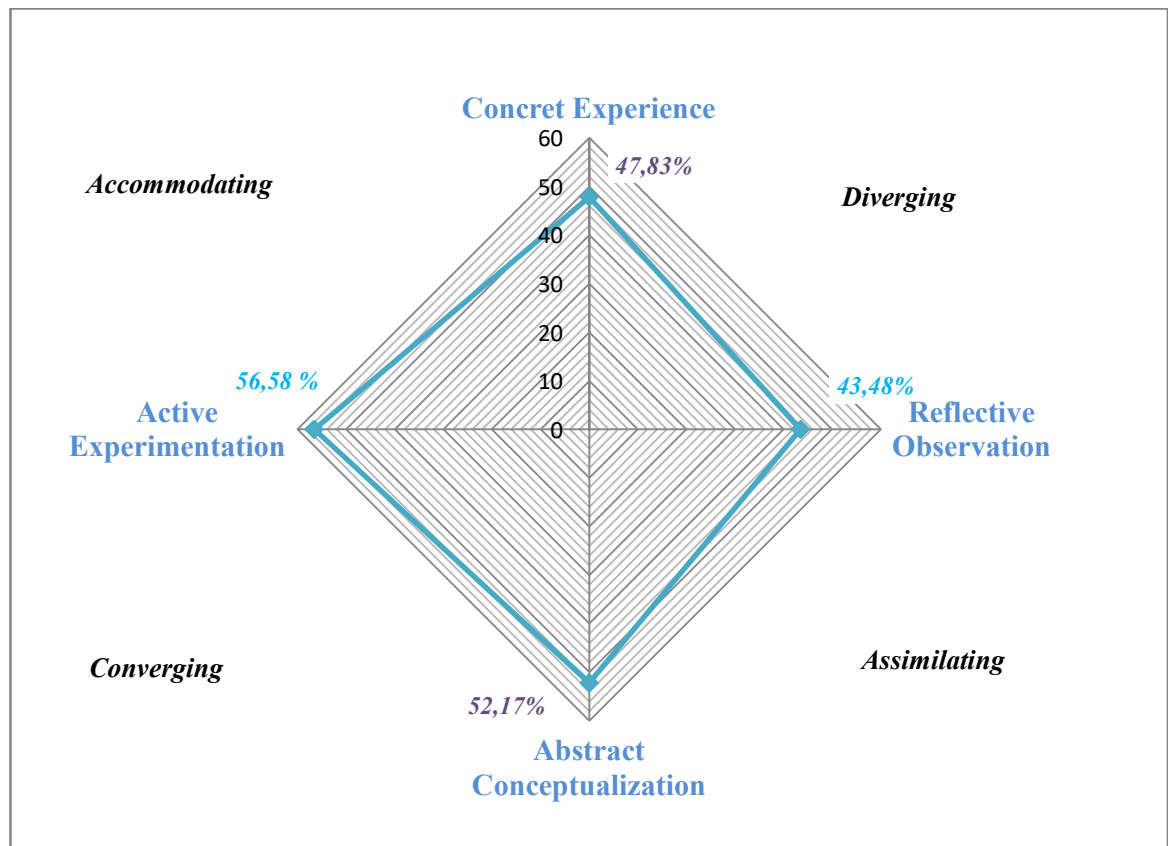


**Figure4.3. Students' Perceptions about their Preferences for Information**

### **Processing Modes**

Exploring students' preference among information processing or transformation modes, the participants showed their preference for the practical applications in real-life contexts and, thus, they prefer the active experimentation mode favoring field projects, laboratory work, games, role plays, and simulations. 43.48 %, on the other hand, prefer understanding the ideas and situations relying on my observation, feelings, thoughts, and judgment enjoying activities such as personal journals, reflective essays, observation reports, thought questions, and discussions.

According to ELT, a combination of a preferred information grasping mode and a specific information transformation mode defines one's learning style. Therefore, based on the participants' perceptions about their learning modes preferences, the majority of the participants tend to have more preference for the Converging styles including the Thinking, Deciding and Acting as shown in the figure below.



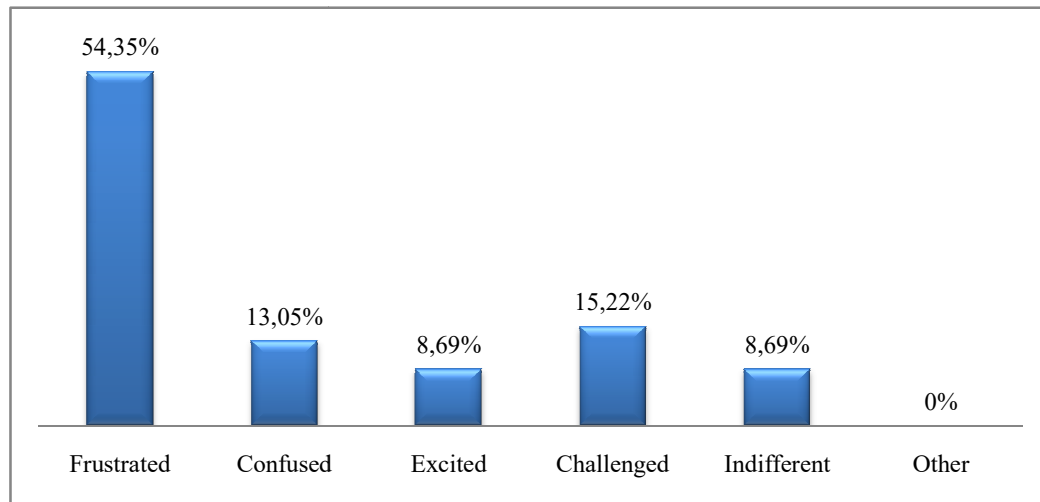
**Figure 4.4. Students' Perceptions of Their Learning Style Typology**

The figure equally shows that, according to students' perceptions, there is a wide variety of learning styles adopted in classrooms although there is a slightly bigger reliance on the Converging style. As a matter of fact, this reliance on the converging styles might pose some problems for students because the English language domain and the oral expression course in particular, are claimed to have some demands that are mainly related to communicative skills that according to many studies cannot be met by the converging style. In other words, the converging styles according to Jones, Reichard & Mokhtari (2003), Kolb and Kolb (2022), and Bouguerne (2013) do not fit the learning demands of the English language domain.

The students' attitudes towards the mismatch between their learning styles and their teachers' teaching styles are also investigated at this level. The participants' responses are illustrated in the table and figure below.

**Table4.6. Students’ Feeling about the Mismatch between Their Learning Style and Teachers’ Teaching Style**

	Frustrated	Confused	Excited	Challenged	Indifferent	Other
<b>Frequency</b>	25	6	4	7	4	0
<b>Percentage</b>	54.35	13.05	8.69	15.22	8.69	0



**Figure4.5. Students’ Feelings about the Mismatch between Their Learning Styles and Teachers’ Teaching Styles**

As shown above, the majority (54.35%) of the participants reveal their frustration about being put in learning situations that mismatch their learning style. 15.22%, on the other hand, claim that they feel challenged about this mismatch while 13.05 % feel confused. Finally, 8.69% feel indifferent and excited. The majority’s feeling of frustration reveals students’ struggle with learning in higher education whenever they are put in learning situations that do not match their preferred ways of learning.

## Section Two: Students' Perceptions of their Learning Experience in Higher Education

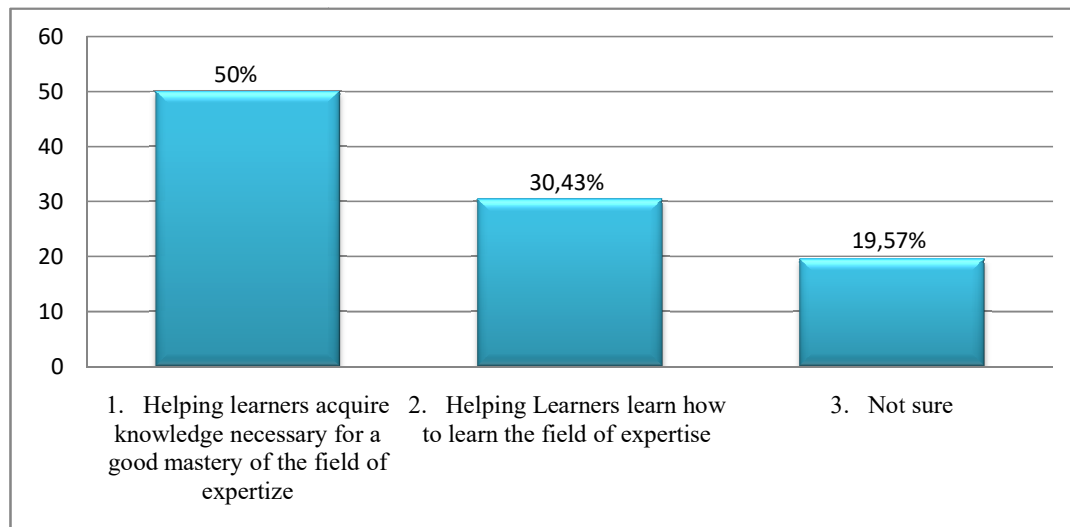
The second section of the students' questionnaire explores the participants' perceptions about the effect of their learning experience in higher education on their learning development. It also attempts to seize students' attitudes and opinions about higher education teaching practices.

### 1. Students' Perceptions of Higher Education Aim

The students were asked about their perceptions about the main aim of higher education. The question aims to explore students' main goals behind attending the different university classes. It also aims to reveal whether they have perceived any focus on the development of their learning abilities and skills required for learning EFL.

**Table4.7. Students' Perceptions of Higher Education Aim**

Perceived aims	F	%
1. Helping learners acquire the knowledge necessary for a good mastery of the field of expertise	23	50.00
2. Helping Learners learn how to learn the field of expertise independently	14	30.43
3. Not sure	9	19.57



**Figure4.6. Students' Perceptions of Higher Education Aim**

These results show that the majority (50%) of the participants believe that the main goal of higher education is to help learners acquire the necessary knowledge for a good mastery of EFL. However, it is also worth mentioning that about 20% of the participants show their confusion about the main aim of higher education classes not knowing whether it aims to help them acquire the knowledge of their specialty or it aims to help them acquire the necessary skills that enable them to learn that specialty independently. Only, 30,43% of the participants, on the other hand, conceived higher education's aim of developing students' learning skills and abilities. These data show that the efforts done by higher education are not sufficiently conceived by the students. This calls for urgent changes that would realize the transition from the traditional delivery of knowledge to a more developmental method that helps learners learn how to learn independently.

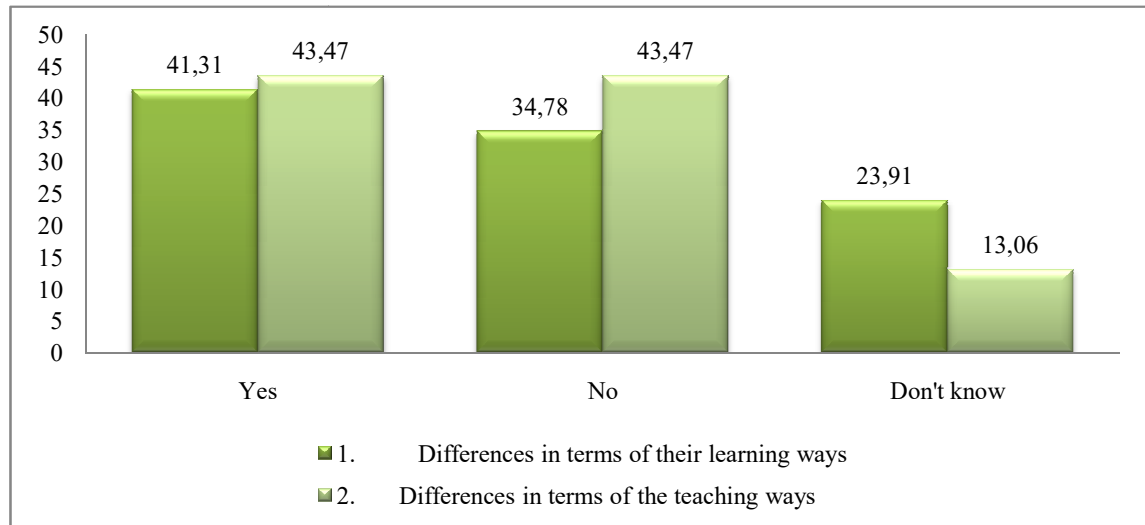
### **Students' Perceptions of the Differences between Secondary School and Higher Education**

The students are also asked about their perceptions of the difference between their previous experience at secondary school and their current experience at higher

education in terms of their ways of learning and the adopted teaching ways. 41.31% of the participants declare that they think their ways of learning differ between secondary school and university while 34.78% believe that their ways of learning at secondary school have not changed at university. There is also considerable confusion about 23.91% of the participants who are not sure whether their learning ways have changed or not. This means that a totality of 58.69% that represents the majority of the participants do perceive at least a clear change in their learning ways at university. Similarly when asked about their perceptions of the differences between the teaching ways adopted in secondary school and those adopted at university, equal percentages (43.47%) are found for the participants who perceive qualitative differences between the teaching ways adopted at the two educational stages and those who do not see any difference between them. Besides, 13.06% also show their confusion about these differences which means, again, that the differences between the ways of teaching adopted in higher education are not clearly different from those of the other educational stages. This might be attributed to teachers' attempts to match students' learning ways as suggested by Kolb and Kolb (2013). The gathered data are illustrated in the table and figure below.

**Table4.8. Students' Perceptions of the Difference between Secondary School and Higher Education**

	Yes		No		Do not know	
	F	%	F	%	F	%
1. Differences in terms of their learning ways	19	41.31	16	34.78	11	23.91
2. Differences in terms of the teaching ways	20	43.47	20	43.47	6	13.06



**Figure4.7. Students' Perceptions of the Difference between Secondary School and Higher Education**

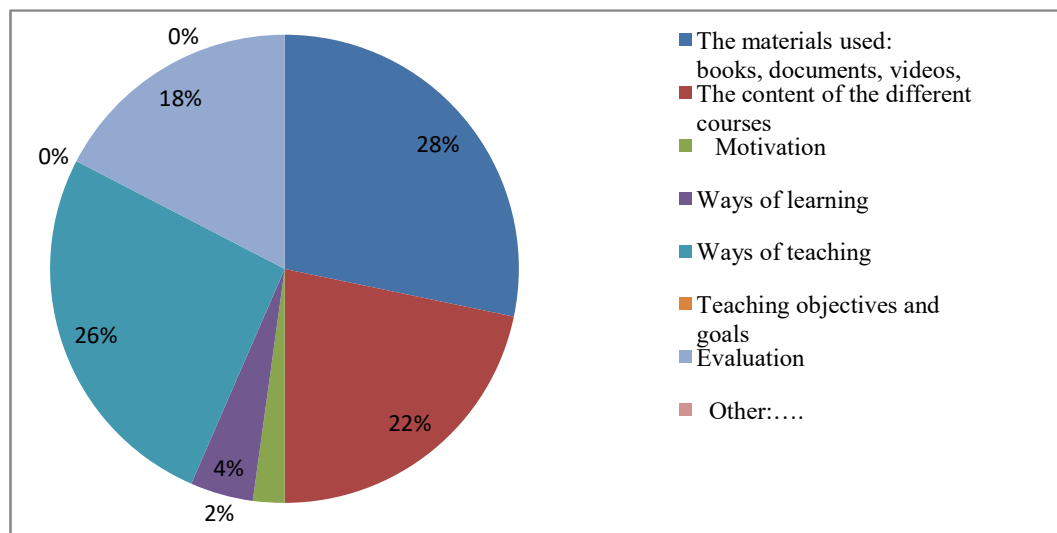
**Students' Perceptions of the Types of Differences between Secondary School and Higher Education**

The difference between higher education and the previous stages is further investigated by asking the participants to specify other types of possible differences between them. The obtained data are summarized below.

**Table4.9. Students' Perceptions of the Types of Differences between Secondary School and Higher Education**

	F	%
1. The materials used: books, documents, videos,	13	28.26
2. The content of the different courses	10	21.74
3. Motivation	1	2.17
4. Ways of learning	2	4.35
5. Ways of teaching	12	26.09
6. Teaching objectives and goals	0	00

7. Evaluation	8	17.39
8. Other:....	0	00



**Figure4.8. Students' Perceptions of the Types of Differences between Secondary School and Higher Education**

The majority (28.26%) of the students think that the existing differences in higher education are related to the materials used such as the books, documents, handouts, videos, etc. 26.09 % attribute the difference to the teaching ways while 21.74% see that there is a difference at the level of the content of the different courses. 17.39% think that higher education is different in terms of evaluation methods and criteria. Only 2.17% think that motivation in higher education differs from the previous stages and another minority of 4.35% insists on the existence of a difference in the learning ways while none of the participants believes that there are any differences in the teaching goals and objectives at university. These results confirm, again, that students do not perceive any clear changes or differences between higher education and the previous educational stages which means that there is no clear or concrete move

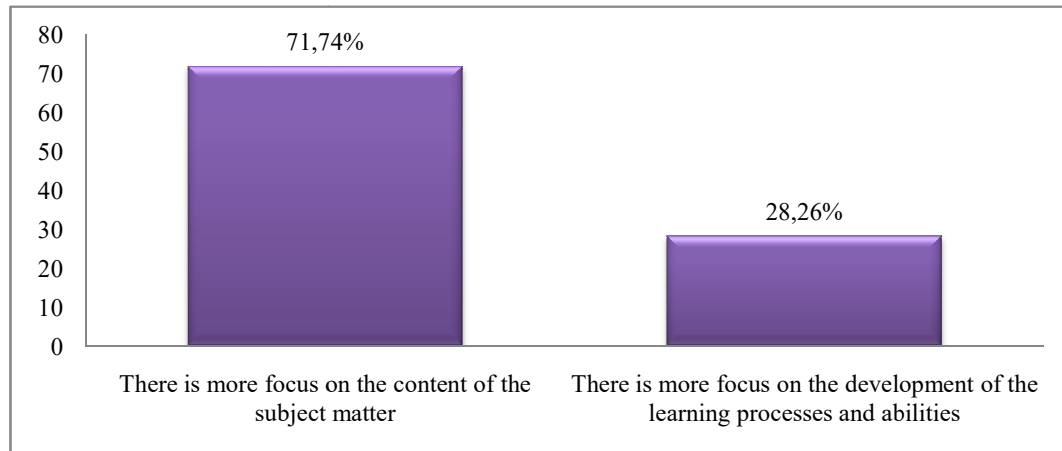
from the pedagogical methods to the andragogical ones at least according to students' perceptions.

### **Students' Perceptions of Teachers' Focal Point in the Classroom**

This item aims to explore students' perceptions of their teachers' teaching practices. It attempts to figure out whether teachers' practices reflect more focus on the subject matter content or the development of the learning processes and abilities that would help learners acquire the subject matter content by themselves. The following data reveal that more than 71% of the participants think that teachers' practices reflect more focus on the delivery of the content of their subject matters than on the development of their students' learning process. Of course, the specialization nature of higher education imposes this focus on the subject matters; however, it is equally important to develop students' abilities and skills required to cope with the different learning demands and situations imposed by these subject matters and the related future professions. Consequently, this point is even further investigated in the following two items.

**Table 4.10: Students' Perceptions of Teachers' Focal Point in the Classroom**

	<b>F</b>	<b>%</b>
There is more focus on the content of the subject matter	33	71,74
There is more focus on the development of the learning processes and abilities	13	28,26



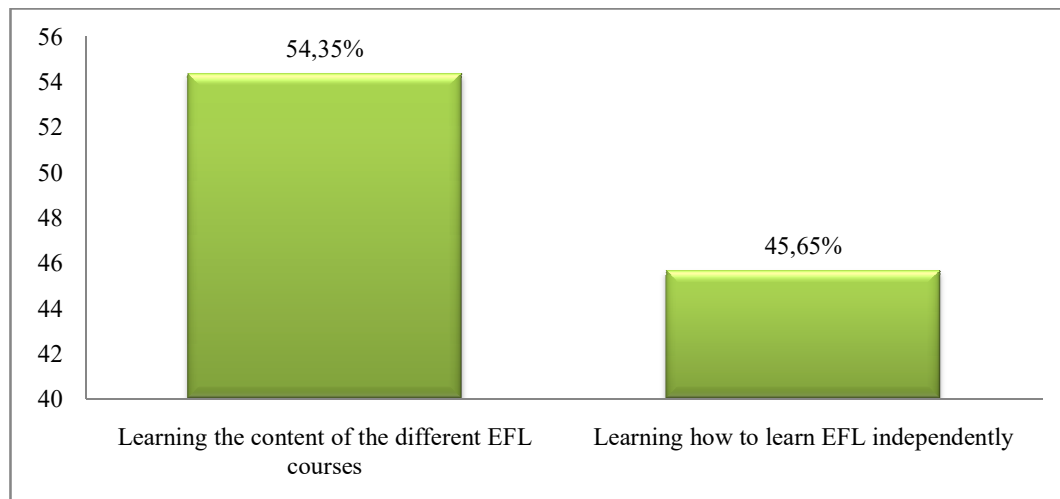
**Figure4.9. Students' Perceptions of Teachers' Focal Point in the Classroom**

### **Students' Focal Point in the Higher Education Classroom**

The students are asked about their focus on the content of the EFL courses compared to their focus on the development of the learning abilities that would enable them to learn EFL independently. This item aims at exploring students' actual learning practices in relation to the subject content versus the learning process focus.

**Table4.11. Students' Focal Point at the Higher Education Classroom**

	F	%
<b>Learning the content of the different EFL courses</b>	<b>25</b>	<b>54.35</b>
<b>Learning how to learn EFL independently</b>	<b>21</b>	<b>45.65</b>



**Figure4.10. Students’ Focal Point in the Classroom**

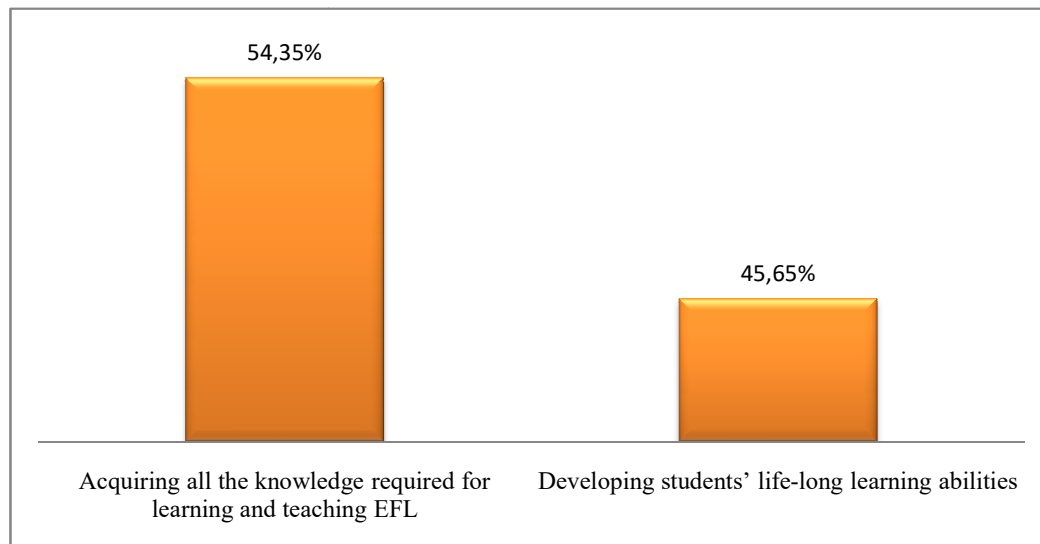
As shown above, the majority of the participants admit that they place more focus on learning the content of the different EFL courses than learning how to learn EFL.

**Students’ Perceptions about what is most important in Higher Education**

In addition to exploring students’ perceptions about their practices related to their focus on learning the EFL and Learning how to learn, students’ beliefs about what should be focused on are also investigated through this item. This question aims to compare students’ practices and their beliefs about the focus on the content versus the focus on learning development. The collected data are represented in the following table and figure:

**Table4.12. Students’ Perceptions about what is most Important in Higher Education**

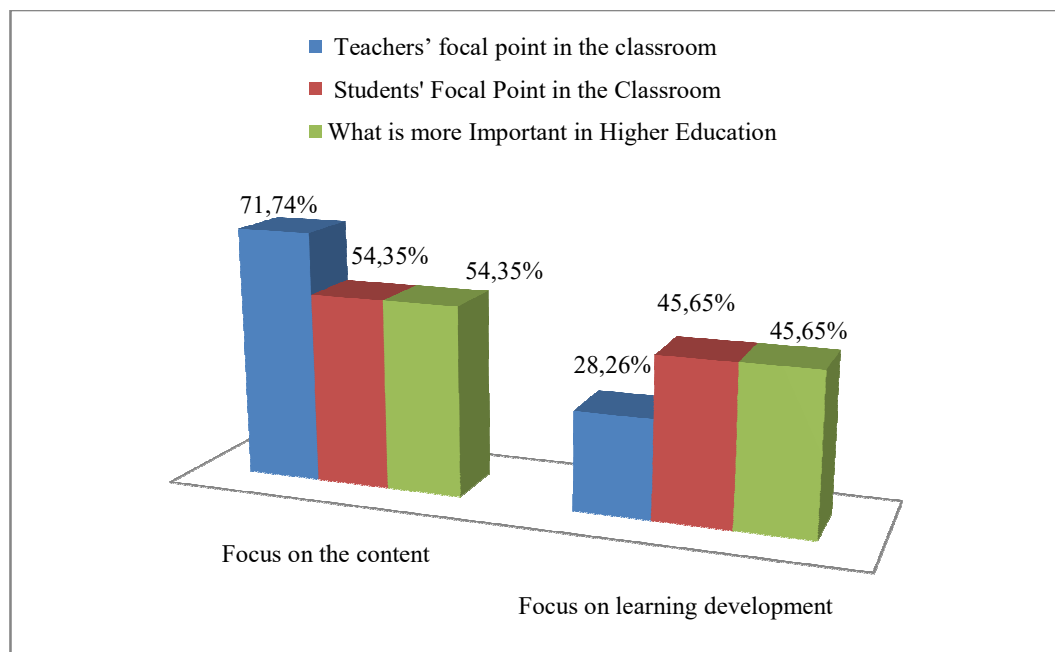
	F	%
Acquiring all the knowledge required for learning and teaching EFL	25	54.35
Developing students’ life-long learning abilities	21	45.65



**Figure4.11. Students' Perceptions about what is most Important in Higher Education**

As shown above, the majority of the participants (54.35%) believe that higher education should lay more focus on the delivery of the necessary content for a good mastery of the subject matter while 45.65% give more importance to the development of students' life-long learning abilities. As a matter of fact, these two percentages are relatively approximate, and students' perceptions about what is to be given more importance in higher education match and equal their perceptions about their practices in giving more importance and focus on acquiring the content of the subject matter at the expense of learning how to learn. This means that almost half the sample gives big importance to learning development while the other half gives more importance to learning the content. In other words, these data, although a slight majority lay more importance on the content, reveal students' awareness about the importance of learning development. Additionally, their perceptions about teachers' practices correspond to their practices and beliefs (54 %) with a bigger difference between the numbers of

students who conceive teachers' focus on the content (71%) compared to those who see more focus on learning development. This comparison is illustrated in the figure below.



**Figure4.12. Comparison between Students' Perceptions about Teachers', Students', and Higher Education' Focus on the Content versus Learning Development**

This comparison aims to show the relationship between students' perceptions of their teachers' practices, their own practices as well as their beliefs concerning the focus on learning development in higher education. This can be again explained by ELT and Kolb and Kolb's (2013) claims that students' learning styles are influenced by their teachers' styles and at the same time many university teachers tend to modify their teaching styles and ways to match their students' styles that are in turn also influenced by their beliefs. This sheds light on the existence of a continuous chain of influences and correlations that according to ELT does not promote students' learning and success. In other words, higher education should rather place more focus on students'

development that ultimately aims at lifelong learning by matching the teaching and learning styles with the learning demands.

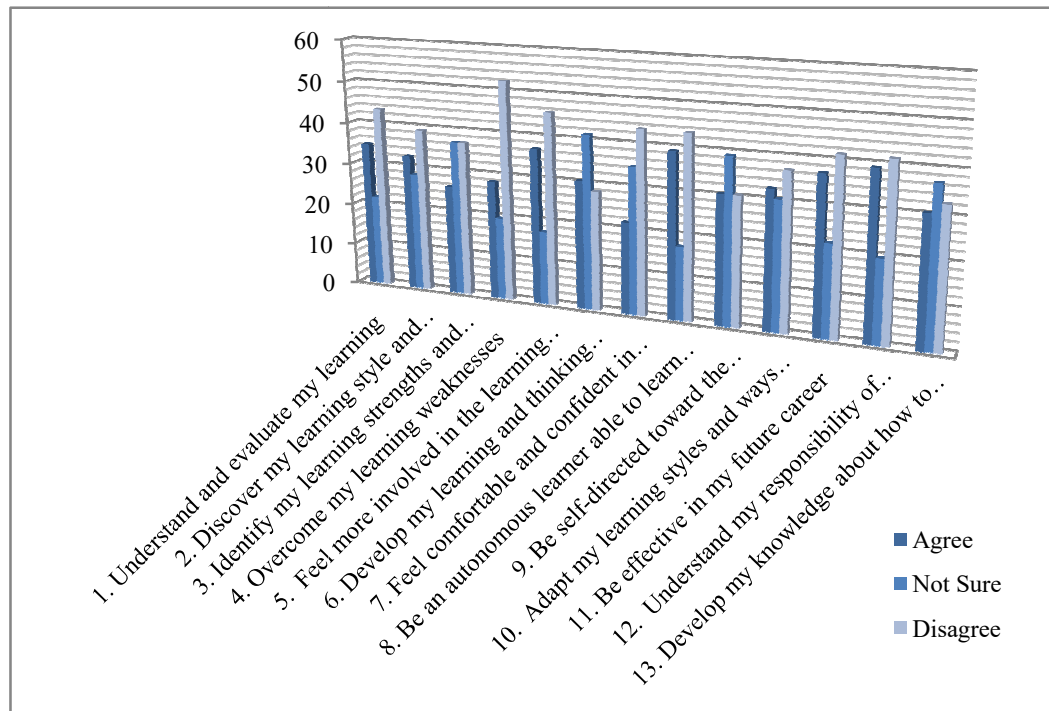
### Students' Perceptions of the Effect of Higher Education on Their Learning

Students' perceptions about the influence of their learning experience at university are also investigated in this part of the questionnaire. The collected data are illustrated below.

**Table4.13. Students' Perceptions of the Effect of Higher Education on Their Learning Development**

<i>Learning at University has helped me.....</i>	Agree		Not Sure		Disagree	
1. understand and evaluate my learning	16	34,78	10	21,74	20	43,48
2. discover my learning style and preferences	15	32,61	13	28,26	18	39,13
3. identify my learning strengths and weaknesses	12	26,08	17	36,96	17	36,96
4. overcome my learning weaknesses	24	28,26	9	19,57	13	52,17
5. feel more involved in the learning process	17	36,96	8	17,39	21	45,65
6. develop my learning and thinking skills, strategies and abilities	14	30,44	19	41,30	13	28,26
7. feel comfortable and confident in learning situations that mismatch my preference.	10	21,74	16	34,78	20	43,48
8. become an autonomous learner able to learn outside the classroom	18	39,13	8	17,39	20	43,48
9. be self-directed toward the achievement of planned goals	14	30,44	18	39,13	14	30,43
10. adapt my learning styles and ways to different learning situations and demands	17	32,61	14	30,43	15	36,96

11. be effective in my future career	19	36,96	10	21,74	17	41,30
12. understand my responsibility for improving my own learning in the classroom, in real-life situations, and future career	19	39,13	9	19,57	18	41,30
13. develop my knowledge about how to learn	15	30,43	17	36,96	14	32,61



**Figure4.13. Students' Perceptions of the Effect of Higher Education on Their Learning Development**

The data above reveal that the majority of the participants either disagree or are not sure (items 6, 9, 13) that their learning experience at university has helped them acquire any of the above-mentioned abilities. Only small percentages, on the other hand, think that higher education helped develop the above-mentioned abilities. It is also worth mentioning that the percentages of the participants who have positive perceptions about the influence of higher education on their learning abilities do not exceed 39.13%. These data confirm the existence of a problem related to higher

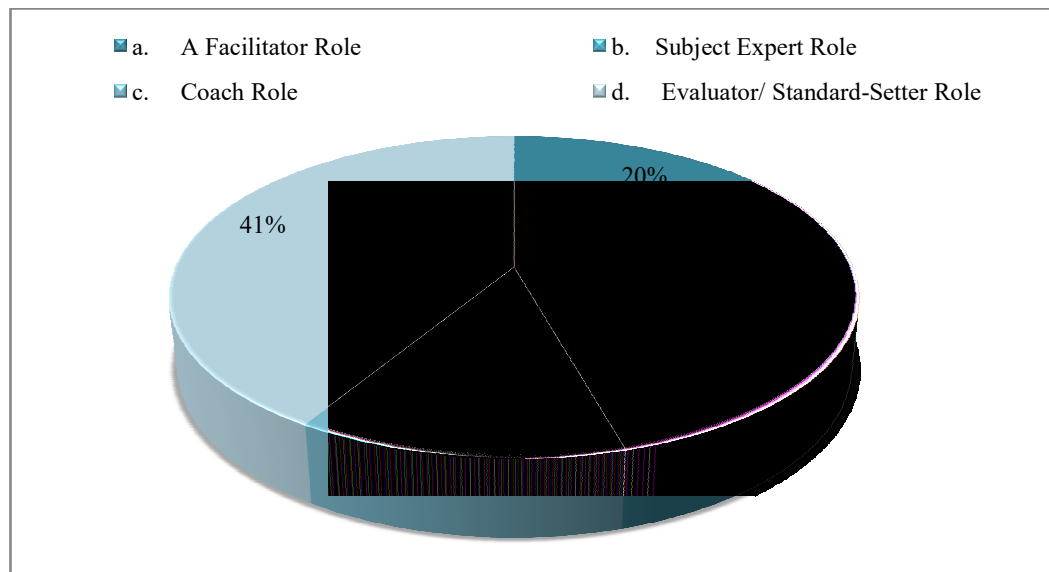
education's ignorance or under-evaluation of the development of students' learning and its focus on the passive delivery of knowledge and content related to the field of expertise.

### Students' Perceptions of Teachers' Roles

Students' Perceptions about teachers' roles are also investigated in the students' exploratory questionnaire. They are first asked about their perceptions of their teachers' roles as adopted in the classroom and then inquired about their preferences for these four roles. The students' perceptions about their teachers' adopted roles are illustrated in the following table and figure.

**Table4.14. Students' Perceptions of Teachers' Adopted Roles in the Classroom**

	F	%
a. a warm affirming style and create personal relationships with learners facilitating conversation in small groups	9	19.57
b. an authoritative, reflective style teaching by examples and modeling to encourage critical thinking	12	26.09
c. <i>They adopt a collaborative, encouraging style, often working with individuals to help them learn from experiences in their life and assist in the creation of personal development plans</i>	6	13.04
d. <i>an evaluator and standard setter style as they set the knowledge requirements needed for quality performance. They create performance activities for learners to evaluate their learning</i>	19	41.30



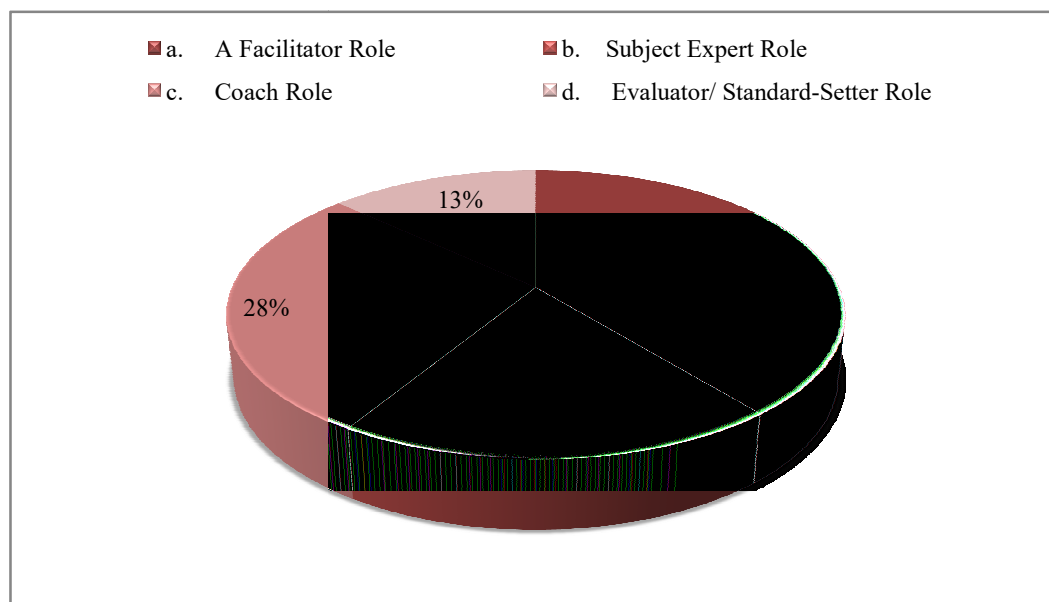
**Figure.4.14. Students’ Perceptions of Teachers’ Adopted Roles in the Classroom**

The data presented above show that the majority of the participants (41.3%) believe that their teachers adopt an Evaluator/Standard-Setter role followed by 26.09% of the students who perceive their teachers as Subject Experts. Only 19.57% and 13.04% think that their teachers adopt Facilitator and Coach roles in the classroom. These data indicate that teachers rely mostly on two roles (Evaluator and Subject-Expert roles) through the direct delivery of lessons and exams, and tests with a relative ignorance of the Facilitator and Coach roles. As mentioned earlier, students’ preferences for the four teachers’ roles are also explored by collecting the following data.

**Table4.15. Students’ Preference for Teachers’ Roles**

	F	%
a. a warm affirming style and create personal relationships with learners facilitating conversation in small groups	18	39.13
b. an authoritative, reflective style teaching by examples and modeling to encourage critical thinking	9	19.57

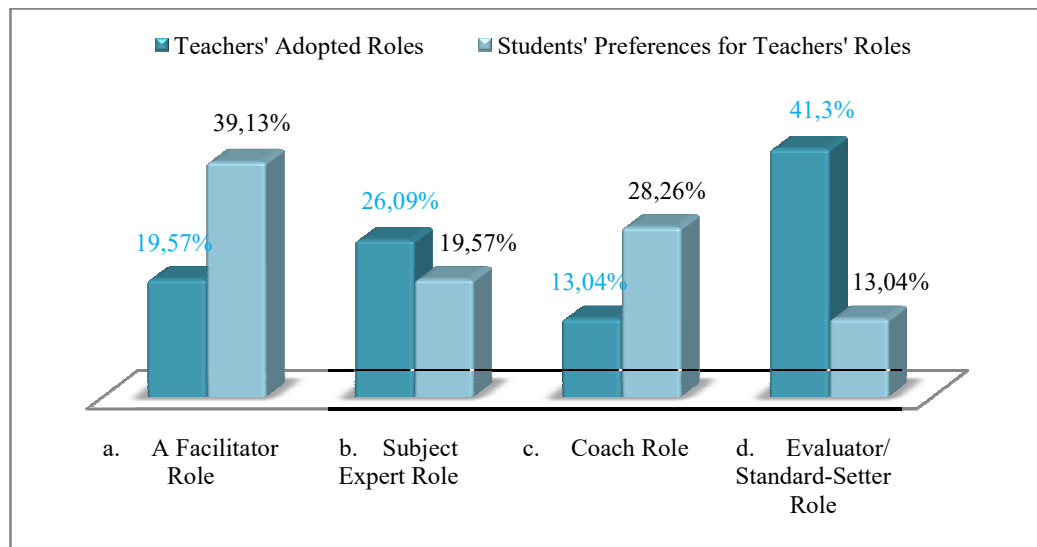
c.	<i>They adopt a collaborative, encouraging style, often working with individuals to help them learn from experiences in their life and assist in the creation of personal development plans</i>	13	28.26
d.	<i>an evaluator and standard setter style as they set the knowledge requirements needed for quality performance. They create performance activities for learners to evaluate their learning</i>	6	13.04



**Figure4.15. Students' Preference for Teachers' Roles**

The majority of the participants show their preferences for the Facilitator role (39.13%) followed by the Coach role (28.26%), then the Subject Expert role (19.57%), and finally, the Evaluator role (13.04%).

A comparison between students' perceptions of teachers' adopted roles and their preferences for these roles is illustrated in the figure below.



**Figure4.16. Comparison between Students’ Perceptions about their Preferences for Teachers’ Roles and Teachers’ Adopted Roles**

This figure reveals that, according to students’ perceptions, there is a considerable contradiction between teachers’ practices and students’ preferences in terms of teachers’ roles. In other words, the students express their preferences for the least adopted roles, namely the Facilitator and Coach roles. According to ELT, teachers’ focus on the Subject Matter and Evaluator roles entail students’ engagement accentuation of the Abstract Conceptualization and Active Experimentation modes while students’ preferences for the Facilitator and Coach roles entail their preference for the Reflective Observation and Concrete Experience modes. This mismatch between teachers’ roles and students’ preferences, according to Kolb and Kolb (2017), can lead to many learning problems when not implemented in a studied and balanced way.

#### **4.1.2. Teachers’ Questionnaire**

A teachers’ questionnaire was also developed at this stage in order to explore teachers’ perceptions about learning development in higher education including their perceptions of learning styles as well as their practices in the classroom. It aimed to

better understand the Algerian EFL classroom as far as learning development is concerned; and thus, answer the second research question. However, before presenting this questionnaire’s results, the instrument’s study of its validity and reliability is presented below.

#### 4.1.2.1. Teachers’ Questionnaire Internal Validity

The internal validity and the consistency of teachers’ questionnaire and its constituent sections are assessed by calculating the correlation coefficient between its items and overall score using Spearman correlation as illustrated in the table below:

**Table4.16. Spearman Internal Validity of the Teachers’ Questionnaire**

	<b>correlation</b>	<b>significance</b>
<b>internal validity of the Tool</b>	<b>0.762</b>	<b>0.01*</b>

\*Significant at the  $p = 0.01$  level

The table above shows that the Spearman correlation coefficient is statistically significant at the 0.01 level; as such, the students’ questionnaire is highly consistent and internally valid with a 0.76 correlation coefficient value. Consequently, this instrument is suitable and true for the aims of the study.

#### 4.1.2.2. Teachers’ Questionnaire Reliability

The questionnaire reliability is assessed through the level of internal stability across the sample of respondents through Cronbach’s Alpha analysis as shown in the table below:

**Table4.17. Cronbach’s Alpha Reliability of the Teachers’ Questionnaire**

<b>Reliability Statistics</b>	
<b>Cronbach's Alpha</b>	<b>N° of Items</b>
<b>0.97</b>	<b>21</b>

Because a reliability level of 0.90 is considered satisfactory, then this questionnaire's reliability index as shown above reflects a very high reliability with a 0.97 coefficient that makes this instrument reliable for the aims of this study.

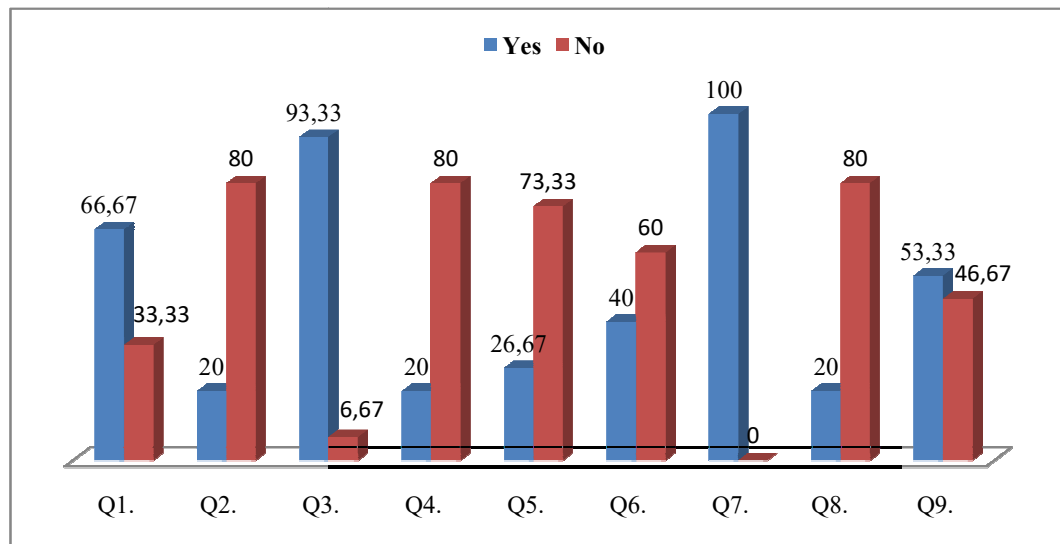
#### 4.1.2.3. Teachers' Questionnaire Data Analysis

##### Section One: Teachers' Perceptions of Learning Styles

The first section of this questionnaire attempts to explore teachers' perceptions and beliefs about learning styles in general and their students' preferences in particular. The data collected using this instrument are presented and illustrated in the table and figure below.

**Table 4.18. Teachers' Perceptions about Learning Styles (L.S.)**

Statements	YES		NO	
	F	%	F	%
1. L.S. are flexible and developmental	10	66.67	5	33.33
2. Students can adapt their L.S. to the demands of the different courses	3	20.00	12	80.00
3. Students' learning is hindered by their L.S. weaknesses	14	93.33	1	6.67
4. My students' L.S. are effective for learning outside the classroom	3	20.00	12	80.00
5. Students' L.S. fit the learning demands of my courses	4	26.67	11	73.33
6. I take my students' L.S. into consideration in my teaching	6	40.00	9	60.00
7. Teachers must match their teaching styles to their students' L.S.	15	100	0	0.00
8. I know what my students' learning styles strengths and weaknesses are	3	20	12	80
9. Teachers must match their teaching styles with the course demands	8	53.33	7	46.67



**Figure4.17. Teachers' Perceptions of Learning Styles**

The questionnaire's data have revealed that the majority of the teachers 66.67% are aware that learning styles are flexible and developmental while only 33.33% think that learning styles are fixed traits and unchangeable. This awareness about the developmental nature of learning styles is an essential starting point for students learning development (Sims & Sims, 1995; 2017).

In addition, only 20% of the participants declare that students have the ability to adapt their learning styles to the demands of the different courses. Furthermore, 93.33% also believe that students' learning is hindered by their learning styles' weaknesses. Besides, the majority of the teachers 80% also realize that students' learning styles are not effective for learning outside the classroom and 73.33% of them even think that their students' learning styles do not fit the learning demands of the courses they teach inside the classroom.

Nevertheless, in spite of the participants' awareness of their students' problems and weaknesses related to their learning styles, 60% admit that they do not take their students' learning styles into consideration in their teaching methods. Even more, all

teachers 100% have the traditional belief that teachers must match their teaching styles to their students' learning styles. Nonetheless, this traditional approach of matching teaching styles and learning styles is important only at early learning stages which is not effective for the more active and developmental learning goals in higher education (Kolb and Kolb, 2018). Moreover, the majority of the teachers (80%) admit that they do not know their students' learning strengths and weaknesses which attests that they do not take their students' learning styles into consideration. 53.33%, on the other hand, are aware of the importance of matching their teaching styles to the learning demands of the EFL courses. This awareness about the importance of learning demands is considered a positive thing as it is one of the main beliefs of Experiential Education that is being investigated in this research.

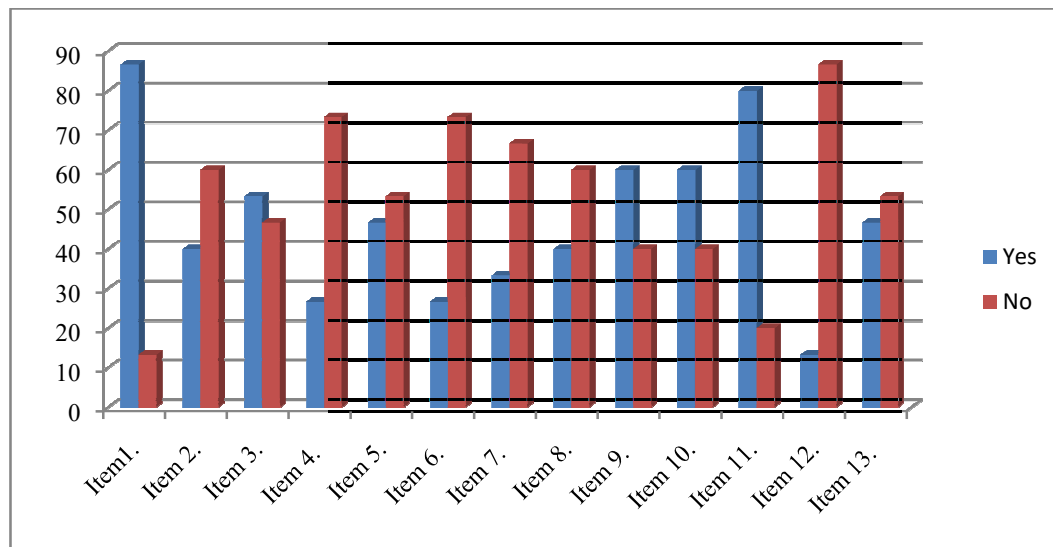
All in all, these results reveal that the majority of higher education teachers do not take their students' learning styles into consideration in spite of their realization of their importance and students' struggle with learning both inside and outside the classroom. It is also shown that teachers have some traditional and old-fashioned beliefs about how to effectively consider their students' learning styles in their teaching in higher education thinking that the best way is to match their teaching styles to the students' learning styles which according to Kolb and Kolb (2013) does not help develop students' learning.

## **Section Two: Teachers' Perceptions of Learning Development in Higher Education**

The second section of this questionnaire delves into teachers' perceptions and practices related to learning development in higher education. The following table and figure exhibit the collected data.

**Table4.19. Teachers’ Perceptions of Learning Development in Higher Education (H.E)**

Statements	YES		NO	
	F	%	F	%
1. Learning development is the most essential goal in H.E.	13	86.67	2	13.33
2. Teachers’ main role is to be content experts	6	40.00	9	60.00
3. As a teacher at the university, I focus on developing my students’ learning abilities	8	53.33	7	46.67
4. I use activities that aim at helping learners learn how to learn	4	26.67	11	73.33
5. I take adult learning principles into consideration in my teaching	7	46.67	8	53.33
6. I make efforts to help my students learn how to learn independently	4	26.67	11	73.33
7. Students are open to new different teaching styles and methods	5	33.33	10	66.67
8. I match my teaching style to my students’ learning styles	6	40.00	9	60.00
9. My teaching style is affected by the nature of the course being taught	9	60.00	6	40.00
10. I have felt that my teaching is hindered by my students’ learning weaknesses	9	60.00	6	40.00
11. Adopting a balanced variety of teaching styles and roles can help students develop their learning abilities	12	80.00	3	20.00
12. I adopt a balanced variety of teaching styles and roles in my lessons	2	13.33	13	86.67
13. H.E. is helping students develop their learning flexibility to adapt to the different learning situations and demands	7	46.67	8	53.33



**Figure 4.18. Teachers' Perceptions of Learning Development in Higher Education**

The majority of teachers 86.67% agree that learning development is the most essential goal in higher education. Besides, only 40% consider that the teachers' main role is to be content experts thinking that there are other important roles to be played in higher education. This shows that teachers are aware of the importance of learning development and their roles as teachers not only responsible for the simple delivery of lessons and lectures. Moreover, 53.33% representing the majority of the participants claim that university teachers must focus on developing students' learning abilities. Nevertheless, in spite of this awareness, only 26.67% declare that they use activities that aim at helping learners learn how to learn which reflects a contradiction between teachers' beliefs and their practices. In addition, more than 53% of the participants admit that they do not take adult learning principles into consideration in their teaching practices. Even more, 73.33% declare that they do not make efforts to help their students learn how to learn independently which confirms their previous response that they do not use activities that may help students learn how to learn. However, 66.67% of the teachers found that students are not open to new different teaching styles and methods. These results might be explained by Kolb and Kolb's (2013), Dunn's (2005),

and Prosser and Trigwell's (1999) previously mentioned claims that students come to university conditioned with their previous educational experiences which makes teachers, especially in the first year, obliged to adapt their teaching to their students' ways of learning. These data are similarly congruent with those obtained from the students' questionnaire. The teachers (60%) also state that they do not match their teaching styles to students' learning styles and they also claim that their teaching style is affected by the nature of the course being taught, thus, affirming their answer in the previous section concerning the match between teachers' teaching styles and the learning demands.

The questionnaire also revealed that 60% of the teachers feel that their teaching is hindered by their students' weaknesses and 80% declare that adopting a balanced variety of teaching styles and roles as suggested by the Kolb Dynamic Matching Model of ELT may help develop students' learning abilities and thus flexibility. However, more than 86% admit that they do not adopt this method which, again, might be explained by their belief that students are not open to new teaching styles and methods. Finally, more than 53% admit that higher education does not help students develop their learning flexibility to adapt to the learning situations and demands both inside and outside the classroom.

The teachers are also asked about their preference for the four educator roles. Their answers are summarized in the table below.

**Table4.20. Teachers’ Preference for the Four Educator Roles**

<i>I consider myself a teacher who adopts.....</i>	F	%
<i>a warm affirming style and create personal relationships with learners facilitating conversation in small groups (Facilitator Role)</i>	3	20.00
<i>an authoritative, reflective style teaching by examples and modeling to encourage critical thinking. (Subject-Expert Role)</i>	5	33.33
<i>a collaborative, encouraging style, often working with individuals to help them learn from experiences in their life and assist in the creation of personal development plans (Coach Role)</i>	2	13,34
<i>a standard setter style and evaluator style: I set the knowledge requirements needed for quality performance and create performance activities for learners to evaluate their learning. (Evaluator/Standard-Setter Role)</i>	5	33.33

These data show that the majority of the participants perceive themselves as subject-expert and evaluator educators with equal percentages of 33.33% while only 13.34% and 20% consider themselves as facilitators and coaches respectively. This means that the majority adopts a traditional content delivery method that does not promote students’ learning development.

The questionnaire also explores teachers’ perceptions about their students’ preferences for the teachers’ roles. The collected data show that the majority of the participants (53.33%) believe that their students prefer the Facilitator role and 33.33% think that they prefer the Coach role while only 13.33% see that students prefer the

Subject-Expert role and none expect students to prefer the Evaluator role. These data are illustrated in the table below.

**Table4.21. Teachers’ Perceptions of Their Students’ Preferences for the Educator Roles**

<i>My students prefer....</i>	F	%
1. Facilitator Role	8	53.33
2. Subject-Expert Role	2	13.34
3. Coach Role	5	33.33
4. Evaluator/ Standard-Setter Role	0	00

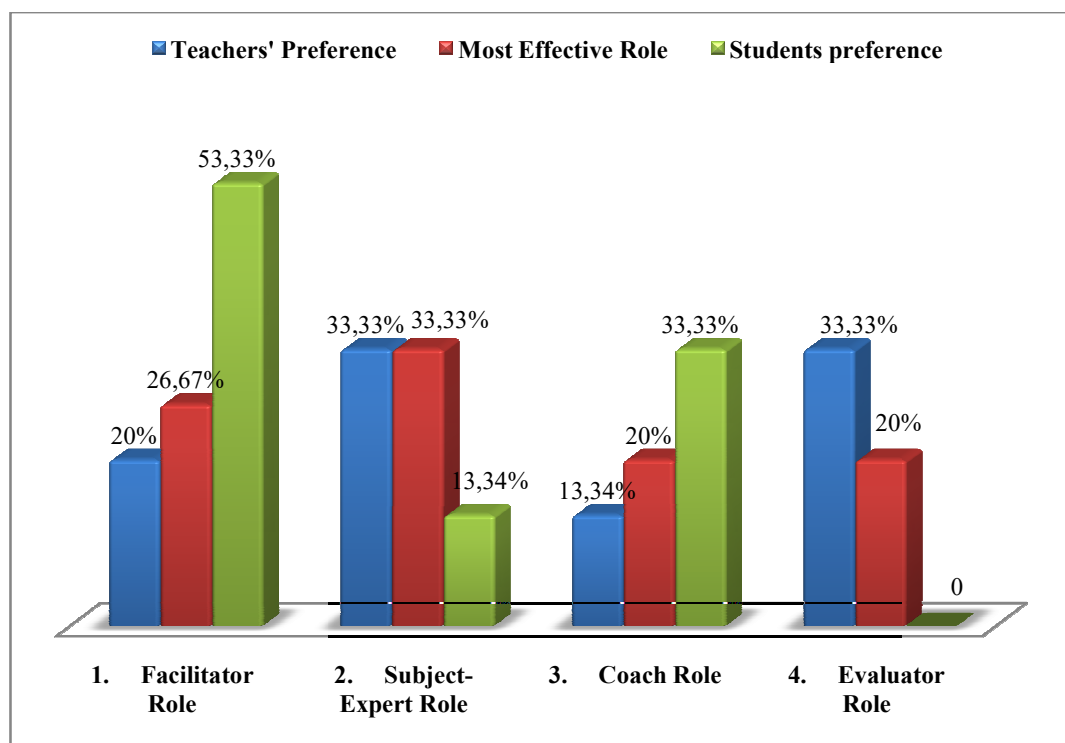
Last but not least, the teachers are asked about which educator role they believe is most effective for teaching EFL in higher education. The majority (33.33%) claim that the Subject-Expert role is the most effective for teaching EFL in higher education. 26.67%, on the other hand, believe that the Facilitator role is most effective while only 20% perceive the Coach and the Evaluator roles as most effective for teaching EFL. These results are again summarized in the table below.

**Table4.22. Teachers’ Perceptions of the Most Effective Educator Role for EFL in Higher Education**

<i>The most effective educator role for EFL in H.E. is ....</i>	F	%
1. Facilitator Role	4	26.67
2. Subject-Expert Role	5	33.33
3. Coach Role	3	20
4. Evaluator/ Standard-Setter Role	3	20

These results, as illustrated in the figure below, reveal that the majority of participants have mismatched perceptions about their preferred educator roles and their

students' preferred teacher roles. They, however, show some consistency regarding their adoption of the Subject-Expert role and their belief that it is the most effective educator role. This means that teachers are adopting the educator role they believe is most suitable and effective for teaching their subject matter considering that being experts about the subject matter is what helps students succeed regardless of their students' preferences. Nevertheless, they also reveal some other contradiction regarding the Coach and Evaluator role in the sense that they declare their adoption of the Evaluator role while considering the Coach role as more effective for teaching EFL at university. The Teachers' adopted role and their perceptions about the most effective roles also do not match the previous research results concerning the learning modes that fit the learning demands of teaching English and language in general where they state that the Concrete Experience and the Reflective Observation modes best match the demands of this field (Jones, Reichard, & Mokhtari, 2003; Kolb & Kolb, 2013; Kolb & Kolb, 2022). Thus, the Facilitator role is seen as more effective for teaching EFL.



#### **Figure4.19. Comparison between Teachers’ Perceptions about their Preferred, Students’ Preferred, and most Effective Educator Roles**

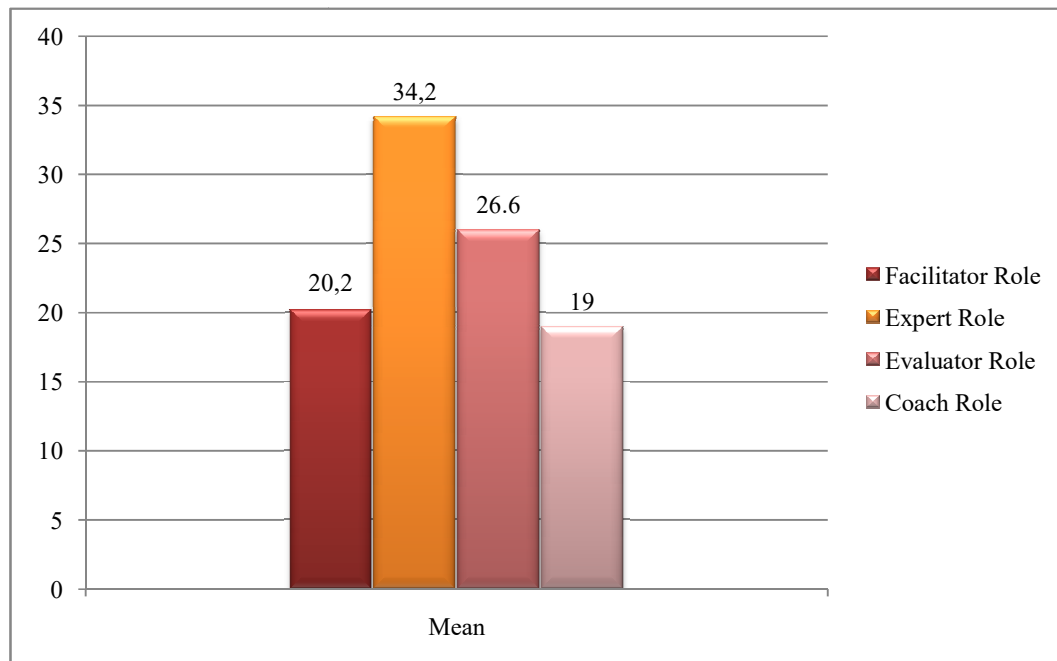
All in all, these data have revealed teachers’ perceptions about higher education goals, their roles as teachers, their beliefs about teaching and learning in higher education, as well as their perceptions about their teaching practices and outcomes in terms of learning development. More importantly, these data have shed light on the mismatch between higher education teachers’ beliefs and practices concerning learning styles and learning development confirming the data obtained from the students’ questionnaire concerning higher education teachers’ ignorance of students’ learning styles and development in their teaching practices.

##### **4.1.3. The Kolb Educator Role Profile (KERP)**

The Educator Role Profile is an instrument developed by Kolb and Kolb based on ELT and the Dynamic Matching Model “of teaching around the learning cycle” to assess teachers’ adoption and preferences for the four teaching roles. This inventory was adopted in this research to answer the third research question and explore the Algerian EFL classroom reality as far as teachers’ preferences for the Kolb teaching roles and find out whether teachers make a balance between these roles or not. The data obtained through the KERP are calculated and introduced below.

**Table4.23.The Kolb Educator Role Profile Results**

	Roles	Mean
1	Facilitator Role	20.2
2	Expert Role	34.2
3	Evaluator Role	26.6
4	Coach Role	19



**Figure4.20.The Kolb Educator Role Profile Results**

As illustrated in the table and figure above, the participants reveal their heavy preference and reliance on the Expert role followed by the Evaluator role. The Facilitator and Coach roles, on the other hand, are not well appreciated by the participants. Thus, compared to the teachers' questionnaire results, the KERP shows that the participants have the right perceptions regarding their preferences for the four educator roles.

Because these educator roles are evaluated over 100, this means the mean or the balance point is 25. As such, compared to 25, these data reveal an unbalanced use of the four educator roles, and therefore, unequal learning opportunities for learners at the expense of learners who do not prefer the teachers' preferred roles. This also means that teachers do not provide learners with balanced opportunities for engaging in the learning processes and challenging their learning abilities to stretch their learning flexibility as suggested by the Dynamic Matching Model "of teaching around the learning cycle". These results also reveal another problem related to the mismatch

between the learning modes, engaged through the educator role, and the learning demands of language teaching and learning field as suggested by Kolb and Kolb (2022). That is, ELT and Kolb and Kolb propose that the expert and evaluator roles better match the hard sciences and fields' demands such as mathematics, physics, medicine, etc. while the Facilitator and Coach roles are the roles that better match language learning and communication demands.

#### 4.1.4. Students' Learning Style Profile Analysis

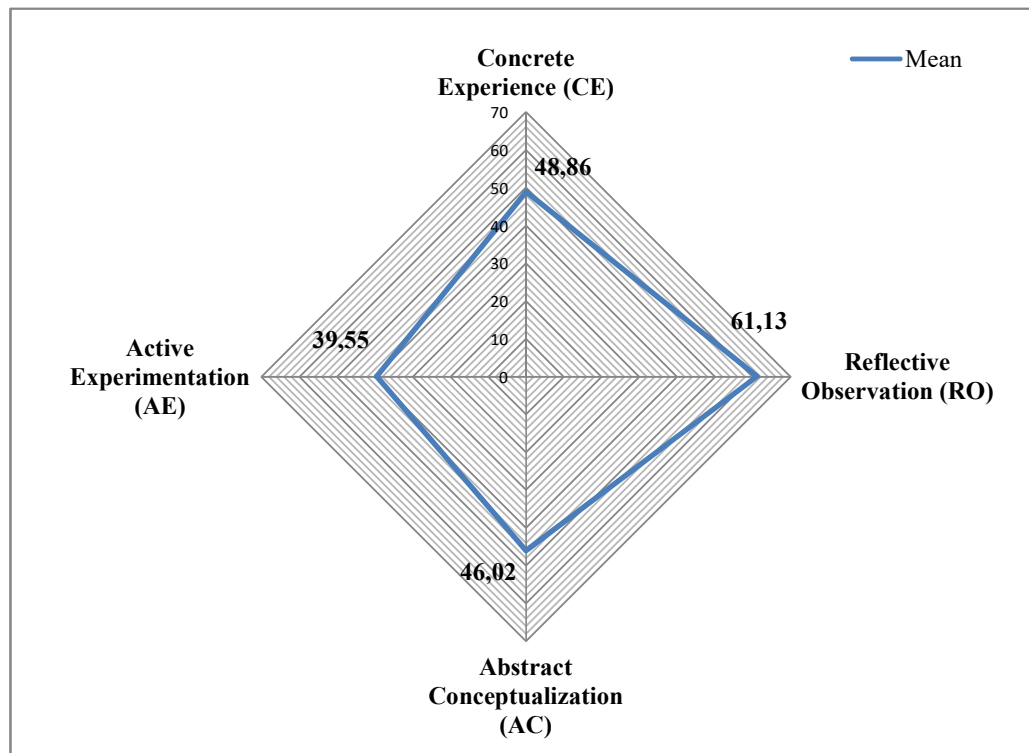
In an attempt to answer the fourth research question, this study explores students' learning style typology using the KLSI 4.0 involving a sample of 38 first-year students at the Department of the English Language and Literature at Mohamed Lamine Debaghine Setif 2 University. This sample, in fact, is the same one that participates in the experimental phase divided into the experiment and the control group.

##### 1. Students' Learning Modes

Results from the KLSI 4.0 reveal that there is more reliance on Reflective Observation with a mean of 48.86 followed by Concrete Experience with a mean of 48.86. This means that there is more preference for receiving knowledge through CE and transforming it using RO. The table and figure below summarize the KLSI 4.0 data and means related to students' preference for four learning modes.

**Table4.24. Means of Students' Learning Modes as Assessed by the KLSI 4.0**

Learning Modes	F	Mean
Concrete Experience (CE)	38	48.86
Reflective Observation (RO)	38	61.13
Abstract Conceptualization (AC)	38	46.02
Active Experimentation (AE)	38	39.55



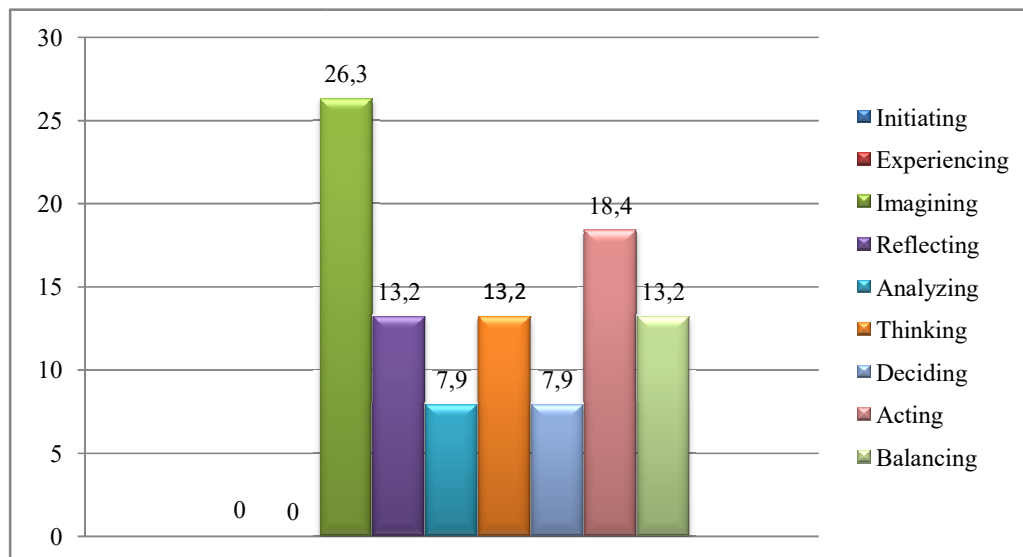
**Figure 4.21. Means of Students' KLSI 4.0 Learning Modes Students' Learning Style Typology**

## 2. Learning styles Preferences

The KLSI 4.0 indicates that the majority of the participants (26.3%) prefer the Imagining style in addition to the Acting style (18.4%) followed by the Reflecting, Balancing, and Thinking styles with equal percentages of 13.2%. the Initiating and the Experiencing style are not preferred by any participant and only 7.9% of the participants prefer the Analyzing and the Deciding style. This preference for the Imagining and Acting styles can be attributed to the nature of the EFL demands that rely on the communicative, personal, and relationship skills as suggested by Boyatzis and Kolb (1995), Jones, Reichard, and Mokhtari (2003), Kolb and Kolb (2013), and Kolb and Kolb (2022). The related data are presented in the following table and figure.

**Table4.25. Students' Learning Style Typology as Indicated by the KLSI 4.0**

Learning Style	Frequency	Percent
<b>Initiating</b>	0	0
<b>Experiencing</b>	0	0
<b>Imagining</b>	10	26.3
<b>Reflecting</b>	5	13.2
<b>Analyzing</b>	3	7.9
<b>Thinking</b>	5	13.2
<b>Deciding</b>	3	7.9
<b>Acting</b>	7	18.4
<b>Balancing</b>	5	13.2



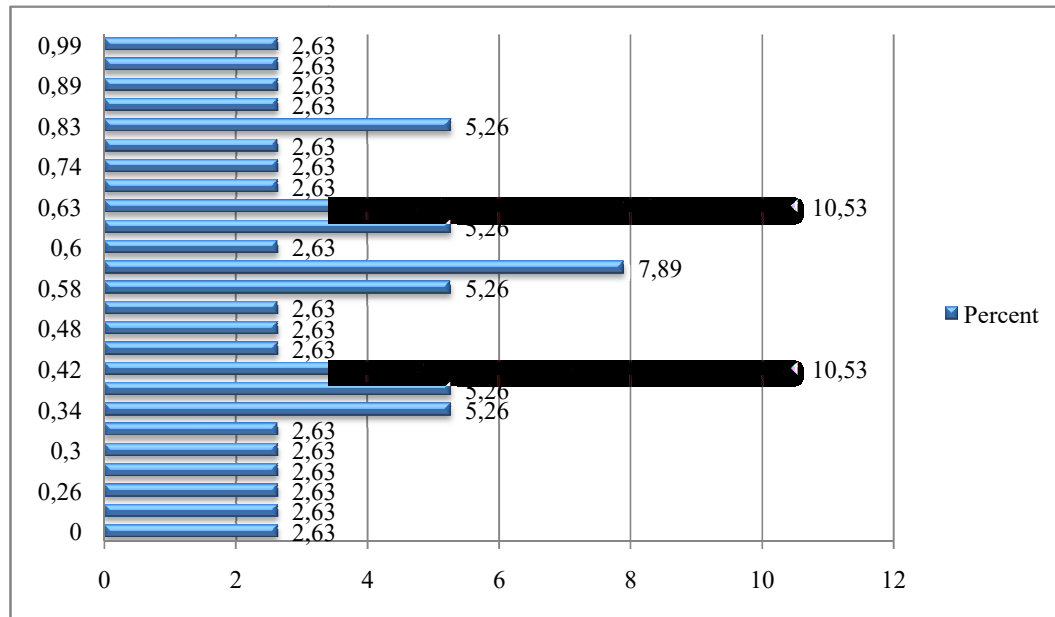
**Figure4.22. Students' Learning Style Typology as Indicated by the KLSI 4.0**

### 3. Students' Learning Flexibility

First-year EFL students' learning flexibility is also assessed through the KLSI 4.0. The level of students' learning flexibility indicates the extent to which they can adapt their learning ways to respond to different learning situations that do not match their learning preferences. The assessment of students' learning flexibility scores in this research has revealed the following results:

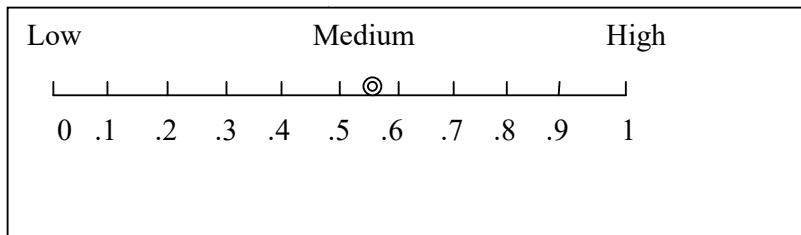
**Table4.26. Students' Learning Flexibility Scores and Means**

	<b>Scores</b>	
	<b>Frequency</b>	<b>Percent</b>
.00	1	2.63
.12	1	2.63
.26	1	2.63
.28	1	2.63
.30	1	2.63
.33	1	2.63
.34	2	5.26
.35	2	5.26
.42	4	10.53
.44	1	2.63
.48	1	2.63
.56	1	2.63
.58	2	5.26
.59	3	7.89
.60	1	2.63
.62	2	5.26
.63	4	10.53
.72	1	2.63
.74	1	2.63
.82	1	2.63
.83	2	5.26
.85	1	2.63
.89	1	2.63
.93	1	2.63
.99	1	2.63
<b>Total</b>	<b>38</b>	<b>100</b>
<b>Mean Scores of student</b>		<b>0.54</b>
<b>Mean Scores of test</b>		<b>0.50</b>



**Figure4.23. Students' Learning Flexibility Scores**

As shown in the table and figure above, students reveal a medium learning flexibility score according to the Kolb and Kolb (2022) learning flexibility scale with an overall mean of scores of 0.54 as shown in the figure below.



**Figure4.24. Learning Flexibility Scale**

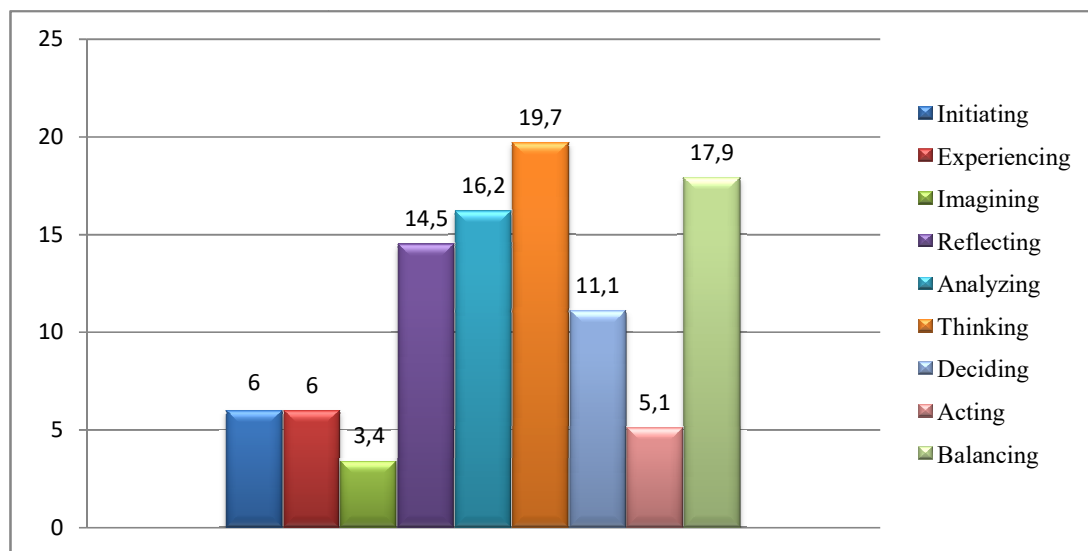
The above figure shows that students have a medium ability to adapt to the different learning situations that need to be enhanced for more successful students.

#### 4. Students' Backup Styles

The KLSI 4.0 results also reveal that students have the following backup styles that they can use in different learning situations. The KLSI 4.0 results are calculated and summarized in the following table and figure:

**Table4.27. Students' Backup Styles as Indicated by the KLSI 4.0**

Backup Styles	F	%
Initiating	7	6
Experiencing	7	6
Imagining	4	3.4
Reflecting	17	14.5
Analyzing	19	16.2
Thinking	23	19.7
Deciding	13	11.1
Acting	6	5.1
Balancing	21	17.9
Total	117	100



**Figure4.25. Students' Backup Styles as Indicated by the KLSI 4.0**

These results show that students have a considerable variety of backup styles that can help them cope and adapt to different learning situations though there are many learning styles that are rarely used by students. The results also show that a total of 117 backup styles are used by the 38 participants which means that the average number of backup styles for every participant is 3 styles which can be considered as small and

insufficient for dealing with the different learning situations. The dominant backup styles are the thinking, balancing, and analyzing styles.

#### **4.2. Quasi-Experimental Phase Data Analysis**

The quasi-experimental research of this study engages 38 students divided into two groups; control and experimental. This experiment is divided into three stages: the pre-test stage, the treatment stage, and the post-test stage. Besides, the t-test is used to analyze the data via SPSS. The paired and independent samples t-tests are used to make comparisons between the CG, EG, pre-test, and post-test mainly as far as the four learning modes and learning flexibility scores are concerned. The CG and EG students' learning style typologies and their backup styles in the pre-test and post-test are compared qualitatively and in terms of means only. The data collected and calculated from each stage are presented in the following section. However, before that, the homogeneity and normality distribution tests are analyzed to decide the type of test to be adopted in this research.

##### **Homogeneity**

As mentioned earlier, this research involves the two gender-males and females from both the CG and the EG. As such, the homogeneity of the two samples is evaluated based on gender and the previous specialty at Secondary schools.

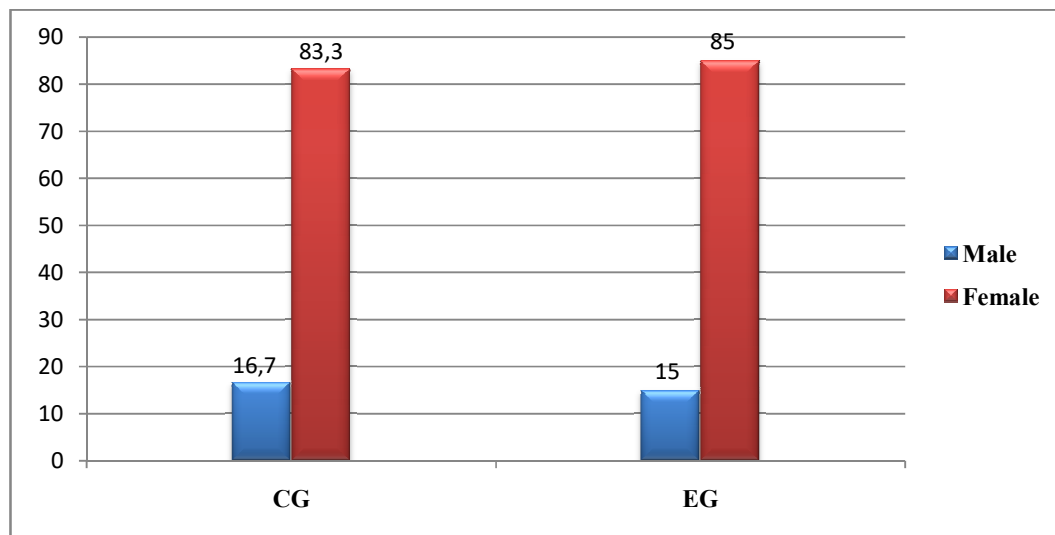
##### **Gender**

Statistics from the background section of the KLSI 4.0 show the following data:

**Table4.28. Control Group and Experiment Group Gender**

Gender	Control group		Experimental Group	
	Frequency	Percent	Frequency	Percent
Male	3	16.7	3	15
Female	15	83.3	17	85
<b>Total</b>	<b>18</b>	<b>100</b>	<b>20</b>	<b>100</b>

This table shows that there is a close distribution of the number of males and females in the control group and the experimental group. In other words, as illustrated in the figure below, the males' percentage in the CG is 16.7 % while it is 15 in the EC and the number of females in the CG is 83.3 % and 85% in the EG which are very close numbers. These data that prove the sample homogeneity in terms of gender are further illustrated in the following figure.



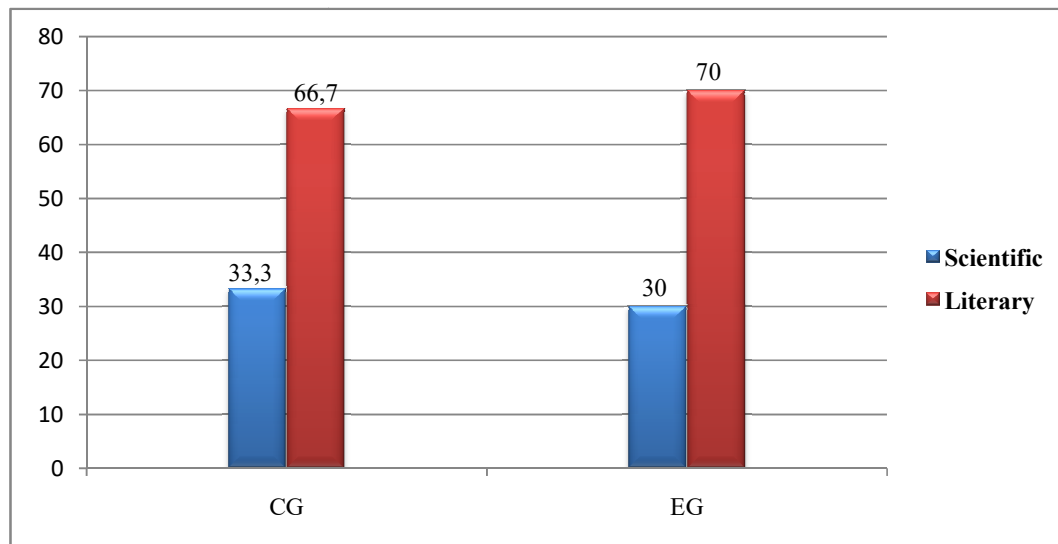
**Figure4.26. Control Group and Experimental Group Gender**

### Specialty

The students' specialty is also taken as an indicator of the students' homogeneity. The related data are presented in the following table.

**Table4.29. Students' Previous Specialty in the Secondary School**

Specialty	Control group		Experimental Group	
	Frequency	Percent	Frequency	Percent
Scientific	6	33.3	6	30
Literary	12	66.7	14	70
<b>Total</b>	<b>18</b>	<b>100</b>	<b>20</b>	<b>100</b>



**Figure4.27. Students' Previous Specialty in the Secondary School**

This figure again shows that there is an equivalent distribution of the literary and scientific specialties in both groups-EG and CE, as shown in the figure below.

### **Homogeneity Test**

The homogeneity of the participants is a very important condition for the adoption of the t-Test. The homogeneity variance among the CG and the EG in the pre-test is calculated using Levene statistics as summarized in the following table:



**Table 4.30. CG –EG Pre-test Homogeneity Test**

<b>CG_EG_Pre - test</b>			
<b>Levene Statistic</b>	<b>Df 1</b>	<b>Df 2</b>	<b>Sig.</b>
<b>0.086</b>	<b>1</b>	<b>36</b>	<b>0.112</b>

**H0 : S<sub>1</sub> = S<sub>2</sub>**

**H1 : S<sub>1</sub> ≠ S<sub>2</sub>**

The comparison between this study’s observed level of significance (0.11) and the critical level of significance for this research (0.05) reveals that the null hypothesis can be accepted suggesting ( $p>0.05$ ) that the two samples (CG and EG) are homogeneous.

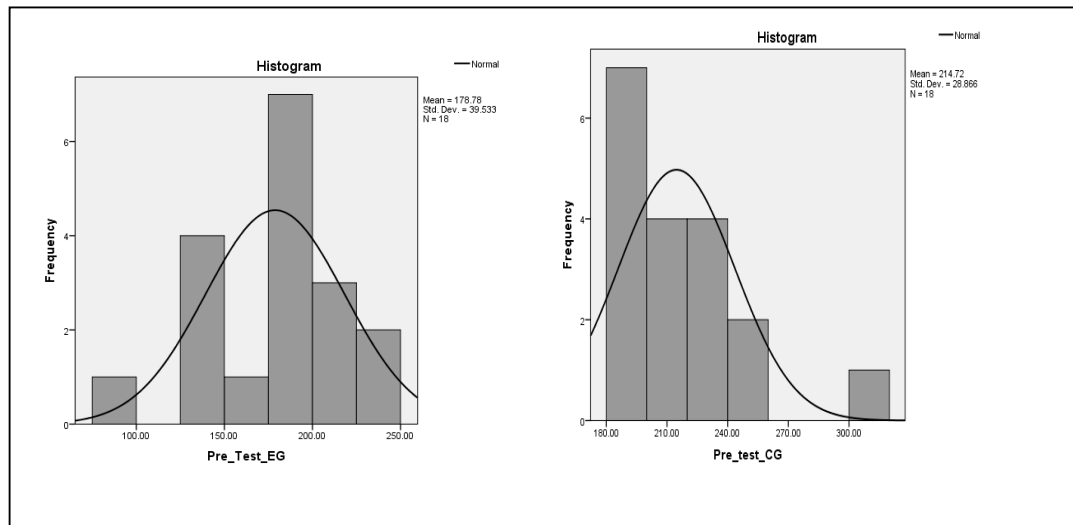
**Test of Normality**

The normal distribution of participants is investigated using the Kolmogorov-Smirnov test in order to assess the usability of the t-test for the analysis of the research’s interval data. The test results are summarized in the following table:

**Table4.31. Kolmogorov-Smirnov Test of Nomality in Distribution**

<b>Tests of Normality</b>			
<b>Kolmogorov-Smirnov</b>			
	<b>Statistic</b>	<b>df</b>	<b>Sig.</b>
<b>Pre-Test CG</b>	<b>0.178</b>	<b>18</b>	<b>0.135</b>
<b>Pre-Test EG</b>	<b>0.149</b>	<b>18</b>	<b>0.200</b>

**H<sub>0</sub>**: The individual scores are normally distributed  
**H<sub>1</sub>**: The individual scores are not normally distributed



**Figure4.28. Distribution of the Pre-test Data of the EG and the CG**

The statistics in the table and the figures above reveal a normal distribution of the individual scores collected from the pre-test of the experiment and control groups in the row for 18 degrees of freedom in each group through the comparison between the observed levels of significance and the critical level of significance set for human sciences at 0.05. The comparison shows that the two observed levels of significance in both CG (0.13) and EG (0.20) are bigger than the critical level significance (0.05), i.e.  $0.13 > 0.05$  and  $0.20 > 0.05$ ; thus, the null hypothesis ( $H_0$ ) is accepted confirming the normal distribution of data.

To sum up, the Levene homogeneity test, the Kolmogorov-Smirnov normality test, and the interval nature of the research data confirm that the t-test is applicable in this research.

### **Effect Size ( $\eta^2$ ) for Independent Samples T-test**

Once the usability of the t-test in this study is confirmed, the effect size ( $\eta$ ) is calculated as shown in the following table:

**Table4.32. Effect Size ( $\eta^2$ ) for Independent Samples T-test**

Eta for Independent Samples T-Test	Effect Size
	<b>0.86</b>

Based on the observed effect size (0.86) and the set table of effect size interpretation, presented below, the relative size of the effect for independent samples t-test in this study is large with a 0.86 value that is bigger than 0.14. This 0.86 effect size means that 86% of the variability in this sample can be accounted for by the independent variable of this research, that is, Experiential Education.

**Table4.33. Interpretation of the Effect Size for Independent Samples T-test**

Relative size	Effect size
<b>Small effect</b>	<b>0.01</b>
<b>Medium effect</b>	<b>0.06</b>
<b>Large effect</b>	<b>0.14</b>

#### **4.2.1. The Pre-test Data Analysis**

***$H_0$ : There are no significant differences between the CG's and EG's pre-test results.***

***$H_1$ : There are significant differences between the CG's and EG's pre-test results.***

Both the control and experimental groups are tested at this stage using the KLSI 4.0 to assess and elicit their learning style profile including their learning modes, learning styles, learning flexibility, and backup styles. A comparison is made in this section between the control group and experimental groups' results in the pre-test starting with the means of each of the four learning modes, then their preferred learning styles, their learning flexibility level, and finally, the backup styles using a parametric comparison between two groups via the t-test.

#### 4.2.1.1. Control Group and Experimental Group Learning Modes' Pre-test Results

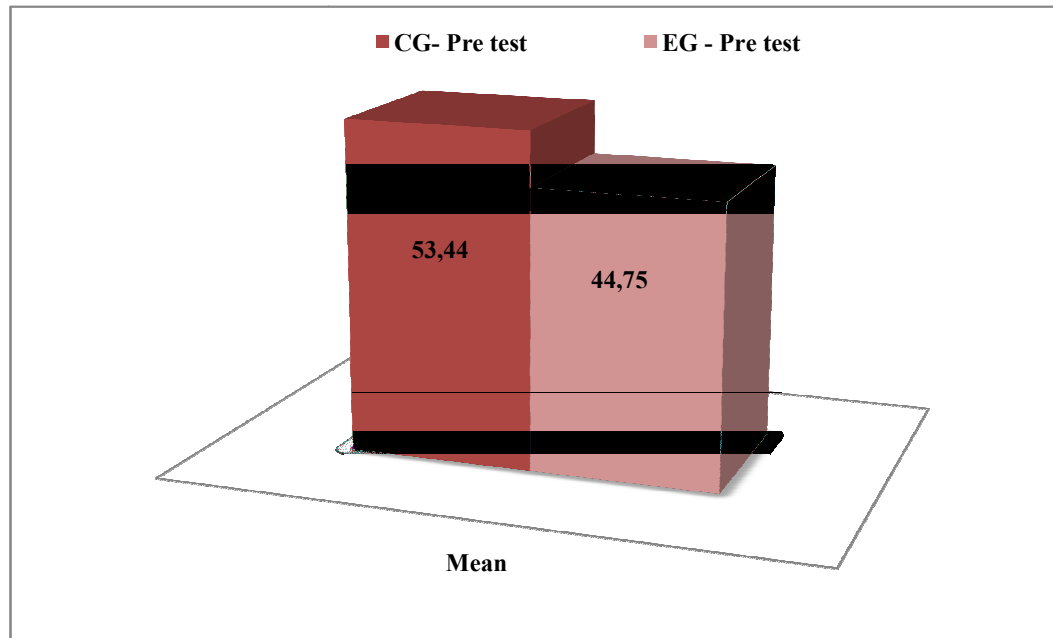
ELT reports that learning occurs in a cycle of four learning: two dialectic information grasping modes and two other dialectic information grasping modes. Learners, however, tend to prefer one of two types of learning modes: an information grasping mode and an information transformation one. The KLSI 4.0 provides a detailed learning profile that assesses students' use and preference for each of these four modes. Therefore, the results obtained from the assessment of the CG and EG regarding their use of each of these learning modes are presented and analyzed separately in the following sections.

##### 4.2.1.1.1. Concrete Experience Pre-test Results

First-year EFL students' reliance on the Concrete Experience mode is indicated in the following table and figure in terms of means. These means are then compared using the independent samples t-test to calculate the difference level between the two.

**Table4.34. Experimental and Control Groups' Reliance on the Concrete Experience Mode**

<b>Groups</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>Control group</b>	18	53.44	26.22
<b>Experimental Group</b>	20	44.75	27.79



**Figure4.29. Experimental and Control Groups' Reliance on the Concrete**

**Experience Mode**

The table and the figure above indicate that the means of the participants' use of the Concrete Experience mode by the control group and the experiment group are 53.44 and 44.75 respectively. These means are also compared to find out the significance of the difference between the two means, and thus the two groups' reliance on the CE mode, using the independent-samples t-test procedure as illustrated in the table below.

**Table4.35. Independent-Samples T-test for the CG and EG in the CE Mode Pre-test**

Groups	N	Mean Difference	Std. Error Difference	t	df	Sig.
Control group	18	8.69	8.79	<b>0.98</b>	<b>36</b>	<b>0.32</b>
Experimental Group	20					

Assessing the significance of the difference between the CG and the EG at the level of the CE mode in the pre-test, this table shows that the observed t value which is

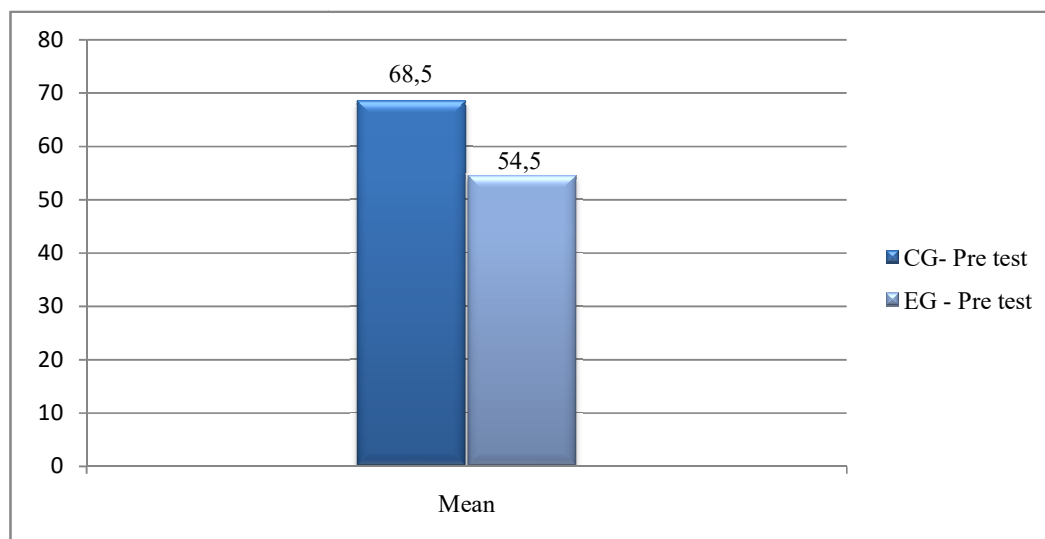
0.98 in the row of 36 degrees of freedom is less than the critical t value for the 0.05 level which is 2.04. In addition to that, the observed significance level is higher than the  $\alpha=0.05$ . Consequently, the null hypothesis of no difference between the two groups is accepted. In other words, these data show that there are no significant differences between the CG's and the EG's reliance on the CE mode in the pre-test.

#### 4.2.1.1.2. Reflective Observation Pretest Results

Students' reliance on the Reflective Observation mode is indicated in the following table and figure in terms of means. These means are then compared using the independent samples t-test to calculate the difference level between the two.

**Table4.36 Experimental and Control Group RO Pre-test Means**

Groups	N	Mean	Std. Deviation
Control group	18	68.50	23.94
Experimental Group	20	54.50	25.30



**Figure4.30. Experimental and Control Group RO Pre-Test Means**

The table and the figure above indicate that the means of the use of the Reflective Observation mode by the control group and the experiment group are 68.5 and 54.5 respectively. These means are also compared to find out the significance of

the difference between the two means, and thus the two groups' reliance on the RO mode, using the independent-samples t-test procedure as illustrated in the table below.

**Table4.37. Independent-Samples T-test for the CG and EG in the RO Mode Pre-test**

<b>Groups</b>	<b>N</b>	<b>Mean Difference</b>	<b>Std. Error Difference</b>	<b>t</b>	<b>df</b>	<b>Sig.</b>
<b>Control group</b>	18	14	8.01	<b>1.74</b>	<b>36</b>	<b>0.08</b>
<b>Experimental Group</b>	20					

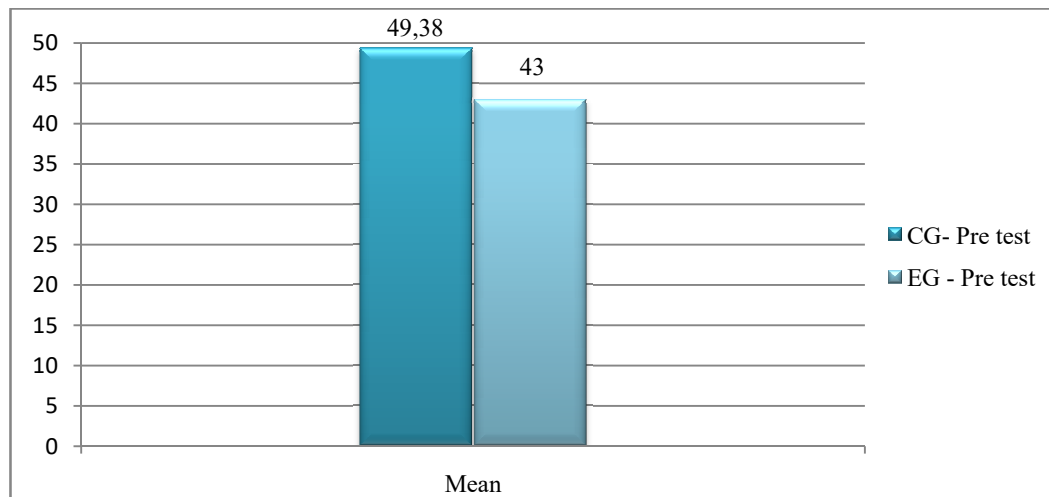
Assessing the significance of the difference between the CG and the EG at the level of the RO mode in the pre-test, this table shows that the observed t value which is 1.74 in the row of 36 degrees of freedom is less than the critical t value for the 0.05 level which is 2.04. In addition, the observed significance level (0.08) is bigger than the critical significance level ( $\alpha=0.05$ ). Consequently, the null hypothesis of no difference between the two groups is accepted. In other words, these data show that there are no significant differences between the CG's and the EG's reliance on the RO mode in the pre-test.

#### 4.2.1.1.3. CG's and EG's Abstract Conceptualization Pre-test Results

Students' reliance on the Abstract Conceptualization mode is indicated in the following table and figure in terms of means. These means are then compared using the independent samples t-test to calculate the difference level between the two.

**Table4.38. Experimental and Control Group AC Pre-test Means**

<b>Groups</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>Control group</b>	18	49.38	19.50
<b>Experimental Group</b>	20	43.00	20.46



**Figure4.31. Experimental and Control Groups' Reliance on the Abstract**

### Conceptualization Mode

The table and the figure above indicate that the means of the use of the Abstract Conceptualization mode by the control group and the experiment group are 49.38 and 43 respectively. These means are also compared to find out the significance of the difference between the two means, and thus the two groups' reliance on the AC mode, using the independent-samples t-test procedure as illustrated in the table below.

**Table4.39. Independent-Samples T-Test for the CG and EG in the AC Mode Pre-Test**

Groups	N	Mean Difference	Std. Error Difference	t	df	Sig.
Control group	18	6.38	6.50	<b>0.98</b>	<b>36</b>	<b>0.33</b>
Experimental Group	20					

Assessing the significance of the difference between the CG and the EG at the level of the AC mode in the pre-test, this table shows that the observed t value which is 0.98 in the row of 36 degrees of freedom is less than the critical t value for the 0.05 level which is 2.04. In addition, the observed significance level (0.33) is bigger than the

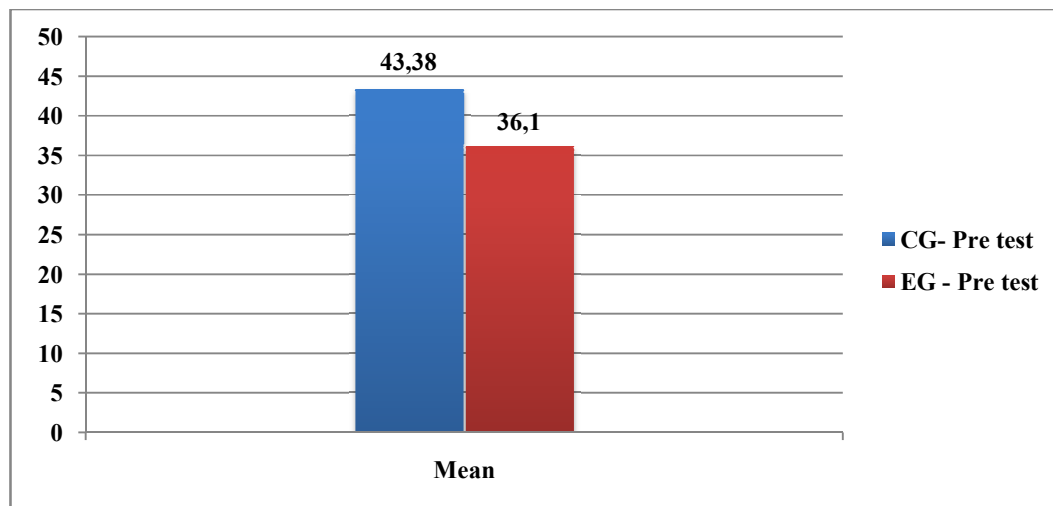
critical significance level ( $\alpha=0.05$ ). Consequently, the null hypothesis of no difference between the two groups is accepted. In other words, these data show that there are no significant differences between the CG's and the EG's reliance on the AC mode in the pre-test.

#### 4.2.1.1.4. Active Experimentation Pre-test Results

First-year EFL students' reliance on the Active Experimentation mode is indicated in the following table and figure in terms of means. These means are then compared using the independent samples t-test to calculate the difference level between the two.

**Table 4.40. Experimental and Control Group AE Pre-test Means**

Groups	N	Mean	Std. Deviation
Control group	18	43.38	24.70
Experimental Group	20	36.10	26.65



**Figure 4.32. Experimental and Control Group AE Pre-test Means**

The table and the figure above indicate that the means of the use of the Active Experimentation mode by the control group and the experiment group are 43.38 and



36.1 respectively. These means are also compared to find out the significance of the difference between the two means, and thus the two groups' reliance on the AE mode, using the independent-samples t-test procedure as illustrated in the table below.

**Table4.41. Independent-Samples T-test for the CG and EG in the AE Mode Pre-test**

<b>Groups</b>	<b>N</b>	<b>Mean Difference</b>	<b>Std. Error Difference</b>	<b>t</b>	<b>df</b>	<b>Sig.</b>
<b>Control group</b>	18	7.28	8.36	<b>0.87</b>	<b>36</b>	<b>0.38</b>
<b>Experimental Group</b>	20					

Assessing the significance of the difference between the CG and the EG at the level of the AE mode in the pre-test, this table shows that the observed t value which is 0.87 in the row of 36 degrees of freedom is less than the critical t value for the 0.05 level which is 2.04. In addition, the observed significance level (0.38) is bigger than the critical significance level ( $\alpha=0.05$ ). Consequently, the null hypothesis of no difference between the two groups is accepted. In other words, these data show that there are no significant differences between the CG's and the EG's reliance on the AE mode in the pre-test.

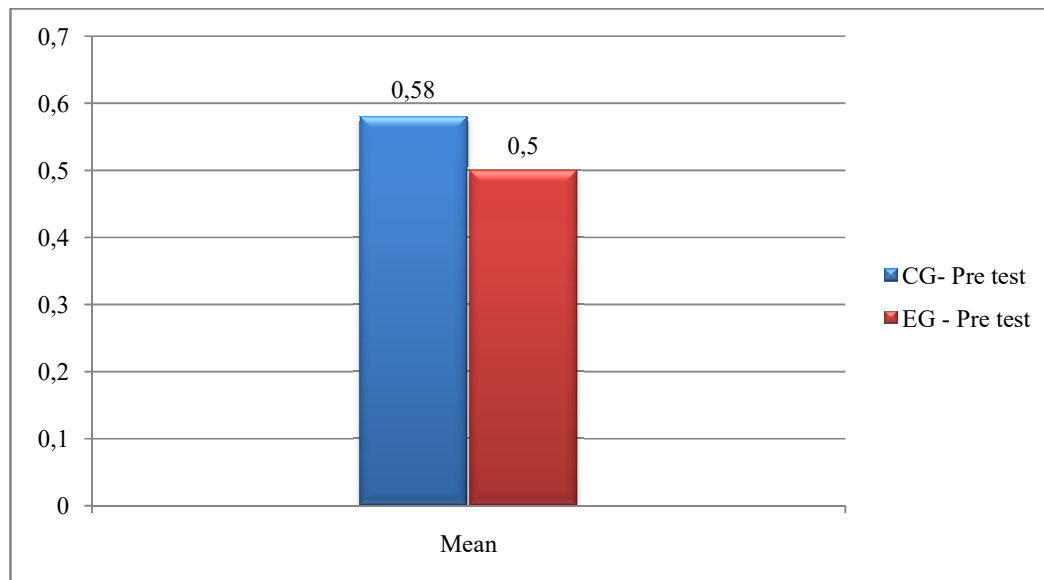
#### **4.2.1.2. Control Group and Experimental Group Learning Flexibility Pre-test**

##### **Results**

The Students' learning flexibility level is presented in the following table in terms of means for both the CG and the EG.

**Table4.42. EG and CG Learning Flexibility Means in the Pre-test**

<b>Groups</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>Control group</b>	18	0.58	0.19
<b>Experimental Group</b>	20	0.50	0.25



**Figure4.33. EG and CG Learning Flexibility Means in the Pre-test**

The table and the figure above indicate that the means of the learning flexibility level of the control group and the experiment group are 0.58 and 0.5 respectively, and thus, both groups have a medium level of learning flexibility according to the Kolb learning flexibility scale (Kolb & Kolb, 2022). These means are also compared to find out the significance of the difference between the two means, and thus the two groups' learning flexibility levels, using the independent-samples t-test procedure as illustrated in the table below.

**Table4.43. Independent-Samples T-test for the Pre-test Flexibility Level of the CG and EG**

Groups	N	Mean Difference	Std. Error Difference	t	df	Sig.
Control group	18	0.079	0.073	1.08	36	0.28
Experimental Group	20					

The assessment of the significance of the difference between the CG and the EG in terms of their learning flexibility level as determined by the pre-test reveals that the

observed t value is lower than the critical t value in the row of 36 degrees of freedom for the 0.05 level and the observed significance level is higher than the critical significance level in this study. That is,  $1.08 < 2.04$ ,  $df=36$ ,  $p > 0.05$ . Consequently, the null hypothesis of no difference between the two groups is confirmed. In other words, the independent samples t-test reveals that there is no significant difference between the CG and the EG learning flexibility level in the pre-test.

#### 4.2.1.3. Control Group and Experimental Group Learning Styles Pre-test

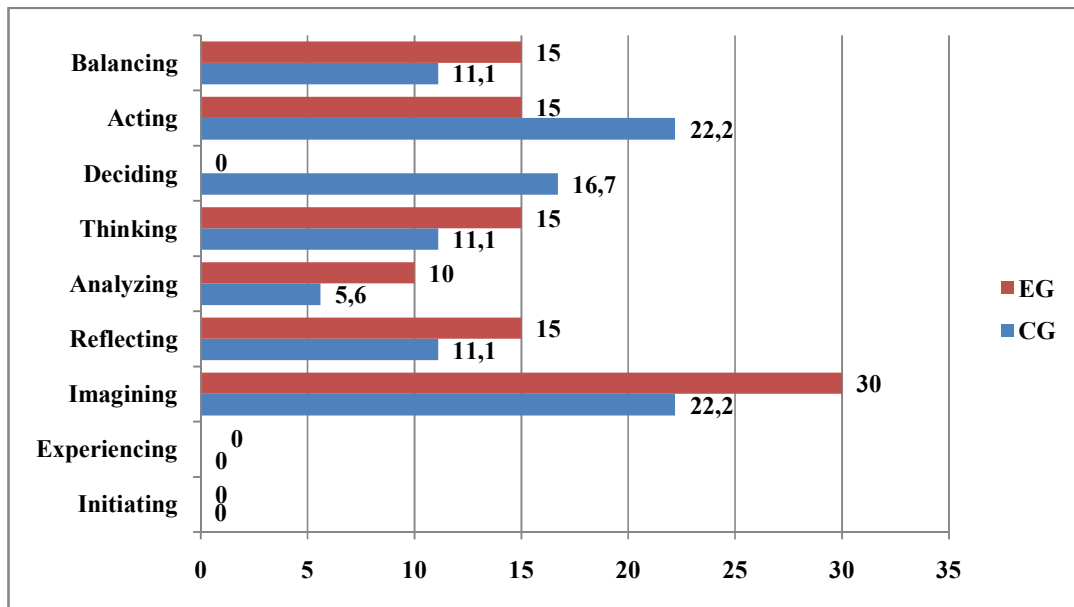
The learning style' results obtained from the pre-test are statistically analyzed and compared in the following table and figure.

**Table 4.44. CG and EG Learning Styles' Pre-test Results**

Learning Style	Control group		Experimental Group	
	Frequency	Percent	Frequency	Percent
<b>Initiating</b>	0	0	0	0
<b>Experiencing</b>	0	0	0	0
<b>Imagining</b>	4	22.2	6	30
<b>Reflecting</b>	2	11.1	3	15
<b>Analyzing</b>	1	5.6	2	10
<b>Thinking</b>	2	11.1	3	15
<b>Deciding</b>	3	16.7	0	0
<b>Acting</b>	4	22.2	3	15
<b>Balancing</b>	2	11.1	3	15
<b>Total</b>	<b>18</b>	<b>100</b>	<b>20</b>	<b>100</b>

The table above shows that the majority of the CG and EG have more preference for the Imagining (22.2% and 30% respectively) and Acting (22.2% and 15%) styles in addition to their equal preference for the Balancing, Thinking, and Acting styles with

11.1% and 15% respectively for each style. The table also reveals that both groups have no preference for the Experiencing and Initiating styles (0%). However, the data also show one worth mentioning difference between the two groups at the level of the Deciding styles where 16.7 students from the CG prefer the Deciding style while 0% prefer it from the EG. All in all, it can be said that the CG and the EG have relatively similar learning preferences. These data are also illustrated in the figure below.



**Figure4.34. CG and EG Learning Styles' Pre-test Results**

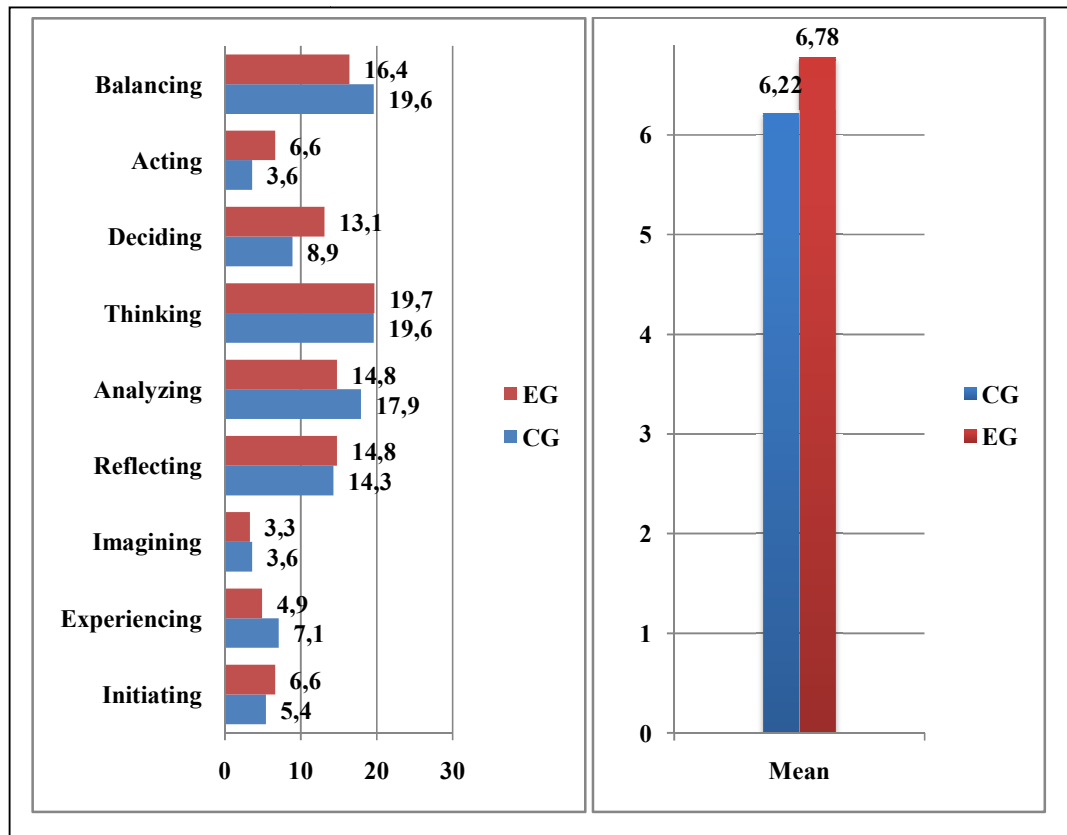
#### **4.2.1.4. Control Group and Experimental Group Backup Styles Pre-test**

The students' possession and use of backup to deal with the different learning situations are also assessed through the pre-test. The related results are presented in this section in terms of frequencies, percentages, and means to make a comparison between the CG's and the EG's results as shown in the table and figure below.

**Table.4.45. CG and EG Backup Styles Results in the Pre-test**

Backup Styles	Control group		Experimental Group	
	Frequency	Percent	Frequency	Percent
<b>Initiating</b>	3	5.4	4	6.6
<b>Experiencing</b>	4	7.1	3	4.9
<b>Imagining</b>	2	3.6	2	3.3
<b>Reflecting</b>	8	14.3	9	14.8
<b>Analyzing</b>	10	17.9	9	14.8
<b>Thinking</b>	11	19.6	12	19.7
<b>Deciding</b>	5	8.9	8	13.1
<b>Acting</b>	2	3.6	4	6.6
<b>Balancing</b>	11	19.6	10	16.4
<b>Total</b>	<b>56</b>	<b>100</b>	<b>61</b>	<b>100</b>
<b>Mean</b>	<b>6.22</b>		<b>6.78</b>	

The pre-test statistics of the CG and EG reveal approximate means of the students' backup styles (6.22 and 6.78 respectively) with a mean difference of 0.56. Consequently, there are no big differences between the CG and the EG as far as their backup styles are concerned. It is also worth mentioning that there is a similar tendency to rely on Thinking (19.7 and 19.6%), Balancing (16.4 and 19.6%), Analyzing (14.8 and 17.9%), and Reflecting (14.8 and 14.3%) styles as backups for both groups compared to the other styles.



**Figure 4.35. CG and EG Backup Styles Results in the Pre-test**

#### **4.2.2. Progress-test (PAA) Results**

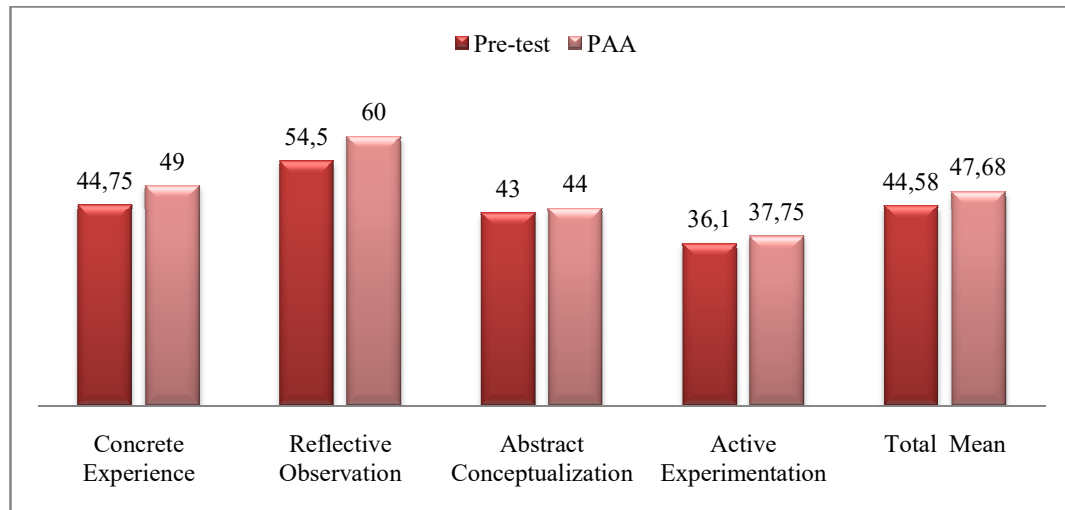
During the treatment phase, the researcher used the Personal Application Assessment (PAA) in order to assess students' experiential learning after the application of the Experiential Learning Sessions. That is to say, this instrument is basically aimed at strengthening students' understanding and insights gleaned from Experiential Learning Sessions that make up part of the treatment phase. However, it is also used in this research as a kind of progress test to evaluate the EG students' learning development during the treatment. As such, the results obtained from the PAA are presented here in comparison with the pre-test learning modes results of the experimental group through the four learning modes means.

**Table4.46. Comparison between the EG’s PAA and Learning Modes Pre-test**

**Results**

	<b>Pre-test</b>	<b>PAA</b>
<b>1 Concrete Experience</b>	44.75	49
<b>2 Reflective Observation</b>	54.5	60
<b>3 Abstract Conceptualization</b>	43	44
<b>4 Active Experimentation</b>	36.1	37.75
<b>Total Mean</b>	<b>44.58</b>	<b>47.68</b>

These results demonstrate that the EG students show some improvement in the PAA compared to their results in the pre-test, after the Experiential Learning Sessions, mainly at the level of their use of the Concrete Experience mode and the Reflective Observation modes with mean differences of 4.25 and 6.04 respectively. In addition, the Abstract Conceptualization and the Active Experimentation also show some improvement in the PAA compared to the pre-test with mean differences of 1 and 1.65 respectively. Consequently, the students’ learning modes have relatively improved after the Experiential Learning Sessions that make up part of the Experiential Education treatment. These data are also illustrated in the following figure:



**Figure4.36. Comparison between the EG’s PAA and Learning Modes Results of the Pre-test**

#### **4.2.3. Post -test Results**

After the treatment phase that involves the EG, both the CG and the EG undergo the post-test in order to evaluate the students’ learning development and test the research hypothesis. The Presentation of the post-experiment results starts with a comparison between the pre-test and post-test results of the control group, a comparison between the pre-test and post-test results of the experiment group, and finally, a comparison between the post-test results of the control and experiment group.

##### **4.2.3.1. Comparison of the CG’s Pre-Test and Post-Test Results**

***$H_0$ : There are no significant differences between the pre-test and post-test results of the CG.***

***$H_1$ : There are significant differences between the pre-test and post-test results of the CG.***

The comparison between the CG’s results in the pre-test and the post-test begins with the learning modes and learning flexibility using the paired-samples t-test

procedure in the row of 17 degrees of freedom for the level 0.05 in addition to the comparison of the learning styles and backup styles results.

#### 4.2.3.1.1. Learning Modes' Pre-test and Post-test Results of the CG

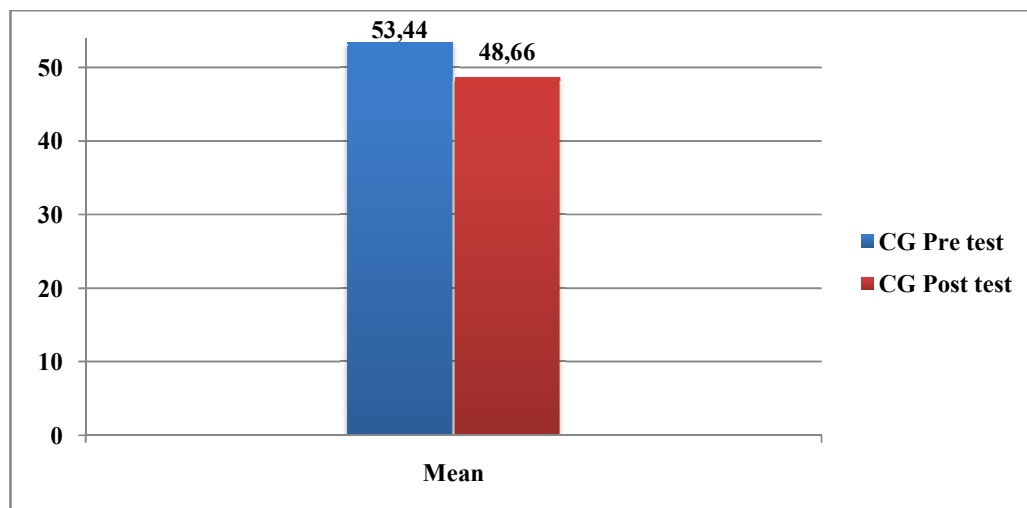
The comparison results of each of the four learning modes are presented in this section using the paired-samples t-test procedure in the row of 17 degrees of freedom at the level of 0.05, and a critical t value of 2.11.

##### 4.2.3.1.1.1. Concrete Experience's Pre-test and Post-test of the CG

The control group's reliance on the CE mode is represented and compared in terms of means in the following table and related figure.

**Table4.47. Concrete Experience's Means in Pre-Test and Post-test of the CG**

Groups	N	Mean	Std. Deviation
Control Group Pre-Test	18	53.44	26.22
Control Group Post-Test	18	48.66	26.84



**Figure4.37. Concrete Experience's Means in Pre-test and Post-test of the CG**

The table and the figure above show that the means of CG's use of the CE mode in the pre-test and the post-test are 53.44 and 48.66 respectively. These two means are

also compared to find out the significance of the difference between the two tests using a paired-sample t-test as shown in the table below.

**Table4.48. Paired Samples T-test of the CE Mode in the CG’s Pre-test and Post-test**

<b>Groups</b>	<b>N</b>	<b>Mean</b>	<b>Std. Difference</b>	<b>t</b>	<b>df</b>	<b>Sig.</b>
<b>Control Group Pre-test</b>	18	4.77	31.92	<b>0.63</b>	<b>17</b>	<b>0.53</b>
<b>Control Group Post-test</b>	18					

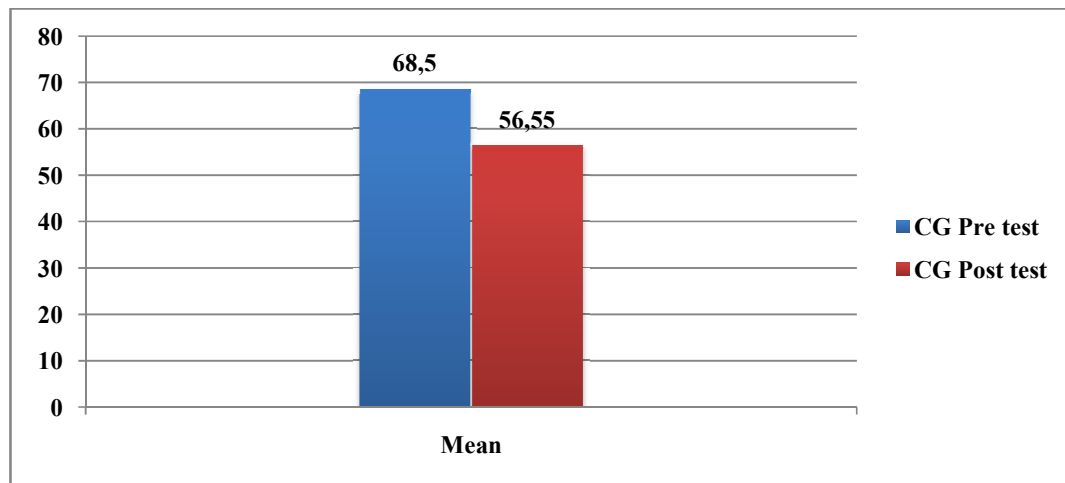
The comparison between the pre-test and post-test results of the control group, as shown in the table above, reveals that the observed t value which is 0.063 in the row of 17 degrees of freedom is less than the critical t value for the 0.05 level which is 2.11. In addition, the observed significance level (0.53) is bigger than the critical significance level ( $\alpha=0.05$ ). Consequently, the null hypothesis of no difference between the two tests is accepted. In other words, these data show that there are no significant differences between the CG’s reliance on the CE mode in the pre-test and post-test.

**4.2.3.1.1.2. Reflective Observation’s Pre-test and Post-tests Results of the CG**

The control group’s reliance on the RO mode is represented and compared in terms of means in the following table and related figure.

**Table4.49. Reflective Observation’s Means in the Pre-test and Post-test of the CG**

<b>Groups</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>Control Group Pre -Test</b>	18	68.50	23.94
<b>Control Group Post-Test</b>	18	56.55	21.11



**Figure4.38. Reflective Observation's Means in Pre-test and Post-test of the CG**

The table and the figure above show that the means of CG's use of the RO mode in the pre-test and the post-test are 68.5 and 56.55 respectively. These two means are also compared to find out the significance of the difference between the two tests using a paired-sample t-test as shown in the table below.

**Table4.50. Paired-Samples T-test of the RO Mode in the CG's Pre-test and Post-test**

Groups	N	Mean	Std. Difference	t	df	Sig.
Control Group Pre-test	18					
Control Group Post-test	18	11.94	30.53	1.65	17	0.11

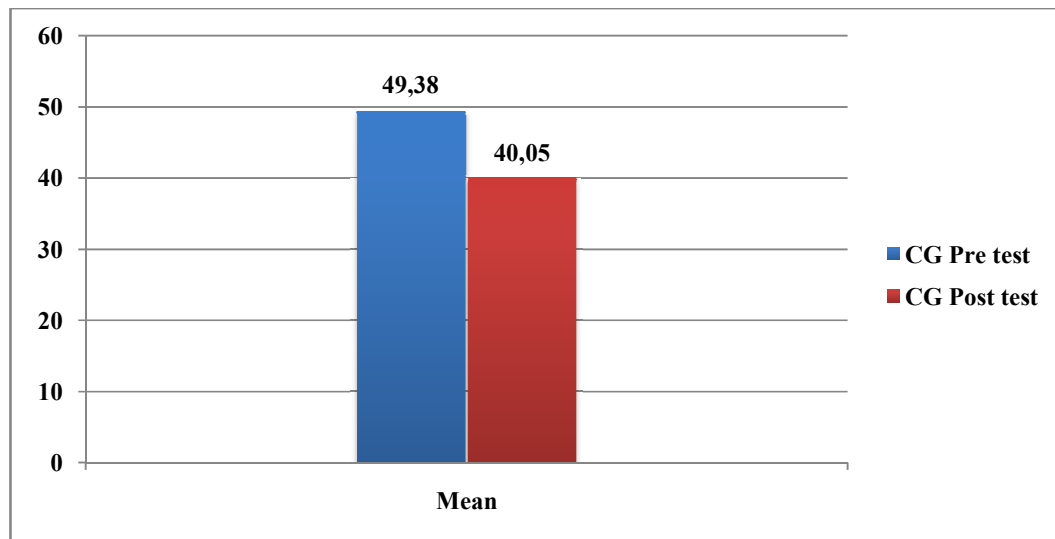
The comparison between the pre-test and post-test results of the control group, as shown in the table above, reveals that the observed t value which is 1.65 in the row of 17 degrees of freedom is less than the critical t value for the 0.05 level which is 2.11. In addition, the observed significance level (0.11) is bigger than the critical significance level ( $\alpha=0.05$ ). Consequently, the null hypothesis of no difference between the two tests is accepted. In other words, these data show that there are no significant differences between the CG's reliance on the RO mode in the pre-test and post-test.

#### 4.2.3.1.1.3. Abstract Conceptualization's Pre-test and Post-test of the CG

The two groups' reliance on the AC mode is represented and compared in terms of means in the following table and related figure.

**Table 4.51. Abstract Conceptualization's Means in Pre-test and Post-test of the CG**

Groups	N	Mean	Std. Deviation
Control Group Pre -Test	18	49.38	19.50
Control Group Post-Test	18	40.05	21.87



**Figure 4.39. Abstract Conceptualization's Means in the Pre-test and Post-test of the CG**

The table and the figure above show that the means of CG's use of the AC mode in the pre-test and the post-test are 49.38 and 40.05 respectively. These two means are also compared to find out the significance of the difference between the two tests using a paired-sample t-test as shown in the table below.

**Table4.52. Paired Samples T-test of the AC Modes of the CG’s Pre-test and Post-test**

<b>Groups</b>	<b>N</b>	<b>Mean</b>	<b>Std. Difference</b>	<b>t</b>	<b>df</b>	<b>Sig.</b>
<b>Control Group Pre-test</b>	18	9.33	29.72	<b>1.33</b>	<b>17</b>	<b>0.20</b>
<b>Control Group Post-test</b>	18					

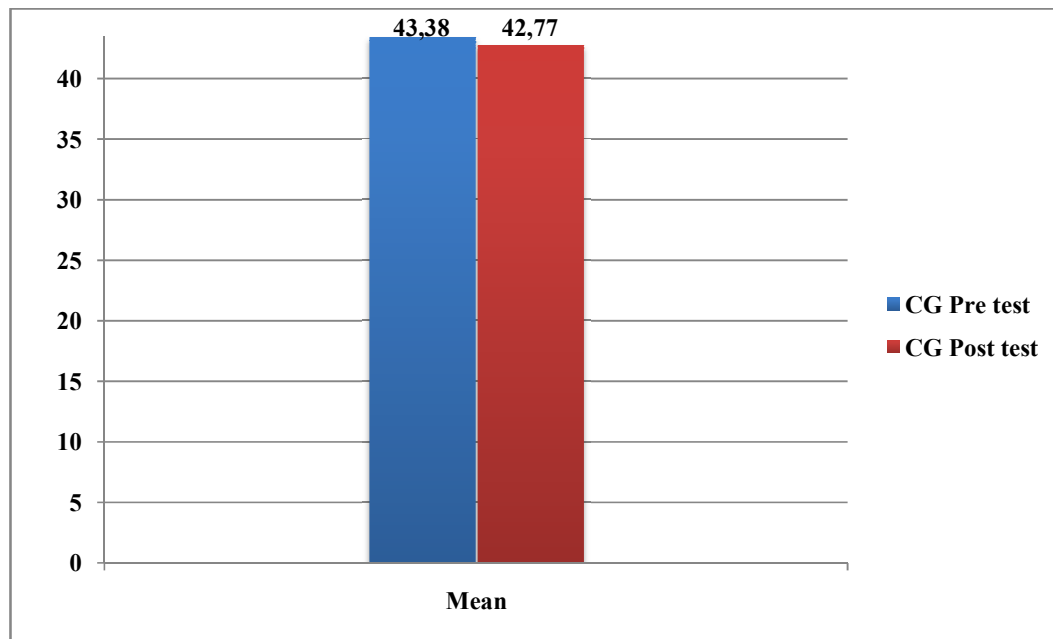
The comparison between the pre-test and post-test results of the control group, as shown in the table above, reveals that the observed t value which is 1.33 in the row of 17 degrees of freedom is less than the critical t value for the 0.05 level which is 2.11. In addition, the observed significance level (0.20) is bigger than the critical significance level ( $\alpha=0.05$ ). Consequently, the null hypothesis of no difference between the two tests is accepted. In other words, these data show that there are no significant differences between the CG’s reliance on the AC mode in the pre-test and post-test.

**4.2.3.1.1.4.Active Experimentation’s Pre-test and Post-test of the CG**

The control group’s reliance on the AE mode is represented and compared in terms of means in the following table and related figure.

**Table4.53. Active Experimentation’s Means in Pre-Test and Post-Test of the CG**

<b>Groups</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>Control Group Pre-Test</b>	18	43.38	5.82
<b>Control Group Post-Test</b>	18	42.77	4.62



**Figure4.40. Active Experimentation’s Means in Pre-test and Post-test of the CG**

The table and the figure above show that the means of CG’s use of the AE mode in the pre-test and the post-test are 43.38 and 42.77 respectively. These two means are also compared to find out the significance of the difference between the two tests using a paired-sample t-test as shown in the table below.

**Table4.54. Paired Samples T-test of the AE Modes of the CG’s Pre-test and Post-test**

Groups	N	Mean	Std. Difference	t	df	Sig.
Control Group Pre-test	18					
Control Group Post-test	18	0.61	30.50	<b>0.08</b>	<b>17</b>	<b>0.93</b>

The comparison between the pre-test and post-test results of the control group, as shown in the table above, reveals that the observed t value which is 0.063 in the row of 17 degrees of freedom is less than the critical t value for the 0.05 level which is 2.11. In addition, the observed significance level (0.53) is bigger than the critical significance level ( $\alpha=0.05$ ). Consequently, the null hypothesis of no difference between the two tests

is accepted. In other words, these data show that there are no significant differences between the CG's reliance on the CE mode in the pre-test and post-test.

#### **1.2.3.1.2. CG's Learning Flexibility Results in the Pre-test and Post-test**

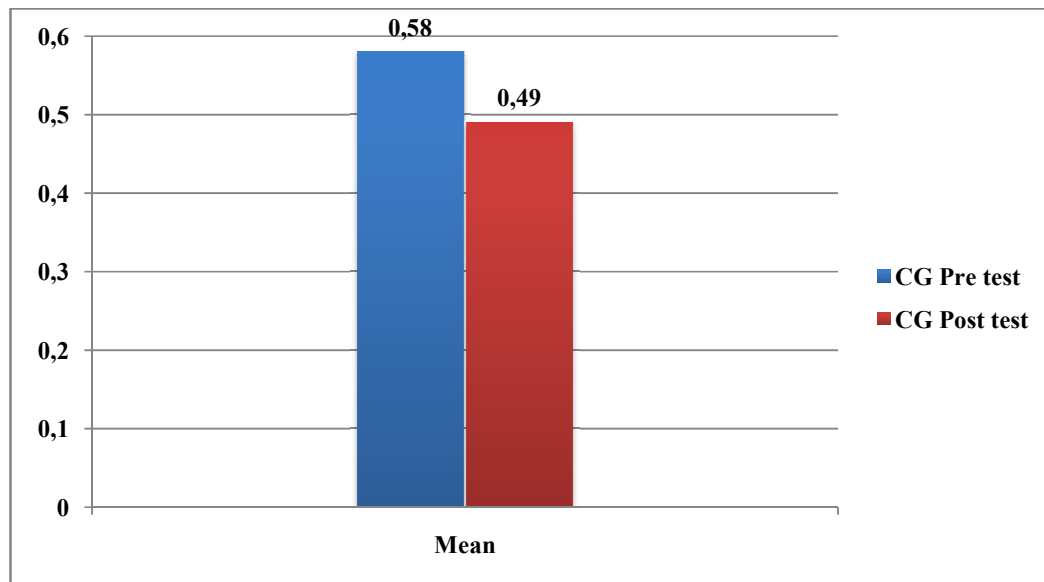
A comparison between the learning flexibility scores of the control group in the pre-test and the post-test is made in this section. First, the means of learning flexibility scores in the pre-test and the post-test are presented, and then, these means are compared to calculate the significance of the difference between the two tests using the paired-samples t-test in the row of 17 degrees of freedom at the level 0.05 and the critical value of significance of 2.110.

#### **Control Group's Learning Flexibility Means in the Pre-test and the Post-test**

The control group's learning flexibility scores in the pre-test and post-test are presented below in terms of means to make a comparison between the two tests.

**Table4.55. Control Group's Learning Flexibility Means in the Pre-test and the Post-test**

<b>Groups</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>Control Group Pre -Test</b>	18	0.58	0.19
<b>Control Group Post-Test</b>	18	0.49	0.20



**Figure4.41. Control Group’s Learning Flexibility Means in the Pre-test and the Post-test**

The table and the figure above show that the means of CG’s learning flexibility scores in the pre-test and the post-test are 0.58 and 0.49 respectively. These two means are also compared to find out the significance of the difference between the two tests using a paired-sample t-test as shown in the table below.

**Table4.56. Paired Samples T-test of the Learning Flexibility of the CG’s Pre-test and Post-test**

Groups	N	Mean	Std. Difference	t	df	Sig.
Control Group Pre-test	18					
Control Group Post-test	18	0.09	0.26	<b>1.50</b>	<b>17</b>	<b>0.15</b>

The comparison between the pre-test and post-test results of the control group, as shown in the table above, reveals that the observed t value which is 1.50 in the row of 17 degrees of freedom is less than the critical t value for the 0.05 level which is 2.11. In addition, the observed significance level (0.15) is bigger than the critical significance level ( $\alpha=0.05$ ). Consequently, the null hypothesis of no difference between the two tests

is accepted. In other words, these data show that there are no significant differences between the CG's learning flexibility scores in the pre-test and post-test.

### 1.2.3.1.3. Control Group's Learning Styles' Results in the Pre-test and the Post-test

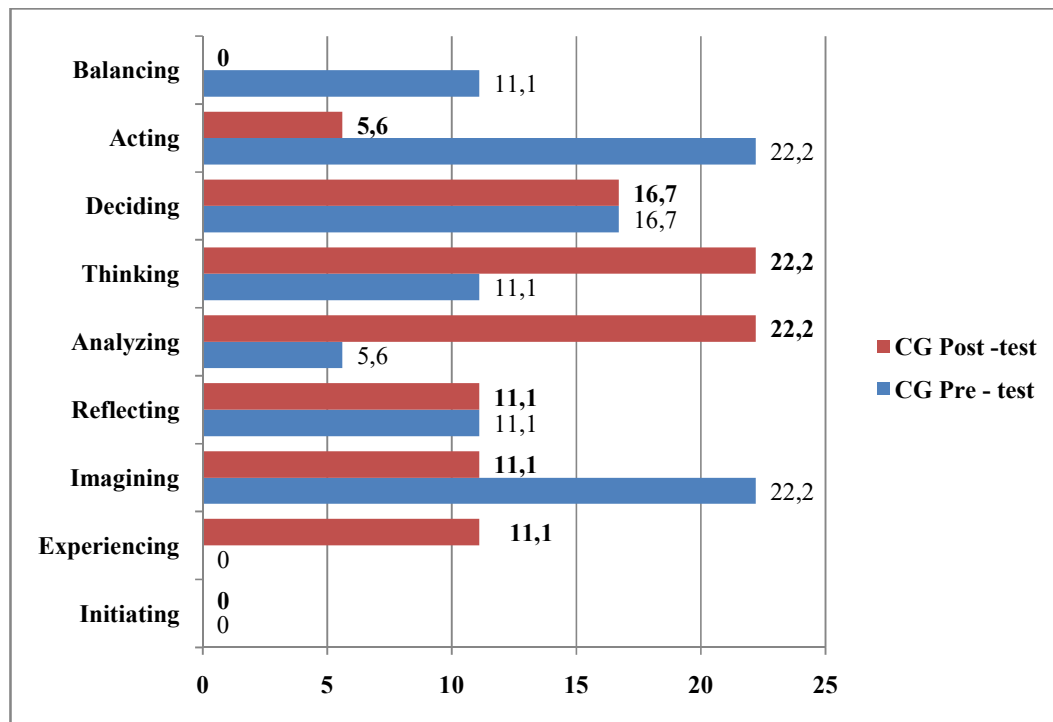
The control group's results in the pre-test and the post-test regarding their learning style preference are presented and compared in this section.

**Table5.57. CG's Learning Styles' Results in the Pre-test and Post-test**

Learning Style	Pre-test		Post-test	
	Frequency	Percent	Frequency	Percent
<b>Initiating</b>	0	0	0	0
<b>Experiencing</b>	0	0	2	11.1
<b>Imagining</b>	4	22.2	2	11.1
<b>Reflecting</b>	2	11.1	2	11.1
<b>Analyzing</b>	1	5.6	4	22.2
<b>Thinking</b>	2	11.1	4	22.2
<b>Deciding</b>	3	16.7	3	16.7
<b>Acting</b>	4	22.2	1	5.6
<b>Balancing</b>	2	11.1	0	0
<b>Total</b>	<b>18</b>	<b>100</b>	<b>18</b>	<b>100</b>
<b>Mean</b>	<b>2</b>		<b>2</b>	

The table above shows that the CG's learning styles have changed in the post-test with an increase in the number of students who prefer the analyzing styles from 5.6% to 22.2%, the Experiencing style also shows some raise from 0% to 11.1%, and the preference for the thinking styles move from 11.1% to 22.2%. On the other hand, the number of students who prefer the acting style has decreased from 22.2% to 5.6%,

the Balancing styles also regress from 11.1% to 0%, and the Imagining style has declined to 11.1%. These changes reflect students' direction toward the Abstract Conceptualization modes that might be explained by the students' continuous exposure to the Subject-Expert and Evaluator role adopted by the majority of teachers as shown earlier through the KERP results. These results are illustrated in the figure below.



**Figure4.42. CG's Learning Styles' Results in the Pre-test and Post-test**

#### **1.2.3.1.4. Control Group's Backup Styles' Results in the Pre-test and Post-test**

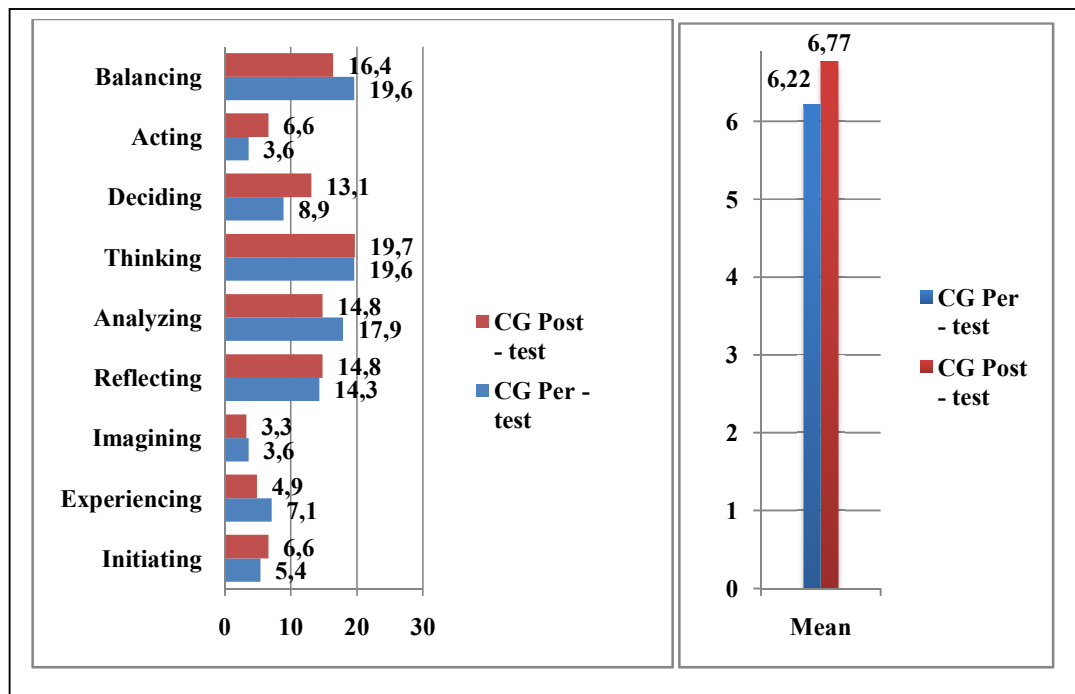
The backup styles of the control group's results in the pre-test and post-test are also compared in order to better understand the development of these styles in relation to Experiential Education. The frequencies, percentages, and general means of these styles in the two tests are calculated and compared in the following table.

**Table4.58. CG’s Backup Styles in the Pre-test and Post-test**

<b>Backup Styles</b>	<b>Pre-test</b>		<b>Post-test</b>	
	<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>
<b>Initiating</b>	3	5.4	4	6.6
<b>Experiencing</b>	4	7.1	3	4.9
<b>Imagining</b>	2	3.6	2	3.3
<b>Reflecting</b>	8	14.3	9	14.8
<b>Analyzing</b>	10	17.9	9	14.8
<b>Thinking</b>	11	19.6	12	19.7
<b>Deciding</b>	5	8.9	8	13.1
<b>Acting</b>	2	3.6	4	6.6
<b>Balancing</b>	11	19.6	10	16.4
<b>Total</b>	<b>56</b>	<b>100</b>	<b>61</b>	<b>100</b>
<b>Mean</b>	<b>6.22</b>		<b>6.77</b>	

As shown in the table above, there are some changes in the percentages of the different backup styles in the pre-test and post-test generally with one frequency raise or decrease in the majority of the styles types except for the deciding style’s frequency that has raised with 3 frequencies and the acting style that has a two frequencies decrease in the post-test. This means that there are some minor differences between the pre-test’s and the post-test’s results. This small difference between them is also reflected by the small difference between the overall means (0.55) of the backup styles frequencies in the pre-test and the post-test (6.22 and 6.77 respectively). As a result, it can be said that there are no relatively significant differences between the CG’s backup styles in the pre-test and the post-test. These differences are further illustrated in the

figures below showing the different backup styles' percentages and overall means in the pre-test and the post-test.



**Figure 4.43. CG's Backup Styles in the Pre-test and Post-test**

To recapitulate, the pre-test and post-test results of the CG show that there are no significant differences between the students' abilities in using the four learning modes, their learning flexibility scores and level, as well as their backup learning styles. They also reveal that there are some minor differences in terms of their learning style typology that can be explained and justified by the students' continuous exposure to the Subject-Expert and Evaluator roles of teachers.

#### 4.2.3.2. Comparison of the Experimental Group's Pre-test and Post-test Results

*H<sub>0</sub>: There are no significant differences between the pre-test and post-test results of the EG*

*H<sub>1</sub>: There are significant differences between the pre-test and post-test results of the EG.*

In addition to the comparison between the CG's results in the pre-test and the post-test, the comparison is also made in this research between the EG's results in the pre-test and the post-test. As such, this section deals with the EG's results in the post-test and their comparison with pre-test results using a paired samples t-test procedure with a critical t value of 2.09 in the row of 19 degrees of freedom and at the level of 0.05.

#### **4.2.3.2.1. Learning Modes' Pre-test and Post-test Results of the EG**

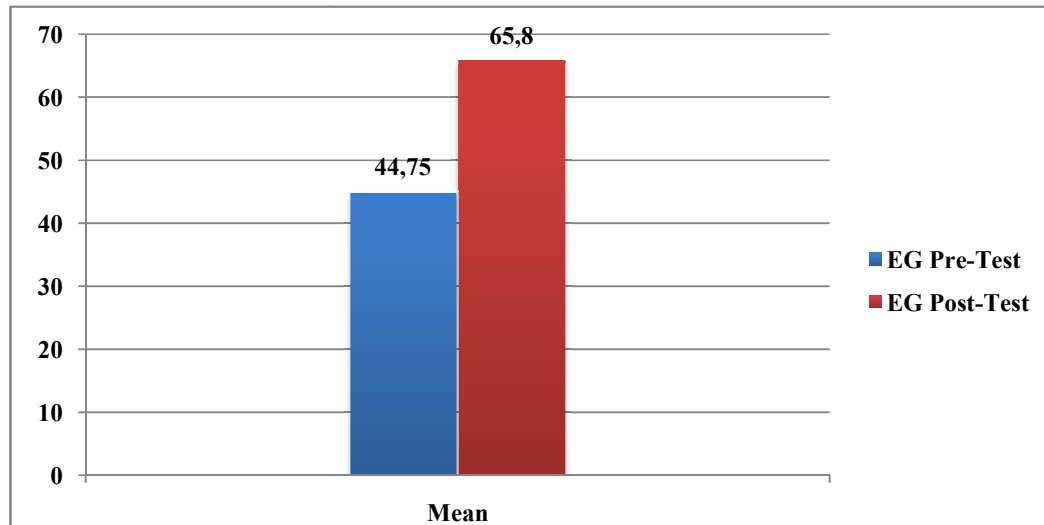
The comparison between the two tests starts with each of the four experiential learning modes calculating their means, standard deviation, and the significance of differences using the paired-samples t-test.

##### **4.2.3.2.1.1. Concrete Experience's Pre-test and Post-test of the EG**

The experimental group's reliance on the CE mode in the post-test is represented and compared with that of the pre-test in terms of means in the following table and related figure.

**Table4.59. Concrete Experience's Means in Pre-test and Post-test of the EG**

<b>Groups</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>Experimental Group Pre-Test</b>	20	<b>44.75</b>	27.79
<b>Experimental Group Post-Test</b>	20	<b>65.80</b>	25.22



**Figure4.44. Concrete Experience's Means in Pre-test and Post-test of the EG**

The table and the figure above show that the means of EG's use of the CE mode in the pre-test and the post-test are 44.75 and 65.8 respectively; thus, the mean difference is 21.05. Which shows a relative improvement in the EG's use of this ability. These two means are also compared to find out the significance of the difference between the two tests using a paired-sample t-test as shown in the table below.

**Table4.60. Paired Samples T-test of the CE Mode of the EG's Pre-test and Post-test**

Groups	N	Mean	Std. Difference	t	df	Sig.
Experimental Group Pre-test	20					
Experimental Group Post-test	20	21.05	43.30	2.17	19	0.04

The comparison between the pre-test and post-test results of the experiment group, as shown in the table above, reveals that the observed t value which is 2.17 in the row of 19 degrees of freedom exceeds the critical t value for the 0.05 level which is 2.09. In addition, the observed significance level (0.04) is lower than the critical

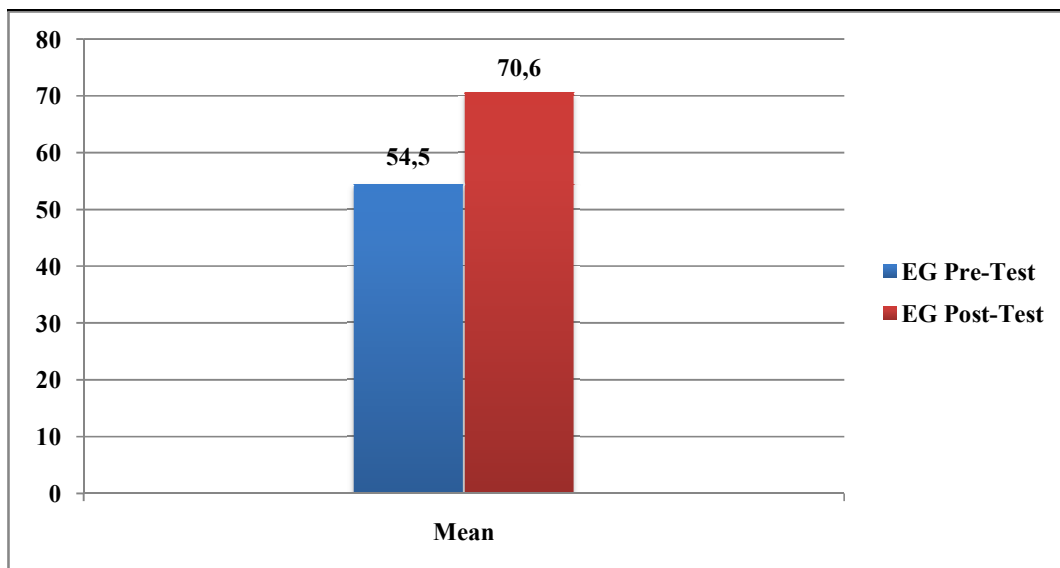
significance level ( $\alpha=0.05$ ). Consequently, the null hypothesis of no difference between the two tests is rejected. In other words, these data show that there are significant differences between the EG's reliance on the CE mode in the pre-test and post-test in favor of the post-test with a mean difference of 21.05.

#### 4.2.3.2.1.2. Reflective Observation's Pre-test and Post-test results of the EG

The experimental group's reliance on the RO mode in the post-test is represented and compared with that of the pre-test in terms of means in the following table and related figure.

**Table 4.61. Reflective Observation's Means in Pre-test and Post-test of the EG**

Groups	N	Mean	Std. Deviation
Experimental Group Pre-Test	20	54.50	25.30
Experimental Group Post-Test	20	70.60	18.37



**Figure 4.45. Reflective Observation's Means in Pre-test and Post-test of the EG**

The table and the figure above show that the means of EG's use of the RO mode in the pre-test and the post-test are 54.5 and 70.6 respectively; thus, the mean difference is 16.1 which shows a relative improvement in the EG's use of this ability in the post-

test. These two means are also compared to find out the significance of the difference between the two tests using a paired-sample t-test as shown in the table below.

**Table4.62. Paired Samples T-test of the RO Mode of the EG’s Pre-test and Post-test**

Groups	N	Mean	Std. Difference	t	df	Sig.
Experimental Group Pre-test	20	16.10	31.08	2.31	19	0.03
Experimental Group Post-test	20					

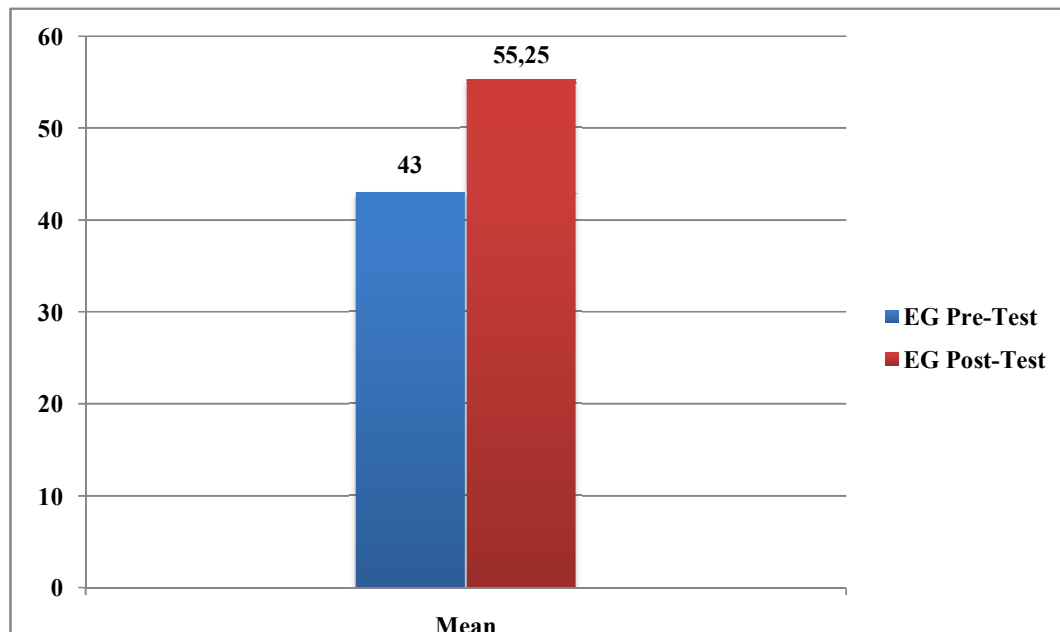
The comparison between the pre-test and post-test results of the experiment group, as shown in the table above, reveals that the observed t value which is 2.31 exceeds the critical t value (2.09) in the row of 19 degrees of freedom for the 0.05 level. In addition, the observed significance level (0.03) is lower than the critical significance level ( $\alpha=0.05$ ). Consequently, the null hypothesis of no difference between the two tests is rejected. In other words, these data show that there are statistically significant differences between the EG’s reliance on the RO mode in the pre-test (mean=54.5) and post-test (mean=70.6) in favor of the post-test with a mean difference of 16.1. That is to say, the EG’s ability to use the RO mode has improved in the post-treatment test.

#### 4.2.3.2.1.3. Abstract Conceptualization’s Pre-test and Post-test Results of the EG

The experimental group’s reliance on the AC mode in the post-test is represented and compared with that of the pre-test in terms of means in the following table and related figure.

**Table4.63. AC’s Means in Pre-Test and Post-Test of the EG**

Groups	N	Mean	Std. Deviation
Experimental Group Pre-Test	20	43.00	20.46
Experimental Group Post-Test	20	55.25	22.90



**Figure 4.46. Active Experimentation's Means in Pre-test and Post-test of the EG**

The table and the figure above show that the means of EG's use of the AC mode in the pre-test and the post-test are 43 and 55.25 respectively; thus, the mean difference is 12.25 which shows a relative improvement in the EG's use of this ability in the post-test. These two means are also compared to find out the significance of the difference between the two tests using a paired-sample t-test as shown in the table below.

**Table 4.64. Paired Samples T-test of the AC Mode of the EG's Pre-test and Post-test**

Groups	N	Mean	Std. Difference	t	df	Sig.
Experimental Group Pre-test	20					
Experimental Group Post-test	20	12.25	22.77	2.40	19	0.02

The comparison between the pre-test and post-test results of the experiment group, as shown in the table above, reveals that the observed t value which is 2.40 exceeds the critical t value (2.09) in the row of 19 degrees of freedom for the level 0.05.

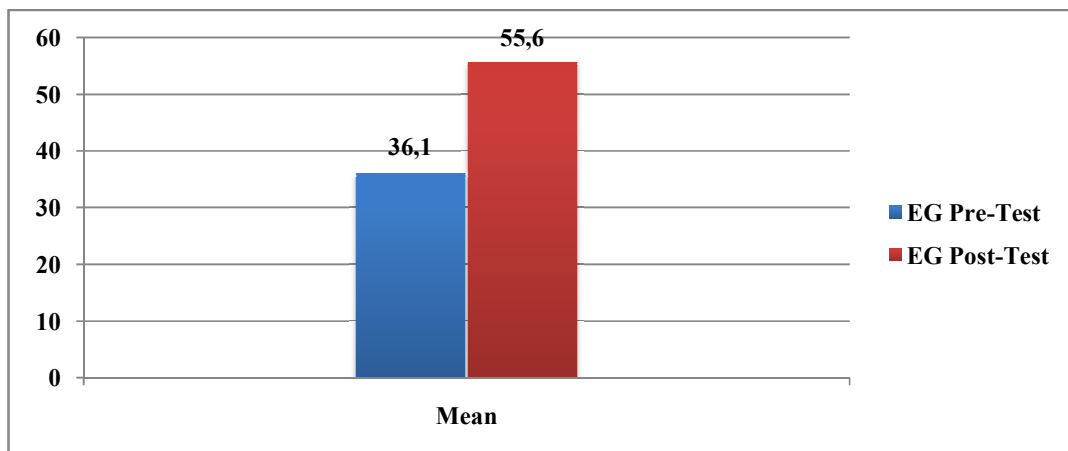
In addition, the observed significance level (0.02) is lower than the critical significance level ( $\alpha=0.05$ ). Consequently, the null hypothesis of no difference between the two tests is rejected. In other words, these data show that there are significant differences between the EG's reliance on the CE mode in the pre-test (mean= 43) and post-test (mean= 55.25) in favor of the post-test with a mean difference of 12.25. That is to say, the EG's ability to use the RO mode has improved in the post-treatment test.

#### 4.2.3.2.1.4. Active Experimentation's Pre-test and Post-test Results of the EG

The experimental group's reliance on the AE mode in the post-test is represented and compared with that of the pre-test in terms of means in the following table and related figure.

**Table4.65. Active Experimentation's Means in the Pre-test and Post-test of the EG**

Groups	N	Mean	Std. Deviation
Experimental Group Pre-test	20	<b>36.10</b>	26.65
Experimental Group Post-test	20	<b>55.60</b>	18.96



**Figure4.47. Active Experimentation's Means in the Pre-test and Post-test of the EG**

The table and the figure above show that the means of EG's use of the AE mode in the pre-test and the post-test are 36.1 and 55.6 respectively; thus, the mean difference

is 19.5. This shows a relative improvement in the EG's use of this ability in the post-test. These two means are also compared to find out the significance of the difference between the two tests using a paired-sample t-test as shown in the table below.

**Table4.66. Paired Samples T-test of the AE Mode of the EG's Pre-test and Post-test**

Groups	N	Mean	Std. Difference	t	df	Sig.
Experimental Group Pre Test	20	19.50	38.43	2.26	19	0.03
Experimental Group Post-Test	20					

The comparison between the pre-test and post-test results of the experiment group, as shown in the table above, reveals that the observed t value which is 2.26 exceeds the critical t value (2.09) in the row of 19 degrees of freedom for the level 0.05. In addition, the observed significance level (0.03) is lower than the critical significance level ( $\alpha=0.05$ ). Consequently, the null hypothesis of no difference between the two tests is rejected. In other words, these data show that there are significant differences between the EG's reliance on the AE mode in the pre-test (mean= 36.1) and post-test (mean= 55.6) in favor of the post-test with a mean difference of 19.5. That is to say, the EG's ability to use the AE mode has improved in the post-treatment test.

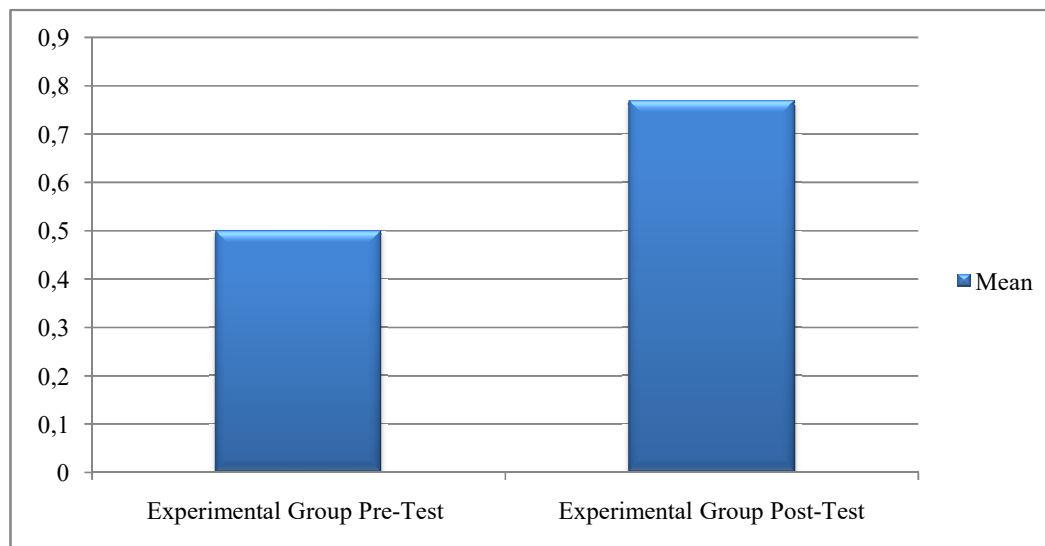
#### **4.2.3.2.2. Comparison of the EG's Learning Flexibility in the Pre-test and Post-test**

The experimental group's scores of learning flexibility in the pre-test and the post-test are compared in this section using the paired-samples t-test with a critical t value of 2.09 in the 19 degrees of freedom for the level of 0.05. This comparison starts with calculating and presenting the overall means of students' scores in the learning

flexibility that represent their level of learning development in this research as illustrated in the table and figure below.

**Table4.67. EG' Means of Learning Flexibility in the Pre-test and the Post-test**

Groups	N	Mean	Std. Deviation
Experimental Group Pre-Test	20	0.50	0.25
Experimental Group Post-Test	20	0.77	0.18



**Figure4.48. EG' Means of Learning Flexibility in the Pre-test and the Post-test**

As shown in the above table and the figure, the experimental group's mean of scores has improved from a mean of 0.50 in the pre-test to 0.77 in the post-treatment test with a mean difference of 0.27. This indicated that the experimental group students have moved with their learning flexibility level from being *medium* in the pre-test to *high* in the post-test after being exposed to the research treatment and the Dynamic Matching Model “of teaching around the learning cycle” of Experiential Education. To prove the significance of this improvement statistically, these means are compared using the paired-samples t-test as shown in the table below.



**Table4.68. Paired-Samples T-test of the EG’s Flexibility in the Pre-test and the Post-test**

Groups	N	Mean	Std. Difference	T	df	Sig.
Experimental Group Pre Test	20					
Experimental Group Post-Test	20	0.27	0.28	4.21	19	0.000

The paired-samples T-test comparison between the EG’s learning flexibility scores in the pre-test and post-treatment test, reveals that the observed t value which is 4.21 highly exceeds the critical t value which is 2.09 in the row of 19 degrees of freedom for the level 0.05. In addition, it also reveals that the observed significance level (sig. or *p* value) in this comparison is 0.000 which is lower than  $\alpha = 0.05$ . Consequently, the null hypothesis of no difference between the pre-test and the post-test is rejected and the alternative hypothesis is accepted with a significant difference. That is to say, these data show that there are significant differences between the EG’s learning flexibility scores in the pre-test and the post-test after being exposed to the Experiential Education treatment in favor of the post-test scores with a mean of 0.77 and a mean difference of 0.27. To put it simply, the experimental group students have improved their learning flexibility, and thus developed their learning, after the treatment showing more ability to adapt to the different learning situations.

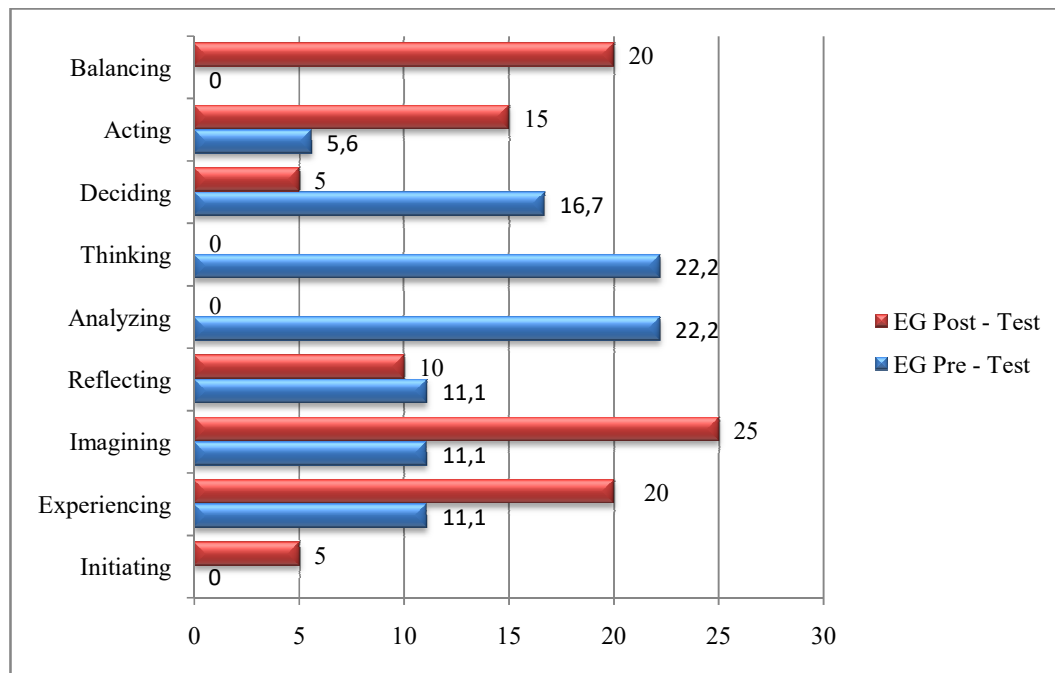
**4.2.3.2.3. EG’ Learning Styles Results in the Pre-test and the Post-test**

The experimental group’s results of learning styles preferences in the pre-test and the post-test are presented and juxtaposed in terms of frequencies and percentages in the following table and figure.

**Table 4.69. EG's Learning Styles Preferences in the Pre-test and Post-test**

Learning Style	Pre Experimental		Post Experimental	
	Frequency	Percent	Frequency	Percent
Initiating	0	0	1	5
Experiencing	0	0	4	20
Imagining	6	30	5	25
Reflecting	3	15	2	10
Analyzing	2	10	0	0
Thinking	3	15	0	0
Deciding	0	0	1	5
Acting	3	15	3	15
Balancing	3	15	4	20
<b>Total</b>	<b>20</b>	<b>100</b>	<b>20</b>	<b>100</b>

This table shows some changes in their learning style preferences as assessed in the pre-test and the post-test. These changes involve increases in the number of students who prefer the Experiencing style from 0% to 20% of the students in addition to the Initiating styles that have increased from 0% to 5% each and the Balancing style from 15% to 40%. Consequently, there are also some decreases in the number of students who prefer the Thinking style from 15% to 0% with one frequency or one student in the Analyzing style from 10% to 0%, as well as the Imagining and Balancing styles from 30% and 15% to 25% and 20% respectively. These differences between the pre-test and the post-test can be attributed to the students' significant development of the Concrete Experience modes and the Active Experimentation modes as seen earlier in the previous comparison between the EG's results of CE and AE in the pre-test and the post-test. The learning style comparison in the pre-test and the post-test is also illustrated in the following figure.



**Figure4.49. EG's Learning Styles Preferences in Pre-test and Post-test**

#### 4.2.3.2.4. EG's Backup Styles Results in the Pre-test and Post-test

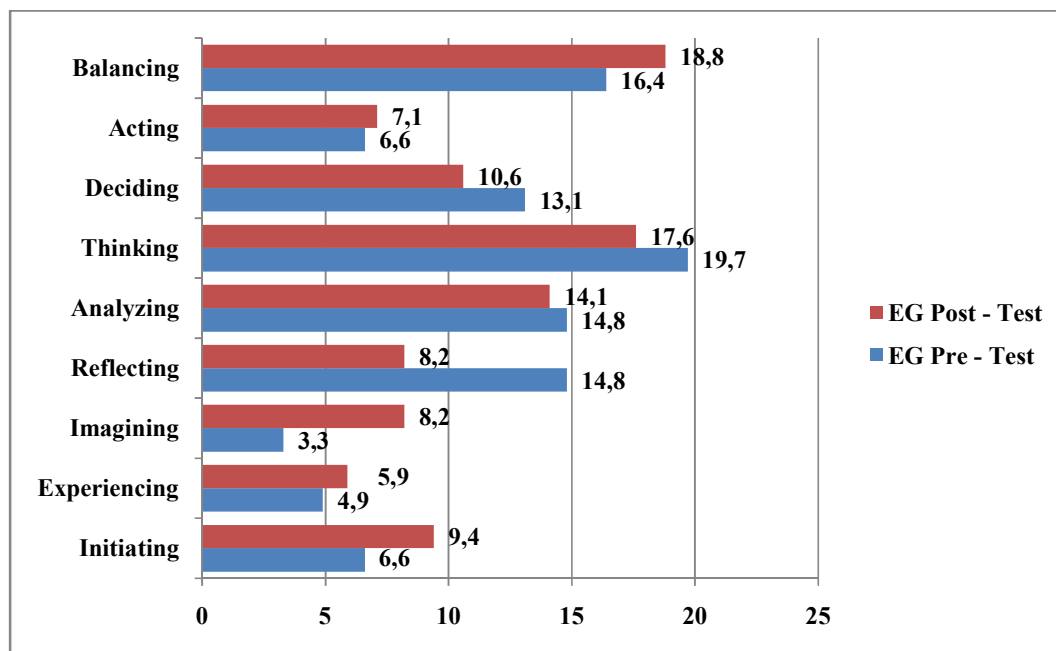
The experimental group's backup styles' results in the pre-test and post-test are presented in the following table in terms of frequencies, percentages, and overall means.

**Table4.70. EG's Backup Styles Results in the Pre-test and Post-test**

Backup Styles	Pre Experimental		Post Experimental	
	Frequency	Percent	Frequency	Percent
<b>Initiating</b>	4	6.6	8	9.4
<b>Experiencing</b>	3	4.9	5	5.9
<b>Imagining</b>	2	3.3	7	8.2
<b>Reflecting</b>	9	14.8	7	8.2
<b>Analyzing</b>	9	14.8	12	14.1
<b>Thinking</b>	12	19.7	15	17.6
<b>Deciding</b>	8	13.1	9	10.6

<b>Acting</b>	4	6.6	6	7.1
<b>Balancing</b>	10	16.4	16	18.8
<b>Total</b>	<b>61</b>	<b>100</b>	<b>85</b>	<b>100</b>
<b>Mean</b>		<b>6.78</b>		<b>9.44</b>

The table shows some qualitative and quantitative differences related to the backup styles used by the EG in the pre-test and the post-test. These changes involve increases in the use of all the learning styles except the reflecting style which marks a decrease in its use from 14.8 % to 8.2%. In addition to that, there is a remarkable increase and development of the total means of backup styles in the post-test from 6.78 to 9.44 with a 2.22 mean difference. These results indicate that the EG students have developed their ability to adapt to the different learning situations even those that do not match their learning styles preferences after the treatment. The following figure illustrates the EG's backup styles' results in the pre-test and post-test.



**Figure4.50. EG's Backup Styles' Results in the Pre-test and Post-test**

#### 4.2.3.3. Comparison between the Control Group and Experimental Group Post-test

##### Results

*H<sub>0</sub>: There are no significant differences between the CG's and EG's results in the post-test.*

*H<sub>1</sub>: There are significant differences between the CG's and EG's results in the post-test.*

The CG's and the EG's results in the post-test are also compared to have more solid results. As such, this section deals with the comparison of the CG's and EG's interval results in the post-test using the independent-samples t-test procedure for data analysis with a critical t-value 2.04 in the row of 36 degrees of freedom and at the level 0.05. In addition to that, the data related to the students' learning styles-typology are also presented and compared in terms of frequencies and percentages.

##### 4.2.3.3.1. Learning Modes' Post-test Results of the CG and EG

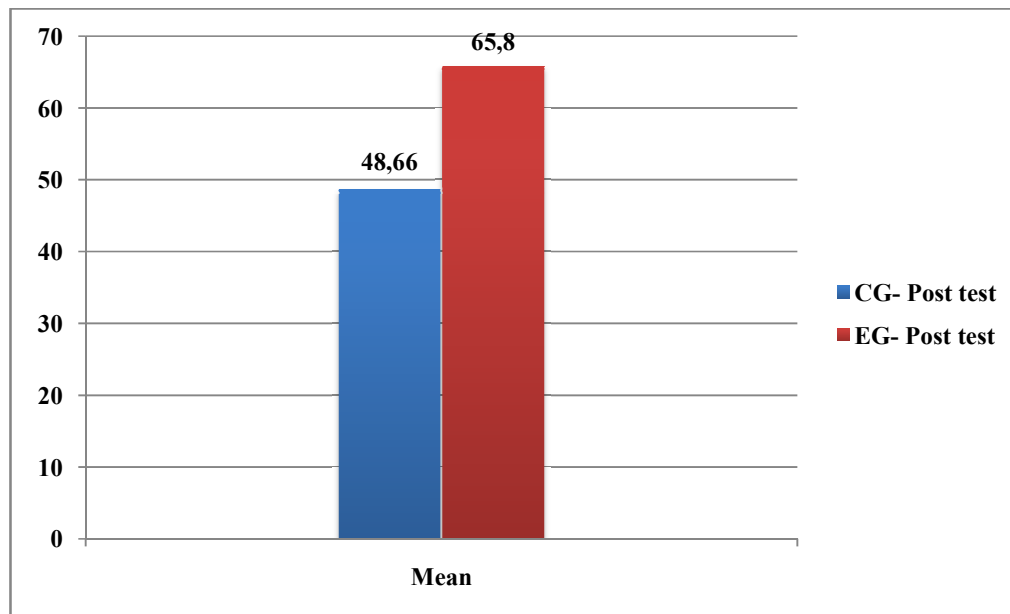
The comparison between the two groups starts with each of the four learning modes of the learning cycle by juxtaposing their means and calculating the significance value of difference using the independent-samples t-test.

##### 4.2.3.3.1.1. Concrete Experience's Post-test Results of the CG and the EG

The two groups' reliance on the CE mode in the post-test is presented and compared in terms of means in the following table and its related figure.

**Table4.71. Concrete Experience's Means of the CG and EG in the Post-test**

Groups	N	Mean	Std. Deviation
Control group	18	48.66	26.84
Experimental Group	20	65.80	25.22



**Figure4.51. Concrete Experience's Means of the CG and EG in the Post-test**

The table and figure above show the two groups' means of CG's and EG's use of the CE mode are 48.66 and 65.8 respectively. This shows a relative difference between the two groups that is further investigated using the independent-samples t-test to calculate the significance of the difference between these two groups as shown in the following table.

**Table4.72. Independent-Samples t-test of the CG's and EG's Results of CE in the Post-test**

Groups	N	Mean Difference	Std. Error Difference	t	df	Sig.
Control group	18	17.13	8.47	2.04	36	0.05
Experimental Group	20					

The comparison between the two groups' results in the post-test, as shown in the table above, reveals that the observed t value which is 2.04 in the row of 36 degrees of

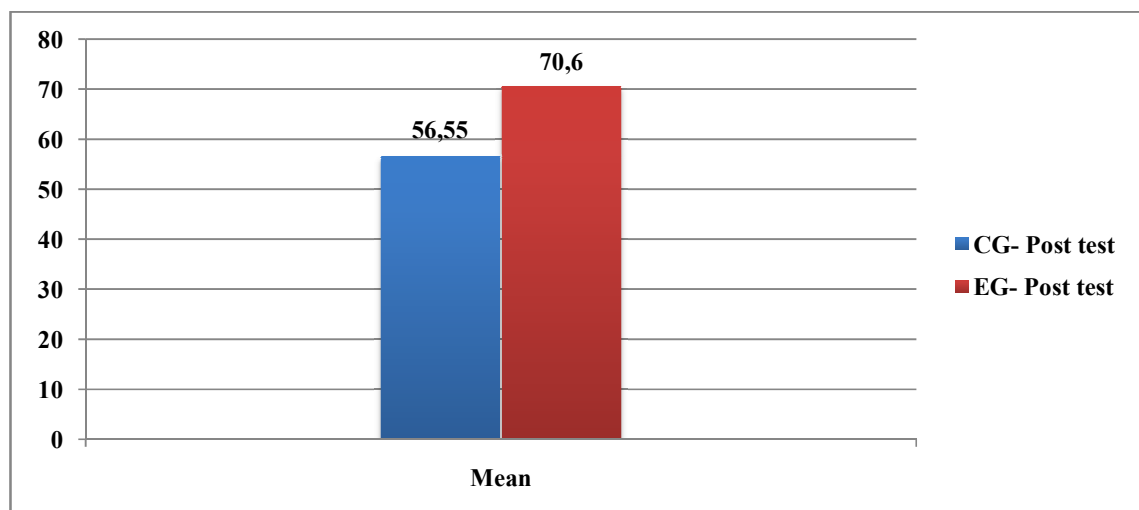
freedom equals the critical t value for the 0.05 level which is 2.04. In addition, the observed significance level (0.05) also equals the critical significance level ( $\alpha=0.05$ ). Consequently, the null hypothesis of no difference between the two groups' tests is rejected and the alternative hypothesis is accepted. In other words, these data show that there are significant differences between the CG's and EG's reliance on the CE mode in the post-test in favor of the EG with a mean of 65.8 and a mean difference of 17.13. Consequently, the Experiential Education treatment has improved the EG's ability to use the CE mode in their learning.

#### 4.2.3.3.1.2. Reflective Observation's Post-test Results of the CG and the EG

The two groups' reliance on the RO mode in the post-test is presented and compared in terms of means in the following table and its related figure.

**Table 4.73. Reflective Observation's Means of the CG and EG in the Post-test**

Groups	N	Mean	Std. Deviation
Control group	18	56.55	21.11
Experimental Group	20	70.60	18.37



**Figure 4. 52. Reflective Observation's Means of the CG and EG in the Post-test**

The table and figure above show the two groups' means of CG's and EG's use of the RO mode are 56.55 and 70.6 respectively. This shows a relative difference between the two groups that is further investigated using the independent-samples t-test to calculate the significance of the difference between these two groups as shown in the following table.

**Table4.74. Independent-Samples t-test of the CG's and EG's Results of RO in the Post-test**

<b>Groups</b>	<b>N</b>	<b>Mean Difference</b>	<b>Std. Error Difference</b>	<b>t</b>	<b>df</b>	<b>Sig.</b>
<b>Control group</b>	18	14.04	6.40	2.19	36	0.03
<b>Experimental Group</b>	20					

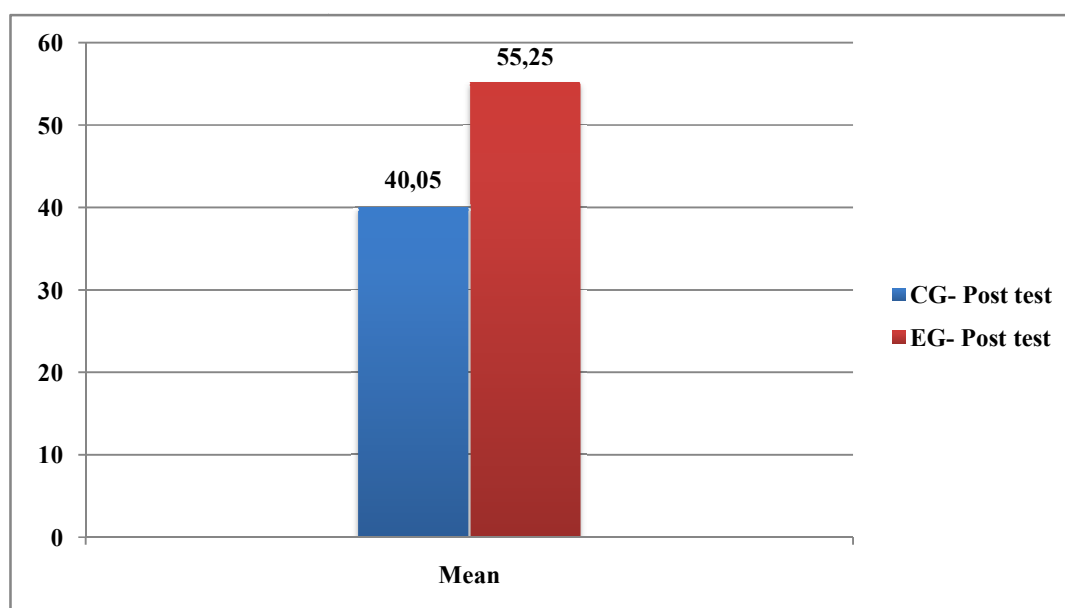
The comparison between the two groups' results in the post-test, as shown in the table above, reveals that the observed t value which is 2.19 in the row of 36 degrees of freedom exceeds the critical t value for the 0.05 level which is 2.04. In addition, the observed significance level (0.03) is lower than the critical significance level ( $\alpha=0.05$ ). Consequently, the null hypothesis of no difference between the two groups' tests is rejected and the alternative hypothesis is accepted. In other words, these data show that there are significant differences between the CG's and EG's reliance on the RO mode in the post-test in favor of the EG with a mean of 70.6 and a mean difference of 14.04. Consequently, the Experiential Education treatment has improved the EG's ability to use the RO mode.

#### 4.2.3.3.1.3. Abstract Conceptualization Results of the CG and EG in the Post-test

The two groups' reliance on the AC mode in the post-test is presented and compared in terms of means in the following table and its related figure.

**Table 4.75. Abstract Conceptualization's Means of the CG and EG in the Post-test**

Groups	N	Mean	Std. Deviation
Control group	18	40.05	21.87
Experimental Group	20	55.25	22.90



**Figure 4.53. Abstract Conceptualization's Means of the CG and EG in the Post-test**

The table and figure above show the two groups' means of CG's and EG's use of the AC mode are 40.05 and 55.25 respectively. This shows a relative difference between the two groups that is further investigated using the independent-samples t-test to calculate the significance of the difference between these two groups as shown in the following table.

**Table4.76. Independent-Samples t-test of the CG’s and EG’s Results of AC in the Post-test**

<b>Groups</b>	<b>N</b>	<b>Mean Difference</b>	<b>Std. Error Difference</b>	<b>T</b>	<b>df</b>	<b>Sig.</b>
<b>Control group</b>	18					
<b>Experimental Group</b>	20	15.19	7.28	2.08	36	0.04

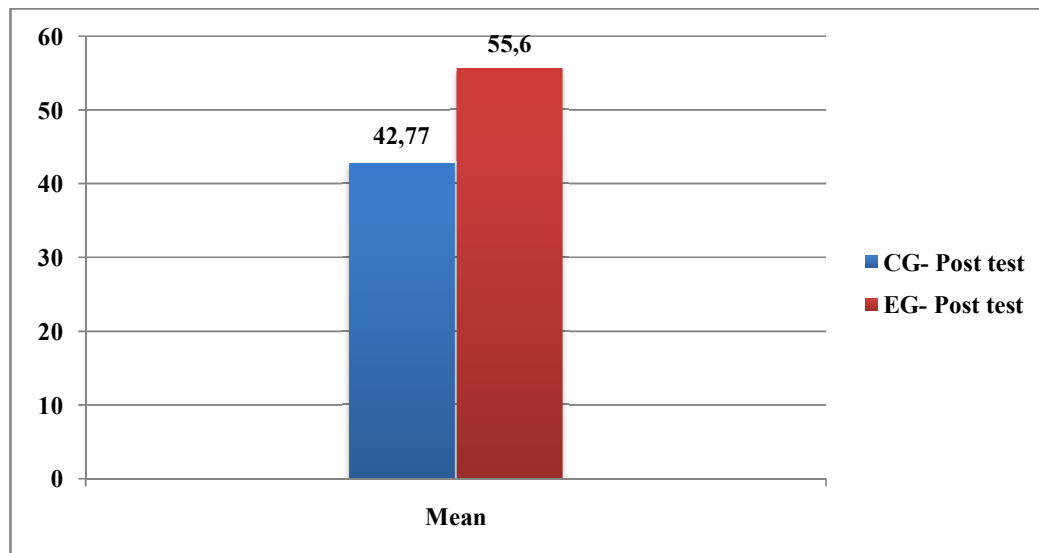
The comparison between the two groups’ results in the post-test, as shown in the table above, reveals that the observed t value which is 2.08 in the row of 36 degrees of freedom exceeds the critical t value for the 0.05 level which is 2.04. In addition, the observed significance level (0.04) is lower than the critical significance level ( $\alpha=0.05$ ). Consequently, the null hypothesis of no difference between the two groups’ tests is rejected and the alternative hypothesis is accepted. In other words, these data show that there are significant differences between the CG’s and EG’s reliance on the AC mode in the post-test in favor of the EG with a mean of 55.25 and a mean difference of 15.19. Consequently, the Experiential Education treatment has improved the EG’s ability to use the AC mode.

#### **4.2.3.3.1.4.Active Experimentation’s Post-test Results of the CG and the EG**

The two groups’ reliance on the AE mode in the post-test is presented and compared in terms of means in the following table and its related figure.

**Table4.77. Active Experimentation’s Means of the CG and EG in the Post-test**

<b>Groups</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>Control group</b>	18	<b>42.77</b>	19.63
<b>Experimental Group</b>	20	<b>55.60</b>	18.06



**Figure4.54. Active Experimentation’s Means of the CG and EG in the Post-test**

The table and figure above show the two groups’ means of CG’s and EG’s use of the AE mode are 42.77 and 55.6 respectively. This shows a relative difference between the two groups that is further investigated using the independent-samples t-test to calculate the significance of the difference between these two groups as shown in the following table.

**Table4.78. Independent-Samples t-test of the CG’s and EG’s Results of AE in the Post-test**

Groups	N	Mean Difference	Std. Error Difference	t	df	Sig.
Control group	18	12.82	6.27	2.04	36	0.04
Experimental Group	20					

The comparison between the two groups’ results in the post-test, as shown in the table above, reveals that the observed t value which is 2.04 in the row of 36 degrees of freedom equals the critical t value for the 0.05 level which is 2.04. In addition, the observed significance level (0.04) also equals the critical significance level ( $\alpha=0.05$ ).

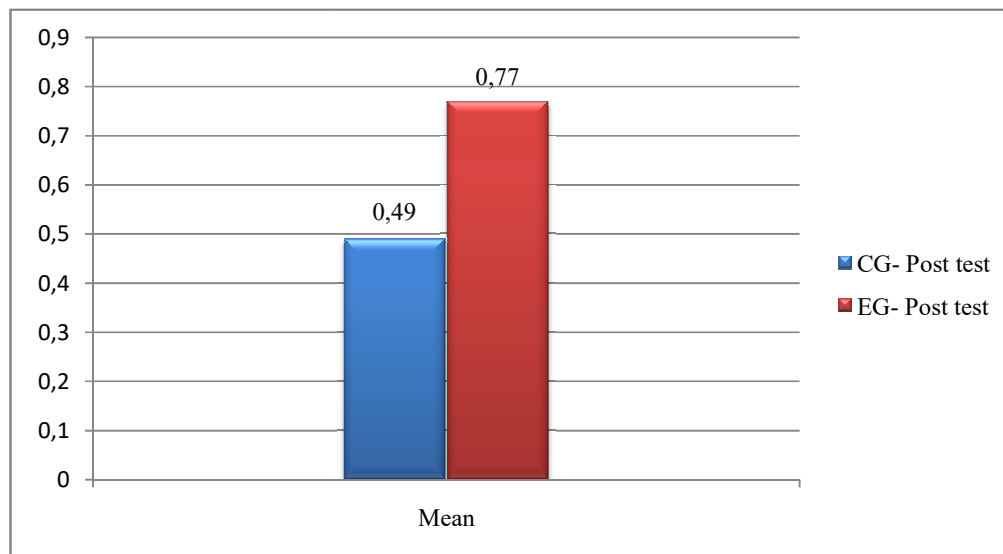
Consequently, the null hypothesis of no difference between the two groups' tests is rejected and the alternative hypothesis is accepted. In other words, these data show that there are significant differences between the CG's and EG's reliance on the AE mode in the post-test in favor of the EG with a mean of 55.6 and a mean difference of 12.82. Consequently, the Experiential Education treatment has improved the EG's ability to use the AE mode.

#### 4.2.3.3.2. Post-Test's Learning Flexibility Results of the CG and the EG

The two groups' learning flexibility scores in the post-test are presented and compared in terms of means in the following table and figure

**Table4.79. CG's and EG's Learning Flexibility Means in the Post-test**

Groups	N	Mean	Std. Deviation
<b>Control group</b>	18	<b>0.49</b>	0.20
<b>Experimental Group</b>	20	<b>0.77</b>	0.18



**Figure4.55. CG's and EG's Learning Flexibility Means in the Post-test**

The table and figure above show the two groups' means of CG's and EG's learning flexibility means of scores are 0.49 and 0.77 respectively. This indicates that the experimental group students have improved their learning flexibility to the level

*high* in the post-test after being exposed to the research treatment and the Dynamic Matching Model “of teaching around the learning cycle” while the CG students still have a *medium* flexibility level according to the learning flexibility scale (Kolb & Kolb, 2022). To prove the significance of this difference, and thus improvement, statistically, these means are compared using the independent-samples t-test as shown in the table below.

**Table 4.80. Independent-Samples t-test of the CG’s and EG’s Learning Flexibility**

**Results in the Post-test**

Groups	N	Mean Difference	Std. Error Difference	t	Df	Sig.
Control group	18	0.28	0.06	4.50	36	0.000
Experimental Group	20					

The independent-samples t-test comparison between the CG’s and the EG’s learning flexibility scores in the post-treatment test, reveals that the observed t value which is 4.50 highly exceeds the critical t value which is 2.04 in the row of 36 degrees of freedom for the level 0.05. In addition, it also reveals that the observed significance level (sig. or *p* value) in this comparison is 0.000 which is lower than  $\alpha = 0.05$ . Consequently, the null hypothesis of no difference between the CG’s and EG’s learning flexibility scores in the post-test is rejected and the alternative hypothesis is accepted with a highly significant difference value. That is to say, these data show that there are significant differences between the CG’s and EG’s learning flexibility scores in the post-test after being exposed to the Experiential Education treatment in favor of the control group with a mean of 0.77 and a mean difference of 0.28. To put it simply, the experimental group students have improved their learning flexibility level, and thus

developed their learning, after the treatment showing more ability to adapt to the different learning situations.

#### 4.2.3.3.3. CG's and EG' Learning Styles Results in the Post-test

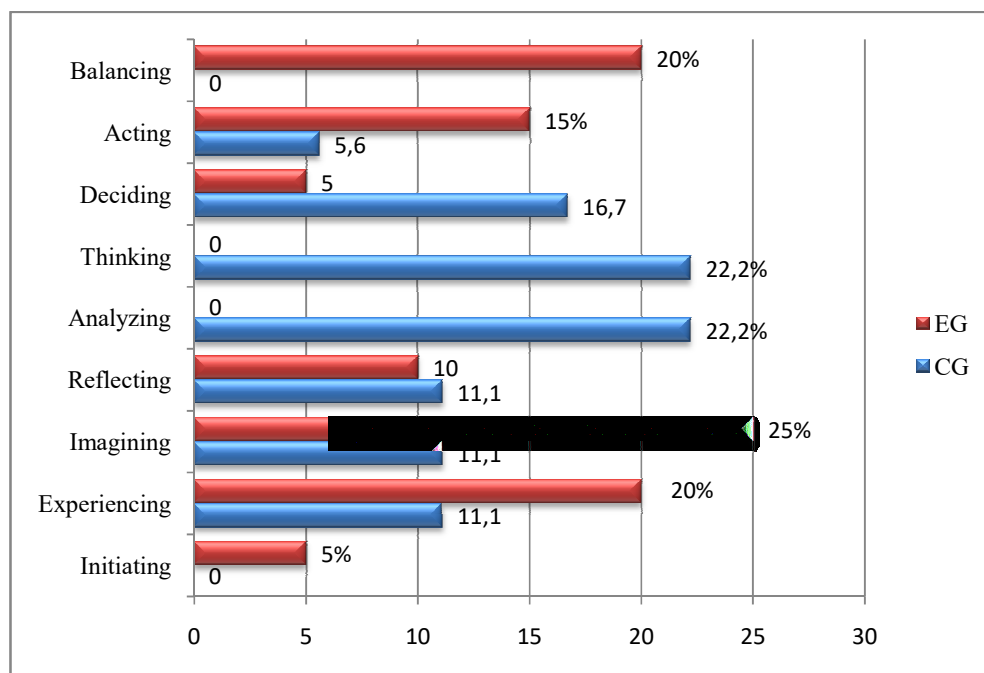
The two groups' results of learning styles preferences in the post-test are presented and juxtaposed in terms of frequencies and percentages in the following table and figure.

**Table4.81. CG's and EG's Learning Styles Typology in the Post-test**

Learning Style	Control group		Experimental Group	
	Frequency	Percent	Frequency	Percent
<b>Initiating</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>5</b>
<b>Experiencing</b>	<b>2</b>	<b>11.1</b>	<b>4</b>	<b>20</b>
<b>Imagining</b>	<b>2</b>	<b>11.1</b>	<b>5</b>	<b>25</b>
<b>Reflecting</b>	<b>2</b>	<b>11.1</b>	<b>2</b>	<b>10</b>
<b>Analyzing</b>	<b>4</b>	<b>22.2</b>	<b>0</b>	<b>0</b>
<b>Thinking</b>	<b>4</b>	<b>22.2</b>	<b>0</b>	<b>0</b>
<b>Deciding</b>	<b>3</b>	<b>16.7</b>	<b>1</b>	<b>5</b>
<b>Acting</b>	<b>1</b>	<b>5.6</b>	<b>3</b>	<b>15</b>
<b>Balancing</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>20</b>
<b>Total</b>	<b>18</b>	<b>100</b>	<b>20</b>	<b>100</b>

It is noticed from the table's data that there is more reliance on the Thinking (22,2%), Analyzing (22,2%), and Deciding (16,7%) styles among the CG while the EG students show more preference for the Imagining (25%), Balancing (20%), Experiencing (20%), and Acting (15%) styles. The Initiating and Reflecting styles, on the other hand, are less preferred by both groups. These preferences show that the CG students have developed some preference for the Analyzing, Thinking, and Deciding

styles that better match the Subject-Expert and Evaluator roles adopted by the majority of teachers while the EG students developed more preference for the Imagining, Experiencing, Balancing, and Acting roles that match the Facilitator and the Coach roles and better match the learning demands of EFL and the oral expression course according to ELT (Jones, Reichard, & Mokhtari, 2003; Kolb & Kolb, 2013; Kolb & Kolb, 2022).



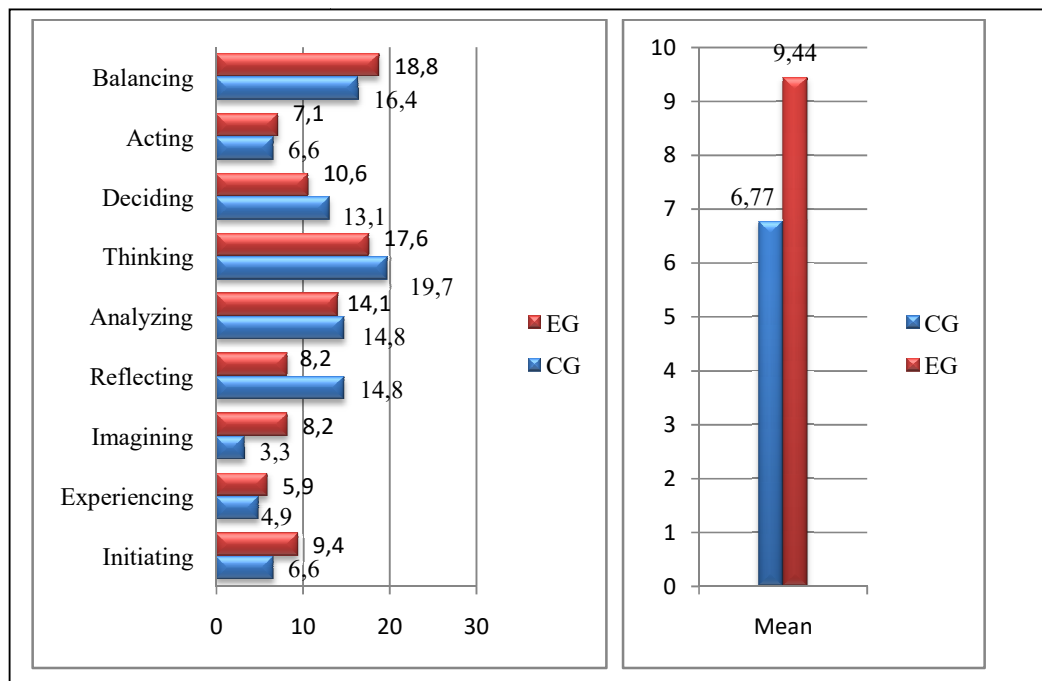
**Figure4.56. CG’s and EG’s Learning Styles Preferences in the Post-test**

#### 4.2.3.3.4. CG’s and EG’s Backup Styles’ Results in the Post-test

The control and experimental groups’ backup styles’ results in the post-test are presented in the following table in terms of frequencies, percentages, and overall means.

**Table4.82. CG's and EG's Backup Styles' Results in the Post-test**

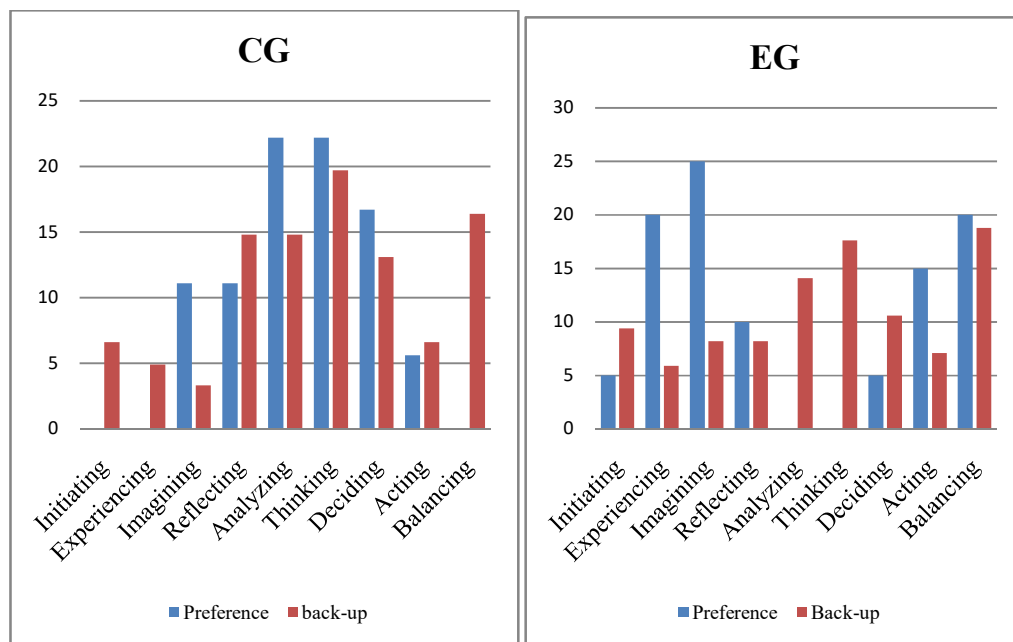
<b>Backup Styles</b>	<b>Control group</b>		<b>Experimental Group</b>	
	<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>
<b>Initiating</b>	<b>4</b>	<b>6.6</b>	<b>8</b>	<b>9.4</b>
<b>Experiencing</b>	<b>3</b>	<b>4.9</b>	<b>5</b>	<b>5.9</b>
<b>Imagining</b>	<b>2</b>	<b>3.3</b>	<b>7</b>	<b>8.2</b>
<b>Reflecting</b>	<b>9</b>	<b>14.8</b>	<b>7</b>	<b>8.2</b>
<b>Analyzing</b>	<b>9</b>	<b>14.8</b>	<b>12</b>	<b>14.1</b>
<b>Thinking</b>	<b>12</b>	<b>19.7</b>	<b>15</b>	<b>17.6</b>
<b>Deciding</b>	<b>8</b>	<b>13.1</b>	<b>9</b>	<b>10.6</b>
<b>Acting</b>	<b>4</b>	<b>6.6</b>	<b>6</b>	<b>7.1</b>
<b>Balancing</b>	<b>10</b>	<b>16.4</b>	<b>16</b>	<b>18.8</b>
<b>Total</b>	<b>61</b>	<b>100</b>	<b>85</b>	<b>100</b>
<b>Mean</b>	<b>6.77</b>		<b>9.44</b>	



**Figure4.57. CG's and EG's Backup Styles' Results in the Post Test**

The table and figure above show the EG's mean of backup styles (9.44) is higher than the CG's mean of backup styles (6.77) in the post-test which means that the EG show more ability to use backup styles in general with a mean difference of 2.67. In addition, these statistics show that the CG students have more ability to move their way of learning to Thinking (19.7%), Balancing (16.4%), Reflecting (18.8%), Analyzing (14.8%), and Deciding (13.1%) styles. The EG students, on the other hand, have more tendency to back up their ways of learning with the Balancing (18.8%), Thinking (17.6%), and Analyzing (14.1%) styles. The other learning styles, however, are less used to back both groups up. It can be noticed from these results that the EG's backup styles are more different and opposing to their preferred learning styles than the CG. This difference between the EG's preferences (Imagining, Experiencing, Balancing and Acting styles) and their backup styles (Balancing, Thinking, and Analyzing styles) means that these students have more ability to use a wider variety of styles, and thus, they have more ability to adapt to a wider variety of learning situations. It is also worth

noticing that the Balancing style is mostly used by the EG's students both as a preferred learning style and as a backup style which also reflects these students' ability to better adapt to the different learning situations. The CG's backup styles (Thinking, Balancing, Reflecting, and Analyzing styles) are rather more similar and related to their learning style preferences (Analyzing, Thinking, Deciding and Reflecting styles) which means that they have less ability to cope and adapt to learning situations that mismatch their learning preferences. In other words, these data confirm the learning flexibility results that show that the EG's students have more ability to adapt to a wider variety of learning situations. This comparison between the two groups' learning preferences and backup styles is illustrated in the figures below.



**Figure4.58. CG's and EG's Learning Styles and Backup Styles in the Post-test**

### 4.3. Post- Experimental Phase Results

Results of the post-experimental phase instruments including the post-treatment questionnaire and the FGD are presented in this section. As mentioned earlier these instruments aim to explore the EG's reflections about the treatment and its effect on their learning development as well as their performance in the different EFL courses.

#### 4.3.1. Post-treatment Questionnaire (Post-reflection Questionnaire)

The post-questionnaire aims at exploring the EG's perceptions and attitudes towards the treatment and its effect on their learning development. The questionnaire's validity and reliability are assessed and its results are presented and discussed in this section.

##### 4.3.1.1. Questionnaire Internal Validity

The internal validity of the post-treatment questionnaire has been assessed by calculating the Spearman correlation coefficient using the questionnaire's scores as illustrated in the following table:

**Table4.83. Spearman Internal Validity of the Post-treatment Questionnaire**

	correlation	significance
<b>internal validity of the Tool</b>	<b>0.76</b>	<b>0.01*</b>

**\*Significant at the  $p = 0.01$  level**

The table above shows that the Spearman correlation coefficient is statistically significant at the 0.01 level, as such; the post-treatment questionnaire is highly consistent and internally valid with a 0.76 correlation coefficient value. Consequently, this instrument is suitable and true for the aims of the study.

#### 4.3.1.2. Post-treatment Questionnaire Reliability

The questionnaire's internal reliability is determined by the internal stability level across the sample of respondents through Cronbach's Alpha analysis as shown in the table below:

**Table 4.84. Cronbach's Alpha Reliability of the Post-treatment Questionnaire**

Reliability Statistics	
Cronbach's Alpha	N of Items
0.97	21

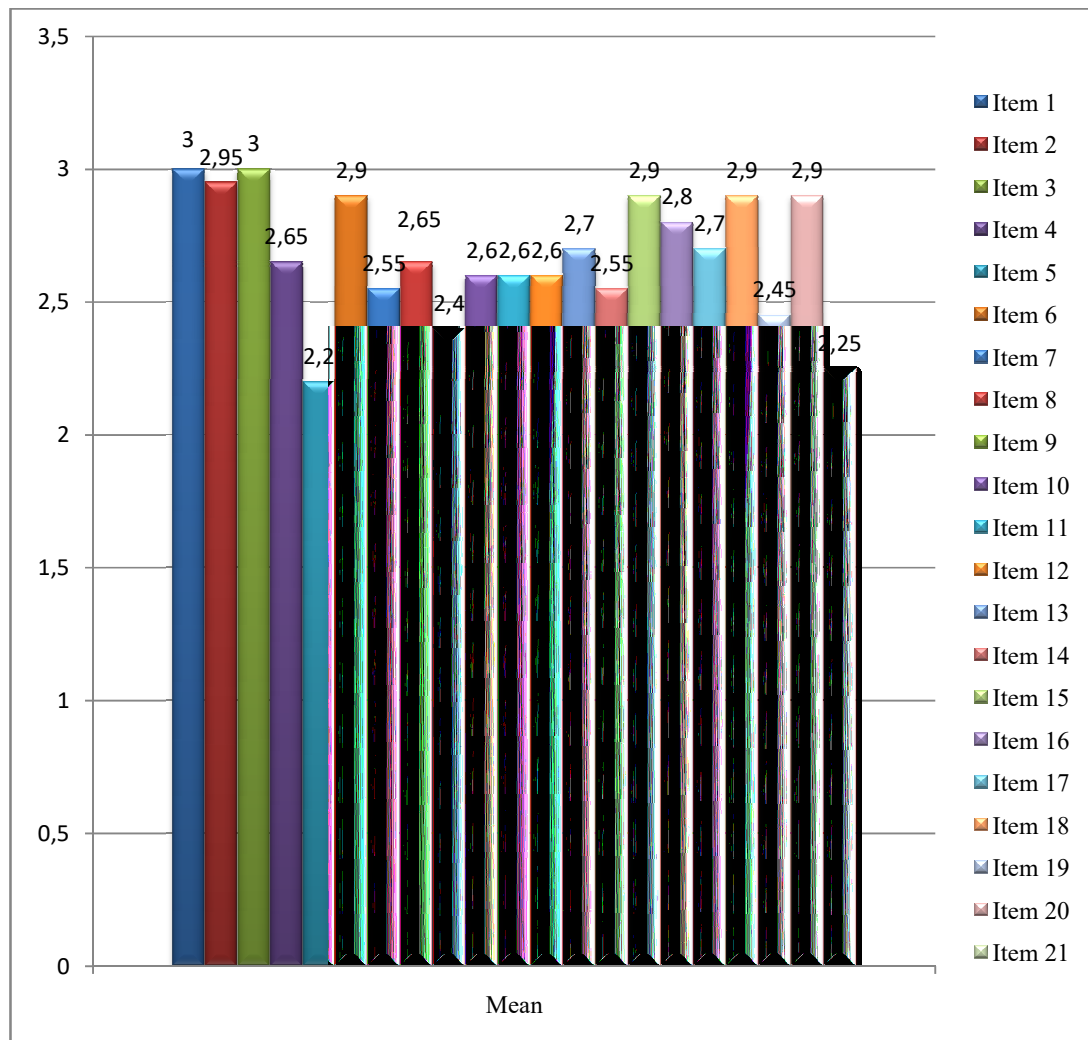
Because a reliability level of 0.90 is considered satisfactory, then this questionnaire's reliability index as shown above reflects a very high reliability with a 0.97 coefficient.

#### 4.3.1.3. Post-treatment Results

The post-treatment questionnaire's results are presented in the following table and figure in terms of Mediums of 'agree' and 'not sure' answers in order to evaluate the extent to which the EG group students agree that Experiential Education has enhanced their learning.

**Table4.85.Post-treatment Questionnaire Results**

<i>Experiential Education has helped you....</i>	Medium	<b>Response Level</b>
1. Better understand the learning process	3	Agree
2. Understand your learning style and preferences	2.95	Agree
3. Identify your learning strengths and weaknesses	3	Agree
4. Overcome your learning weaknesses	2.65	Agree
5. Feel that your learning style has changed	2.20	Not Sure
6. Feel able to use learning modes you were not comfortable with before	2.90	Agree
7. Feel you have more flexibility in your ways of learning	2.55	Agree
8. Feel more involved in the learning process	2.65	Agree
9. Develop your learning skills, strategies, and abilities	2.40	Agree
10. Feel comfortable and confident in learning situations you do not prefer	2.60	Agree
11. Become an autonomous learner able to learn outside the classroom	2.60	Agree
12. Be self-directed toward the achievement of planned goals	2.60	Agree
13. Adapt your learning styles and ways to different learning situations and demands	2.70	Agree
14. Acquire the necessary skills for your future career	2.55	Agree
15. Understand your responsibility for improving your own learning inside and outside the classroom	2.90	Agree
16. Develop your capacities to learn how to learn	2.80	Agree
17. Be more effective as an EFL student	2.70	Agree
18. Enhance your performance in the oral expression course	2.90	Agree
19. Enhance your performance and learning in the other courses	2.45	Agree
20. Be better able to cope with different teaching styles	2.90	Agree
21. Change my attitudes and perceptions in everyday life	2.25	Not Sure
<b>Total</b>	<b>2.68</b>	<b>Agree</b>



**Figure4.59. Post-treatment Questionnaire Results**

As shown in the table above, the majority of the participants have positive attitudes towards the treatment and confirm that the Dynamic Matching Model “of teaching the around the learning cycle” helped them develop all the previously mentioned abilities and skills with a total medium of 2.68. This means, according to the response level scale below, indicates that 2.68 out of 3 is high enough to conclude that the EG students agree that their experience during the treatment phase has helped them develop their learning via all the learning abilities and skills stated in the table above.

**Table4.86. Post- treatment Questionnaire Response Level Scale**

<b>Response Level</b>	<b>Disagree</b>	<b>Not Sure</b>	<b>Agree</b>
<b>Score</b>	<b>1 – 1.66</b>	<b>1.67 – 2.32</b>	<b>2.33 – 3</b>

**4.3.2. Focus Group Discussion Results**

The focus group discussion is also used to further explore the EG’s perceptions about the effect of Experiential Education on their learning development based on their experience during the treatment phase. A small group of six participants who volunteered to take part in this discussion are involved. The Focus group discussion results are summarized in the following table.

**Table4.87. Focus Group Discussion Results**

<b>Questions</b>	<b>Participants’ Answers and Interpretation</b>
1. How do you feel about your experiential learning experience in the OE course?	The participants’ answers reveal their positive attitudes towards Experiential Education and assert that they find it quite interesting and informative. Some of them even compare it with the usual teaching methods saying that it is “less boring” while others confirm that it has kept them more attentive and motivated. They also used words such as “ <i>comfortable, different, new, like (it), satisfied, involved, challenged, etc.</i> ” when describing the method and how they felt about it.
2. Are there any changes you have noticed in your learning in general? What are they?	The participants affirm their ability to better direct their learning because they feel more aware about the four learning modes. Some of them also said that they are applying their “ <i>new knowledge and understanding of their learning profile</i> ” in other courses. In addition, the participants assert that they feel now more comfortable and better able to learn alone and in

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	other courses.
3. Do you think that Experiential Education is an effective model for developing EFL students' learning? Why?	All the participants affirm that they think that it is effective for developing their learning and understanding it. Some students even assert that they also find it effective for learning English.
4. How has your learning experience in the oral expression course affected your learning and performance in the different EFL courses if ever?	The participants mentioned the positive influence of the Experiential Education experience on the other courses even before this question was asked. They said that " <i>in the first session when we discussed our learning styles' results and practiced the reflection mode and the other modes really helped them understand the learning and become able to have more control over how I learn and think in the other modules</i> ". Some students also affirm that they try to apply what they learned about learning styles' strengths and weaknesses and the learning modes in the other modes while learning in the other modules. More importantly, many students assert that they feel that their " <i>communicative skills are better than before</i> ".
5. What are the positive and the negative aspects of your experiential learning experience?	The students affirm that what they like the most about this method is that it does not only teach them English and OE but it also helps them how to learn in the other courses and even how to learn other things in everyday life. They also assert that the different types of techniques adopted in the same session keep them motivated, interested, and engaged. They also affirm that they appreciate this method because it helps them " <i>understand themselves</i> " as well as their teachers and tasks and lessons. They did not mention any negative aspects and affirmed that they hope it to be applied in other courses.

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These results confirm the post-treatment of questionnaire results in the sense that both of them reveal students' satisfaction with their experiential learning experience and its positive effect on their students' learning development as well as their performance in OE and as well as other courses.

### **Conclusion**

In this section, all the data collected through the different phases' instruments are presented and analyzed. It starts with the exploratory phase that adopts the students' questionnaire, the teachers' questionnaire, the Kolb Educator Role Profile, as well as the Kolb Learning Style Inventory 4.0 gathering detailed information about the students' and teachers' perceptions regarding the experiential learning concept, learning development practices and difficulties, as well as students' learning style profiles and teachers' educator role profiles. After that, the data collected from the pre-test-post-test non-equivalent quasi-experimental study through the KLSI 4.0 were also presented comparing between the EG and the CG results in the pre-test and the post-test. Finally, it, displays the EG's reflections and attitudes regarding their experiential learning experience. These data are also interpreted and discussed in the following chapter in order to answer the research questions and discuss the research hypotheses.



## Chapter Five:

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## Chapter Five

### Interpretations, Implications, and Suggestions for Further Research

#### Introduction

This chapter presents the interpretations and discussions of the previously presented and analyzed data in an attempt to answer the research questions and provide the results of the hypotheses testing. Based on the research results, some pedagogical implementations are also presented. Finally, some suggestions for further research are provided based on the researcher's experience through this study.

#### 5.1. Interpretation and Discussion of the Results

The interpretation and discussion of the data collected during the three phases are presented in this section. In addition to that, the research questions are answered and the hypotheses are discussed.

##### 5.1.1. Interpretation of the Students' and Teachers' Exploratory Results

For a better interpretation of this exploratory study results, the findings from the students' and teachers' questionnaires are analyzed and interpreted together in a comparative way to have a better understanding of their beliefs and practices. After that, the teachers' and students' profiles are presented separately with some comparisons and contrasts to have a better understanding of the Algerian EFL students' and teachers' beliefs, practices, and interrelationships between EFL students-teachers, their perceptions and practices.

##### 5.1.1.1. Students' and Teachers' Questionnaires

The results revealed that both students and teachers were highly aware of the importance of learning styles. However, students' perceptions of the term learning style itself were limited and not clear in the sense that the majority considered that learning

styles were limited to sensory preferences and that they are not flexible and cannot be changed or developed. In fact, this belief that learning styles are fixed traits that cannot be extended or promoted is probably what hinders students to try to develop their learning (Kolb & Kolb, 2013) as it puts students in a passive and dependent status thinking that their learning styles must always be matched by the teachers for an effective learning process. And this, actually, is what feeds students' expectations that teachers have to continue teaching them in the same way they were taught in the previous stages when they were children (Kolb & Kolb, 2013).

Similarly, although the majority of teachers realized that learning styles were flexible and developmental, they shared the same old-fashioned belief that teaching styles must be matched with learning styles to enhance students' acquisition of their content. This means that neither the students nor the teachers believed that students can and should take responsibility for their learning development. In addition, the majority of teachers and students also agreed that students' learning was hindered by their learning styles' weaknesses and that the majority of students face problems with adapting their learning styles to the learning demands of different courses as well as learning outside and even inside the classroom. And yet, teachers admitted that they did not take their students' learning styles and adult learning principles into consideration to help them develop their learning ways. Similarly, the results also revealed students' big confusion and uncertainty regarding their perceptions of the practices and aims of higher education. Many of them, for example, believed that the main aim of higher education was the simple delivery and transmission of knowledge related to their specialty. However, teachers, on the other hand, were aware that their role was not the simple delivery of knowledge; however, they also admitted that they did not make efforts to help students learn how to learn. This can be explained by their

misunderstanding and confusion regarding the best method that can be followed to achieve this.

Furthermore, both the students and the teachers revealed their awareness of their learning and teaching preferences respectively. However, the results also revealed some mismatches between the students' preferences and teachers' preferences that were not framed or directed towards developing students' learning since teachers already admitted that they did take this aim among their teaching goals list.

The results have also shown that the majority believed that a balanced variety of teaching styles and roles could help students develop their learning abilities. In fact, this belief is the main principle of Kolb and Kolb's Dynamic Matching Model of ELT (2018). Nonetheless, teachers have reported that they were not adopting this method which can be explained by their ignorance of it. This, again, reveals the mismatch between teachers' beliefs and practices in the classroom. Finally, many students and teachers reported that learning in higher education did not effectively help them learn how to learn and develop their learning ways and flexibility which reveals the ineffectiveness of the adopted methods in higher education.

This study, as a result, shows that Algerian higher education does not show a clear focus on the development of EFL students' learning abilities and is still implementing the traditional information transmission models of education. These results also reveal the urgent need to raise students', teachers', and decision-makers' awareness about the importance of learning development and Experiential Education to create flexible and lifelong learners who are able to be successful students and future professionals.

To recapitulate, this research has shown that students have limited perceptions of learning styles as fixed traits, and although they realize the importance of learning

development, they do not perceive a clear focus on it in higher education and they still believe that teachers must adapt their teaching to their learning styles. Teachers, on the other hand, have shown that although they have a good awareness of learning styles and adult learning development, they still do not take them into consideration in their teaching practices. This might be due to their belief that students are not open to new developmental methods that do not match the students' learning styles. The results also revealed some mismatches between students' and teachers' beliefs, preferences, and practices.

#### **5.1.1.2. Interpretations of the Kolb Educator Role Profile**

In addition to the teachers' questionnaire, the KERP results also revealed an unbalanced use of the four educator roles and affirmed that EFL teachers mainly relied on the *Expert* and *Evaluator* roles in their teaching practices which are content-directed roles. On the other hand, the *Facilitator* and *Coach* roles which are more process-directed were less adopted. This result matches the students' and teacher's previously explored perceptions about the nature of teachers' practices that neither matched the students' learning styles nor matched the learning demands of EFL which are basically communicative and interactive by nature (Boyatzis & Kolb, 1995; Jones, Reichard, & Mokhtari, 2003). As a result, these findings confirm that Algerian higher education is still content-directed in spite of the new educational reforms related to the LMD system and regardless of the nature and demands of courses and disciplines.

These results, however, also revealed a match between the students' perceptions, the teachers' perceptions as well as the KERP results regarding the adopted educator roles. On the other hand, a mismatch is revealed between the students' preferences for these roles and the KERP results which means that there is a mismatch between the EFL teachers' teaching styles and their students' learning styles.

As such, the students' and teachers' questionnaires as well as the KERP results have helped to better understand the Algerian EFL students' and teachers' problems related to learning development that are basically related to their misunderstanding of the learning process, and confusion about how to develop students' learning.

#### **5.1.1.3. Interpretation of the Learning Style Profile of First-Year EFL Students**

The Students' learning style profile results answer the fourth research question revealing that first-year EFL students use the four learning modes in a medium and unbalanced way with more preference for reflective observation. Similarly, their learning flexibility scores and level were medium and the most preferred learning style was the Imagining style with a simple and small majority percentage (26%) while the absolute majority were scattered among the other styles. The Imagining styles according to Jones, Reichard, and Mokhtari (2003) and Kolb and Kolb (2013) best match the demands of learning English, however, the use of this learning style by first-year EFL students was not sufficient as only 26% preferred it. In addition to that, the dominance of the Subject-Matter-Expert role of teachers as indicated by the KERP means that the Imagining style students are generally mismatched with their teachers' style which puts them in uncomfortable situations. The students' dominant backup styles were the Thinking, Analyzing, and Balancing styles with very low use of the Acting, Initiating, and Experiencing styles. These backup styles might help learners cope with their teachers' Expert and Evaluator roles though they are still relatively insufficient to adapt to the different learning situations.

#### **5.1.2. Interpretations of the Experimental Phase Results**

The experimental phase results were employed to answer the fifth research question and test the research hypotheses related to the effect of Experiential Education through the implementation of the Dynamic Matching Model on students' learning

development as indicated by their KLSI 4.0 results. The pre-test and post-test data of the CG and EG were compared and analyzed using the t-test procedure of comparison and the normative approach to data analysis revealing the following points:

First, the comparison between the CG and the EG in the pre-test showed that there were no significant differences between the CG's and the EG's results in the pre-test. This indicates that the two groups had similar learning profiles before the implementation of the quasi-experimental treatment of Experiential Education. Consequently, any significant changes or development in the EG's profiles compared to the CG's profiles in the post-test could be attributed to the treatment effects.

Second, the EG's results in the PAA aimed to assess the students' performance in the four learning cycle modes after the Experiential Learning Sessions were also compared with the students' results in the pre-test. The statistical data revealed a relative development in the EG's performance and use of the four learning modes after their participation in the experiential learning development.

Third, after the treatment phase, the comparison between the CG's results in the post-test and those of the pre-test revealed that there were no significant differences between the CG's results in the pre-test and their results in the post-test. The CG was not exposed to any kind of treatment and they were taught using the traditional method. As such, these results revealed that the traditional methods of teaching did not have any significant effects on the control group students' learning development as indicated by their learning modes' scores and learning flexibility level. The CG's learning style typology was, however, relatively influenced by the teachers' traditional Expert and Evaluator educator roles that slightly reinforced their reliance on the Abstract Conceptualization (AC) mode in their learning which justifies the students' relative change of their learning style from the Imagining style to the Thinking and Analyzing

styles that, according to ELT (Kolb & Kolb, 2013; Jones, Reichard, & Mokhtari, 2003), does not fit the learning demands of EFL and the oral expression course normally based on communicative skills.

Fourth, the t-test analysis of the pre-test and post-test of the EG proved the appearance of significant differences and developments at the level of the experimental group's learning style profile. These significant developments include a significant increase in the students' ability to integrate each of the four modes of the learning cycle which promotes their ability to move around the learning cycle. Moreover, the EG's learning flexibility scores and level also increased from *medium* to *high* on the flexibility scale. Consequently, their backup styles' range also widened which gives the students a wider comfort zone and enables them to learn how to learn and adapt to the different learning situations and demands. The students' learning style typology was also affected by the treatment and the Dynamic Matching Model in the sense that there was a significant increase in the students' preference for the Balancing style that enables the students to adapt to the different learning demands and situations, which is the main aim of Experiential Education. The preference for the Experiencing style that entails action-taking, leadership, and relationship skills that can serve the oral expression course nature and demands also increased in a significant way. However, the students with the Imagining style, which is said to match the EFL field demands, represented the majority of the participants. In other words, the dominance of the Imagining style (35%), the Balancing, and Experiencing styles (20% for each) reflects the significant and positive effects of Experiential Education (the Dynamic Matching Model) on students' learning. Consequently, the null hypothesis which suggests that "*If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model), there would be no significant differences in terms of learning as*

*assessed by the KLSI 4.0 between the experimental group's pre-test and post-test" is rejected and its alternative hypothesis is accepted. Thus, it is confirmed that "If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model), there would be significant differences in the experimental group's learning as assessed by the KLSI 4.0 between the pre-test and post-test."*

Finally, to confirm that the previously mentioned developments in the EG's learning scores are attributed to the treatment, another comparison was made between the CG's and EG's post-test results. The independent t-test results confirmed the existence of significant differences between the CG's and the EG's results in the post-test. The statistical study of the two groups' scores revealed that the EG's results were significantly better than the CG's results both in the four learning modes (CE, RO, AC, AE) as well as in their learning flexibility levels. It was also shown that the EG's learning styles were adapted to better fit the EFL learning demands as suggested by ELT (Kolb & Kolb, 2013; Jones, Reichard, & Mokhtari, 2003) besides the significant increase in the students' preference for the Balancing style that enables students to adapt to any learning situation. In addition to that, the backup styles' means also revealed that the EG had more ability to use a wider range of backup styles which means that they had more ability to adapt to a wider range of learning situations and demands. In other words, the data collected from the CG and EG in the pre-test and post-test prove that Experiential Education and the Dynamic Matching Model "of teaching around the learning cycle" have significantly positive effects on the EG's learning development. This development is indicated by its enhancement of EG's ability to use the four learning modes, and thus their ability to move around the learning cycle, as well as its development of their learning flexibility level and accordingly the enlargement of their backup styles range that would help them better style-flex to adapt

to the different learning demands and situations. Consequently, the null hypothesis saying that ***“If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model), there would be no significant differences in terms of students’ learning as assessed using the KLSI 4.0 between the experimental group and the control group results”*** is rejected and its alternative hypothesis is accepted. Thus it is confirmed that ***“If first-year EFL students are taught using Experiential Education (The Dynamic Matching Model), there would be significant differences in terms of students’ learning as assessed using the KLSI 4.0 between the experimental group and the control group”***.

To sum up, the pre-test and post-test results of the CG and the EG revealed that although the two groups showed no significant differences between their learning profiles in the pre-test, the EG’s results in the post-test revealed significant development at the level of all of the four learning modes, their learning flexibility level, their backup styles as well as their learning preferences compared to their results in the pre-test as well as the CG’s results in the post-test. As a result, the quasi-experimental research data confirm this study’s alternative hypothesis and confirm that Experiential Education’s Dynamic Matching Model “of teaching around the cycle” has significant effects on EFL students’ learning development as indicated by their ability to use the four modes of the learning cycle, their learning flexibility level, their backup styles, as well as their learning style preferences. Hence this research’s main null hypothesis suggesting that ***“If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model) they would not demonstrate development in their learning as assessed by the KLSI 4.0”*** is rejected and its alternative hypothesis is accepted. As a result, it is confirmed that ***“If first-year EFL students are taught***

*using Experiential Education (the Dynamic Matching Model) they would demonstrate development in their learning as assessed by the KLSI 4.0”.*

### **5.1.3. Interpretation of the Post-Treatment Questionnaire and FGD Results**

The post-treatment questionnaire and the FGD were used in order to assess the EG students’ satisfaction with the experiment and explore their perceptions about the effects of Experiential Education on their learning development, and thus, to answer the sixth question of this research. The results revealed the participants’ high satisfaction and positive attitudes about the application of the Dynamic Matching Model “of teaching around the learning cycle” in the OE course. The data also affirmed their positive perceptions about the effect of this Experiential Education model on their learning and development not only in the OE course but also in the other EFL courses and even in their personal life. These results, as such, revealed that students preferred Experiential Education over the other traditional models of teaching and found it more efficient for learning oral skills as well as learning how to learn in the other EFL course and even how to deal with their everyday experiences outside the classroom. The most important aspect that was mentioned by the participants was the effect of Experiential Education on their development not only in their performance in the oral expression course and the other EFL courses but also in their ways of looking at and even dealing with their life experiences inside and outside university.

### **5.1.4. Research Questions and Findings**

In this section, the research questions are answered in light of the previously discussed results of the different research instruments.

**1. What are first-year EFL students' perceptions about learning experience in higher education?**

In order to answer the first research question a preliminary students' questionnaire was administered to 46 first-year EFL students at the Department of English Language and Literature at Mohamed Lamine Debaghine Setif 2 University. The aim was to explore the first-year EFL students' perceptions about learning experience in higher education to have a better understanding of the research problem and the students' beliefs about learning styles being the core concept of learning as well as their learning difficulties. It also aimed at understanding their perspectives regarding teachers' practices and higher education goals. The results revealed that these students have some misperceptions of the nature of learning styles considering them as innate and fixed traits. The students also reported their dissatisfaction with adopted teaching practices and showed their discomfort with the felt mismatch between their learning ways and their teachers' ways and practices. They as well confirmed their need to develop their learning ways because of their struggle and difficulties in adapting to the learning demands of their EFL courses and expressed their belief that teachers should match their teaching styles to their learning styles. As far as higher education goals and practices, the students did not perceive a clear focus on the development of their learning processes.

All in all, the answer to this question is that first-year EFL students have some misleading and fuzzy perceptions about the nature of learning styles and the importance of learning development in HE goals and practices which make learners perceive themselves in a passive and weak position that does not permit or promote development. This is mainly because they perceived learning styles and modes as innate fixed traits that cannot be developed to help them overcome their learning

weaknesses and difficulties. Hence, they must be matched by the teachers' roles and methods to facilitate their success and learning of the EFL which is perceived as the main goal of HE. Consequently, it is important to raise EFL students' awareness about the nature of their learning and the significance of learning development. Furthermore, it is necessary to make stronger and clearer attempts to ameliorate the students' learning processes through the adoption of more effective process-directed methods such as Experiential Education and its Dynamic Matching Model.

2. **What are EFL teachers' perceptions about learning development in higher education?**

To answer the second research question, a teachers' questionnaire was administered to 15 EFL teachers at the Department of English Language and Literature at Mohamed Lamine Debaghine Setif 2 University. This question attempted to investigate teachers' perceptions of learning development in higher education. It is also intended to have a better understanding of the Algerian EFL teaching practices and difficulties related to learning styles and learning development. The results have revealed that in spite of the teachers' awareness of the developmental nature of learning styles and their students' difficulties with adapting to the EFL course, and the importance of learning development in HE, they have admitted they do not make significant efforts to develop their learners' learning processes and help them overcome their learning weaknesses and that they prefer to focus on helping students acquire the necessary EFL content.

Thus, the answer to the second research question is that EFL teachers have relatively clear and correct perceptions of the nature of learning styles and the importance of learning development as a main goal of HE. However, these perceptions proved to contradict their perceived practices in the classroom admitting that they do

not give much importance to the development of their students' abilities to adapt their learning to the EFL demands. This means that although these teachers have considerable knowledge about the learning processes, they find difficulties with finding an effective and practical process-based method that can help them promote students' learning abilities and flexibility. Thus, they can be directed toward Experiential Education and the adoption of the Dynamic Matching Model which is widely recommended for learning development.

### **3. *What is the Educator's Role Profile of EFL teachers as assessed by the KERP?***

The third research question aimed at having a general overview of the EFL teachers' educator role profile as assessed by the KERP. This can also allow to make further comparisons between the students' perceptions of their teachers' teaching practices, the teachers' perceptions of their adopted roles, and the KERP results about them. Generally speaking, these results revealed a match between the teachers' perceptions, the students' perceptions, and the KERP results of the educator roles adopted in the classroom. This means that teachers have a clear understanding of their teaching practices.

The findings clarify that the majority of teachers have more reliance on the Subject-Expert role, with a use percentage of 34%, followed by the Evaluator role with 26%, and an approximate use of the Facilitator and Coach roles with 20% and 19%. These results reveal an unbalanced use of the four roles with more preference for content-directed roles over process-directed ones. This also means that teachers tend to reinforce students' Abstract Conceptualization mode and the Assimilating and Converging learning styles over the other learning modes and styles. In other words, these teachers give less importance to the learning modes and styles that, actually, match the communicative learning demands of EFL in general and the oral expression

course in particular. Therefore, EFL teachers are recommended to adopt the four roles in a more balanced way with, possibly, more focus on the Facilitator and Coach roles that better match the nature and learning demands of their field and course as suggested by ELT and Experiential Education.

**4. *What is first-year EFL students' learning style profile as assessed by the KLSI***

**4.0?**

The use of the KLSI 4.0 in this research was not limited to the assessment of students' learning development through the pre-test and post-test. It was, in fact, also used as a preliminary tool to have a better understanding of the first-year EFL students' learning preferences and abilities. This understanding of the EFL students' learning style profile can contribute to the ELT literature as well as to a better understanding of this research's context, the EFL students' learning ways, and our research problem. Thus, the fourth question's answer is based on the KLSI 4.0 results.

As an answer to the fourth question, the KLSI 4.0 revealed that the majority of the participants relied on the Reflective Observation mode followed by the Concrete Experience mode. The first-year EFL students' preferred learning style is the Imagining style with a simple majority of 26%. The students' preference for RO and CE and the Imagining style match the learning demands can be attributed to the learning demands of the oral expression course. However, the number of students who adopt this style and which is said to match the learning demands of EFL (only 26%) does not constitute an absolute majority. Furthermore, the students' preference for the Balancing style is very weak (13%). These results also showed that the level of flexibility of first-year EFL students is medium according to the flexibility scale with a score of 0.54 with a medium range of backup styles with higher reliance on the Thinking style that does not match the EFL demands. A comparison between the KLSI 4.0 and the results and the

previously mentioned students' questionnaire revealed a mismatch at the level of their perceived preference for the AC and AE mode vs. their assessed preference for the RO and CE. This means that the students had wrong perceptions of their preferred learning modes and thus their preferred learning styles.

Consequently, the answer to this question highlights the importance of using appropriate assessment tools such as the KLSI 4.0 to identify one's learning ways and preferences. This would help learners identify their learning strengths and weakness and thus, benefit from these strengths and overcome learning difficulties and develop their learning ways.

**5. To what extent would the integration of Experiential Education (the Dynamic Matching Model) affect first-year EFL students' learning development as assessed by the KLSI 4.0?**

To answer this question, a quasi-experimental study was conducted implementing the Dynamic Matching Model "of teaching around the learning cycle" to investigate the effectiveness of Experiential Education in fostering first-year EFL students' learning development as assessed by the KLSI 4.0 in the pre-test and post-test of the CG and EG. Thus, the answer to this question, which is the main research question, implies the testing of this research's hypotheses.

The data obtained from the different t-tests that were used to make the different comparisons between the pre-tests' and post-tests' results of the CG and the EG confirmed the significant effectiveness of Experiential Education in developing the experimental group's learning at the four levels: their integration of the four modes of the learning cycle, learning styles preferences, learning flexibility level, and the backup styles range. In other words, after the treatment, the first-year EFL students have revealed significant development regarding their integration scores of the four learning

modes which would allow them to have more freedom to use each of these modes depending on the nature of the learning situation they are exposed to. This development also correlates with the development of their flexibility level score from a *medium* level (0.50) to a *high* level (0.77) according to the flexibility level scale. The high flexibility level, in turn, also entails the extension of the backup styles range which gives them a wider comfort zone to flex from one learning style with its different abilities, strengths, and skills to another in response to the learning demands imposed by nature of the discipline, course, or any other learning situation. As far as learning style preferences are concerned, Experiential Education has had a positive effect on the students' preference for the balancing style which is considered the most flexible and appropriate learning style because of its effectiveness in the different learning situations and demands. Consequently, the research's alternative hypothesis is confirmed and its null hypothesis is rejected, thus, *“if first-year EFL students are taught using Experiential Education (the Dynamic Matching Model) they would demonstrate development in their learning as assessed by the KLSI 4.0”*.

All in all, as an answer to the fourth research question, it can be concluded that the integration of Experiential Education through the implementation of the Dynamic Matching Model would affect the first-year EFL students' learning development as assessed by the KLSI 4.0 to a large extent. This “large extent” measurement is correlated with their highly developed level of learning flexibility as suggested by the ELT developmental stages that correlate between the learning development levels and the flexibility levels (Kolb & Kolb, 2013).

**6. What are first-year EFL students' views concerning the effects of Experiential Education (the Dynamic Matching Model) on their learning development?**

The last question in this study was answered using a post-treatment questionnaire and a focus group discussion involving students from the EG. The aim was to evaluate the effects of Experiential Education from the participants' point of view. The post-treatment questionnaire intended to collect detailed data while the FGD aimed at gathering qualitative information and views.

Henceforth, based on their experience with the method, first-year EFL students view Experiential Education as an effective method for developing their learning ways, abilities, and flexibility. They also prefer it over the traditional content-based methods and feel that it has not only developed their learning ways but it has also helped them enhance their performance and achievement in the oral expression course. Most importantly, they think that their learning experience during the treatment phase has facilitated their learning in the other course and even affected the way they view and ways of thinking in their personal life which is the ultimate goal of this research.

**5.2. Pedagogical Implications**

This research's previously discussed results can be utilized to suggest some implications and recommendations that may help enhance the quality of higher education. These implications concern teachers, students, as well as decision and policymakers.

**5.2.1. Implications for EFL Teachers in Higher Education**

EFL teachers, being the managers of the classrooms, are invited to make more efforts to improve their understanding and knowledge about the learning process in general and adult learning in particular including learning styles and learning development for more effective teaching-learning practices and courses and lesson

designs. This knowledge would enable teachers to set more developmental learning objectives, design more effective courses, and implement more integrative teaching practices.

This research's results confirm that Experiential Education and the Dynamic Matching Model can help teachers achieve more developmental objectives that would help learners develop their abilities to learn more effectively in a wide variety of learning situations and better respond to the different courses' demands. Consequently, teachers are invited to consider their students' learning styles not only through matching teaching styles to learning styles but in a more effective way that aims to stretch and develop students' learning. In other words, teachers are to consider learning styles with their developmental nature in their teaching and change the traditional belief that the usability of learning styles is limited to the simple match between teachers' teaching styles and their students' learning styles.

It is also very important to understand the spiral and recursive nature of the learning process and its importance for the development of students' brains and learning processes. It is also important to consider teaching around the learning cycle with its dialectic modes to promote students' flexibility and achieve longer-term objectives that not only aim to create successful students but also to create successful future professionals and teachers. The consideration of these aspects would guide teachers, consequently, to adopt a recursive teaching method such as the Dynamic Matching Model "of teaching around the learning cycle".

Teachers are also requested to have more knowledge about Experiential Education and the different educator roles and practices that may help them enhance their instructional performance and outcome. Teachers' understanding of their various roles in the educational process is a crucial aspect of the enhancement of higher

education. They are also required to adapt their teaching to the demands of the different courses being taught. Furthermore, teachers are invited to take students' interests and needs into their consideration in addition to their learning strengths and weaknesses.

In addition, teachers are encouraged to help their learners better understand their learning ways and processes and also understand their responsibilities over their learning development for the aim of helping them learn how to learn. It would be beneficial to devote some sessions for the introduction of experiential learning and the discussion of learning styles and their strengths and weaknesses. Teachers can benefit from the tutorial sessions that are normally scheduled for the LMD students to train students to integrate the four learning modes.

### **5.2.2. Implications for EFL Students in Higher Education**

Sims (1995, p. 151) suggests that “students are expected to be mature enough to guide their educational experience” at university. As a result, students are required to understand their responsibility over their education and learning development and stop relying on teachers to spoon-feed them or even match teaching to their learning preferences and comfort zones. Contrariwise, students need to try to stretch and adapt their learning ways to the demands of the different courses and learning situations instead.

Students are also required to make efforts and research to have more knowledge and a better understanding of the learning process, adult learning and learning development, experiential learning, and its main concepts including the learning cycle, learning styles, learning flexibility, etc. Such an understanding would help them, especially first-year students, develop their learning abilities and better deal with different learning situations, and cooperate with their teachers. This understanding would also help students become more effective, independent, and active life-long

learners, and thus, become more successful future professionals. Besides, to achieve their developmental objectives, students are also invited to be more open to new different teaching roles and methods that do not match their preferences and comfort zones and be more active and make efforts.

The students are also invited to take responsibility for the development of their learning by continuously engaging in different challenging learning activities that do not match their learning comfort zones and experiential learning programs. They are also recommended to reflect on their ways of learning and try to identify their learning weakness and strengths; The Kolb Learning Style Inventory 4.0 feedback report can be a helpful guide and source for them.

### **5.2.3. Implications for Decision and Policy Makers in Higher Education**

This research has shown the significance importance and effect of Experiential Education on students' learning development. As a result, higher education decision-makers are invited to consider the creation of Experiential Learning Centers at the level of universities in order to provide both teachers and students with training opportunities to enhance their Experiential Education knowledge and practices. Such centers would also provide educators and learners with opportunities to learn from each others' experiences and even contribute to the development of the Dynamic Matching Model especially since it is not very common and there is still a relatively big void in the literature related to the application techniques of this model in EFL as well as the other fields. Many universities in USA, Europe, and even Asia are making use of such centers; therefore, Algerian universities can also benefit from them to enhance higher education outcomes.

In addition to that, decision-makers are also invited to clarify and set more developmental goals and objectives that would create lifelong learners who are able to

learn more effectively and independently. It is crucially important to state educational goals that would lead to the creation of successful students and future professionals. In addition to that, decision-makers and course designers are also encouraged to make use of ELT and the different educator roles in designing the different courses of EFL as well as the other fields.

### **5.3. Suggestions for Further Research**

As with any other social sciences research, this study had some flaws and limitations that can guide other researchers in further research.

First, this research could not adopt a random sampling technique and convenient sampling was used instead. This limitation could affect the generalizability of this study's results. Therefore, the use of random sampling and a true experimental design can greatly enhance and reinforce the generalization of other Experiential Education research. Another limitation related to the sample also includes the small size of the sample that was involved in this research. Therefore, in addition to random sampling can enhance this research through a bigger sample size.

Second, due to the pandemic circumstances and in spite of its significant outcomes, the current research was conducted in a relatively short period of time and a small number of sessions (12 sessions). Therefore, further research can have more significant results and beneficial insights through the application of a longer-term treatment in more normal circumstances.

Third, another limitation of this research is the fact that the quasi-experiment research was conducted by the researcher teaching both CG and EG. As such, future research can also reduce subjectivity and the researcher's involvement through engaging trained experiential educators in the implementation of the treatment to have more neutral and objective results.

Fourth, with the belief that “style is a predictor of success in different academic disciplines” (Purkiss, 1995), this research focused on the development of students’ learning flexibility and abilities without taking the development of their performance in EFL into consideration. However, further research can broaden this research by investigating the effect of Experiential Education on the development of students’ learning styles as well as their performance in EFL.

Sixth, this research can be also duplicated in other courses and disciplines at the Algerian university to investigate the effect of Experiential Education and the Dynamic Matching Model on students learning development and performance in a variety of courses and disciplines. Individual differences such as gender, culture, and academic background can also be investigated in relation to experiential learning.

Finally, other assessment tools such as The Learning Skills Profile can also be used in order to evaluate students’ learning development. In addition to that, the PAA was only used during the treatment phase of this research; however, it can also be used in the pre-test and post-test phases.

## **Conclusion**

This chapter summarizes the essence of the current research revealing the significantly positive effects of Experiential Education through the Dynamic Matching Model of teaching around the learning on first-year EFL students’ learning modes, learning styles, backup styles, and most importantly their learning flexibility level. The detailed interpretation of the collected data, the research questions’ answers, the pedagogical implication, as well as some suggestions for further research, are all provided in this part of the research.

## General Conclusion

Higher education is more about the development of students' learning abilities and skills than the simple delivery of lectures and knowledge. Hence, efforts are to be directed toward understanding the adult learning process to find more efficient methods that can help to develop students' learning ways and flexibility. This development can help students to succeed in their studies and graduate as independent life-long learners. However, many students and teachers still ignore adult education principles and focus their learning and teaching efforts on the acquisition of the subject-matter content rather than the development of the learning processes that can help learners learn how to learn.

Therefore, Experiential Education is suggested as a possible solution for helping adult students learn how to learn through the development of their ability to adapt to different learning situations and demands. Accordingly, the current study is an attempt to assist Algerian higher education, in general, and the EFL field, in particular, to cope with these recommendations to develop students' learning ways and flexibility. Consequently, it attempted to test the effectiveness of Experiential Education through the application of the Dynamic Matching Model in developing students' learning at the Department of English Language and Literature at Mohamed Lamine Debaghine Setif 2 University. To this end, a quasi-experimental pre-test/post-test non-equal design was adopted by conveniently involving a sample of 38 first-year EFL students divided into two groups- a control group (CG) (n=18 students) and an experimental group (EG) (n=20 students).

However, before the quasi-experiment, a preliminary study was conducted in order to explore the Algerian EFL students' and teachers' perceptions of learning development and have a better understanding of the research problem. This study

involved 46 students and 15 teachers using a students' questionnaire, a teachers' questionnaire, and the Kolb Educator Role Profile (KERP). This study revealed the students' struggle with developing their ability to adapt to the demands of their EFL courses. It also showed that the students and teachers lay more focus on the acquisition of the EFL content rather than the development of the students' learning processes. This was basically because of their ignorance and misunderstanding of the developmental nature of learning styles as well as the importance of learning development in higher education. Similarly, the KERP results confirmed the students' and teachers' questionnaire findings and revealed that the majority of the teachers relied on the Expert and Evaluator roles which are considered two content-based roles. Thus, the KERP confirmed that those EFL teachers did adopt the four educator roles in a balanced way as recommended by Experiential Education. Consequently, these results helped to better understand the Algerian EFL students' and teachers' difficulties, challenges, practices, and perceptions related to Experiential Education and learning development. This preliminary study also highlighted the significance of this research's attempt to raise awareness about the importance of Experiential Education and learning development in Algerian higher education.

Consequently, this research investigated the effects of Experiential Education through the implementation of the Dynamic Matching Model instructions in the treatment phase. Besides, the Kolb Learning Style Inventory KLSI 4.0 was adopted as a pre-test and post-test to evaluate the participants' learning and learning development through their integration of the four modes of the learning cycle, their learning style preference, their backup styles, and most importantly their learning flexibility level.

The Personal Application Assignment was also used to assess the EG students' learning development during the intervention as a kind of progress test after the

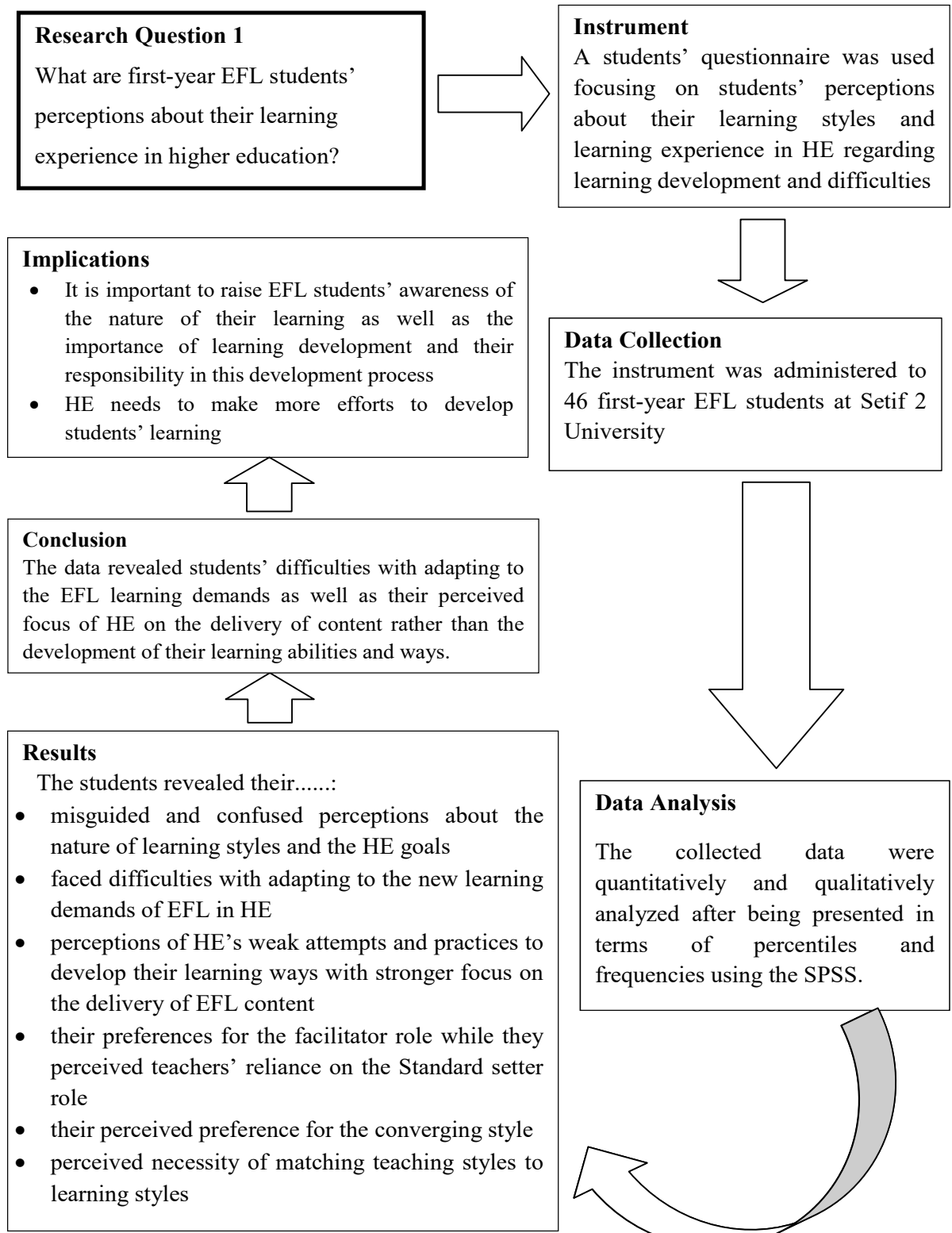
Experiential Learning Sessions that aimed at training the participants to use the four learning modes. Results from the quasi-experimental were analyzed using the t-test procedure and interpreted using the normative approach of data analysis. The findings revealed that the Dynamic Matching Model “of teaching around the learning cycle” had significantly positive effects on the development of the EG’s use of the learning modes, their learning flexibility, as well as their backup styles and learning styles preferences. That is to say, it was proved that the application of the Dynamic Matching Model (Experiential Education) enhanced the first-year EFL students’ ability to move around the cycle and use the four modes. Experiential Education also developed students’ learning flexibility level, and thus, enlarged their comfort zone through the backup styles that enabled them to comfortably respond to different learning situations and demands. In addition to that, Experiential Education even helped the first-year EFL students to reinforce their reliance and preference for Imagining and Experiencing styles that best match the learning demands of EFL in general and the communicative nature of the oral expression course in particular (Kolb D. A., 1981; Boyatzis & Kolb, 1995; Jones, Reichard, & Mokhtari, 2003). Furthermore, the Balancing style that enables students to adapt to different learning situations and demands is also developed as a result of the implementation of the treatment.

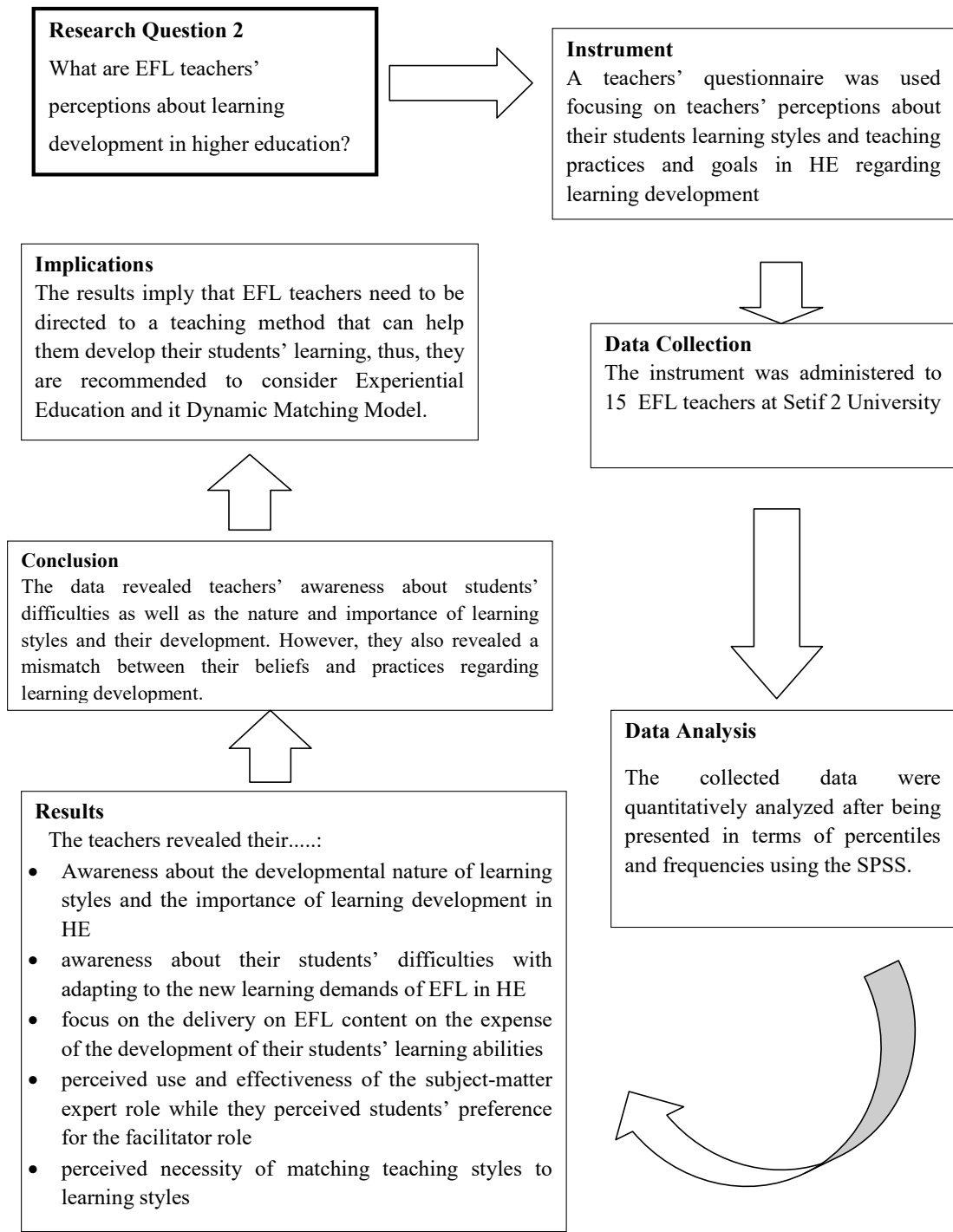
After the quasi-experimental, a students’ post-treatment questionnaire and a focus group discussion were used to assess the EG’s satisfaction and perceptions about the effect of Experiential Education on their learning development as well as their performance in the oral expression course and EFL in general. The results revealed the students’ high satisfaction with the treatment as well as their perceptions about the positive effects of Experiential Education on their learning development and their performance in EFL in general and the oral expression course in particular. In other

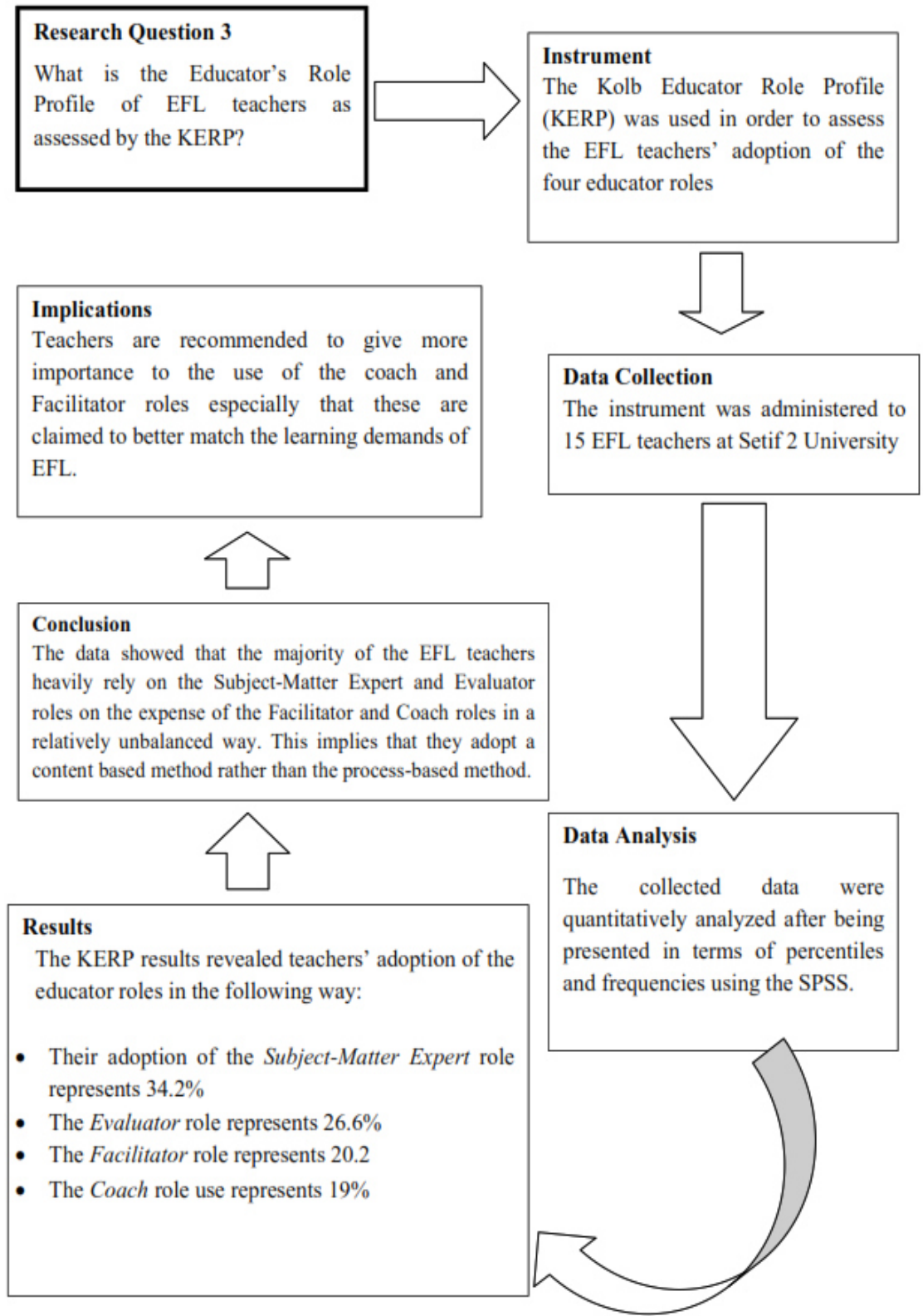
words, based on the findings of this quasi-experimental study, the research's alternative hypotheses were confirmed accepting that *“If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model) they would demonstrate development in their learning as assessed by the KLSI 4.0.”*

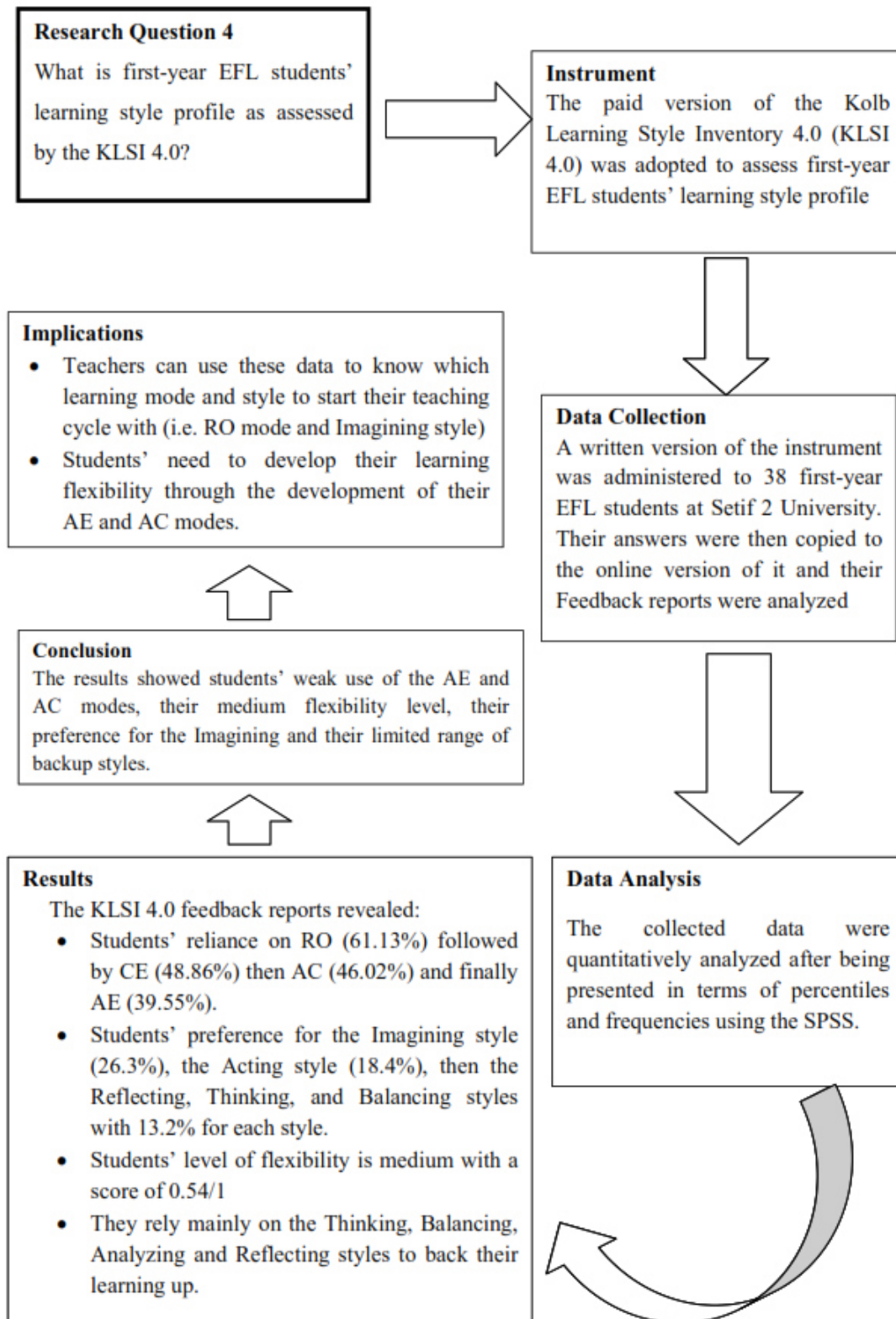
Consequently, based on these findings, EFL students and teachers are recommended to improve their knowledge, and understanding of adult education, the learning process, and the importance of learning development in higher education. Experiential Education is also suggested as an effective method to assist EFL students' learning development through the Dynamic Matching Model “of teaching around the learning cycle”. Students, teachers, and decision-makers are also invited to benefit from Experiential Learning Centers to achieve more developmental goals of learning in higher education. At the end of this study, a number of suggestions for further research are provided based on the limitations of this investigation and the researcher's experience.

## Summary of the Study









**Research Question 5**  
 To what extent would the integration of Experiential Education affect first-year EFL students' learning development as assessed by the KLSI 4.0?

**H<sub>0</sub>:** *If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model) they would not demonstrate development in their learning as assessed by the KLSI 4.0.*

**H<sub>1</sub>:** *If first-year EFL students are taught using Experiential Education (the Dynamic Matching Model) they would demonstrate development in their learning as assessed by the KLSI 4.0.*

**H<sub>0.1</sub>:** *There are no significant differences between the pre-test and post-test results of the EG*

**H<sub>1.1</sub>:** *There are significant differences between the pre-test and post-test results of the EG.*

**Data Collection**

- The KLSI 4.0 was used as a pre-test and post-test
- The Dynamic Matching Model as a treatment

**Data Analysis:** A paired samples t-test procedure was used with a critical t value of 2.09 in the row of 19 degrees of freedom and at the level of 0.05. (2 tailed hypothesis). \* Students' learning styles-typology are compared in terms of frequencies and percentages

**Results:** Post-test scores were higher with the following means:

**Learning Modes:**  
**CE:**  $t=2.17 / sig=0.05$     **RO:**  $t=2.31 / sig=0.03$   
**AC:**  $t=2.40 / sig=0.02$     **AE:**  $t=2.26 / sig=0.03$   
**\*Flexibility Level :**  $t=4.21$      $sig= 0.000$

**Learning style:** increased preference for the Experiencing, Initiating, Balancing &Deciding styles

**Backup Styles:** wider range of styles with a mean difference of 2.22

**Implications**

\*Experiential Education is recommended for EFL teachers and stakeholders in higher education to foster students' learning development.

\*Experiential Learning Centers are proposed for Algerian universities to develop students' learning abilities

**Conclusion1:**  
 The null hypothesis (H<sub>0.1</sub>) of NO difference is rejected and its alternative one (H<sub>1.1</sub>) is accepted and confirmed

**General Conclusion:**  
 The null hypothesis (H<sub>0</sub>) of NO development is rejected and its alternative one (H<sub>1</sub>) is accepted and confirmed. Thus, *Experiential Education has significantly positive effects on first-year EFL students learning development*

**Conclusion2:**  
 The null hypothesis (H<sub>0.2</sub>) of NO difference is rejected and its alternative one (H<sub>1.2</sub>) is accepted and confirmed

**H<sub>0.2</sub>:** *There are no significant differences between the CG's and EG's results in the post-test.*

**H<sub>1.2</sub>:** *There are significant differences between the CG's and EG's results in the post-test.*

**Data Collection**

- The KLSI 4.0 was used as a post-test for both groups
- The Dynamic Matching Model was implemented as a treatment

**Results:** EG's scores were higher with the following means:

**Learning Modes:**  
**CE:**  $t=2.04 / sig=0.05$     **RO:**  $t=2.19 / sig=0.03$   
**AC:**  $t=2.08 / sig=0.04$     **AE:**  $t=2.04 / sig=0.04$   
**\*Flexibility Level :**  $t=4.50$      $sig= 0.000$

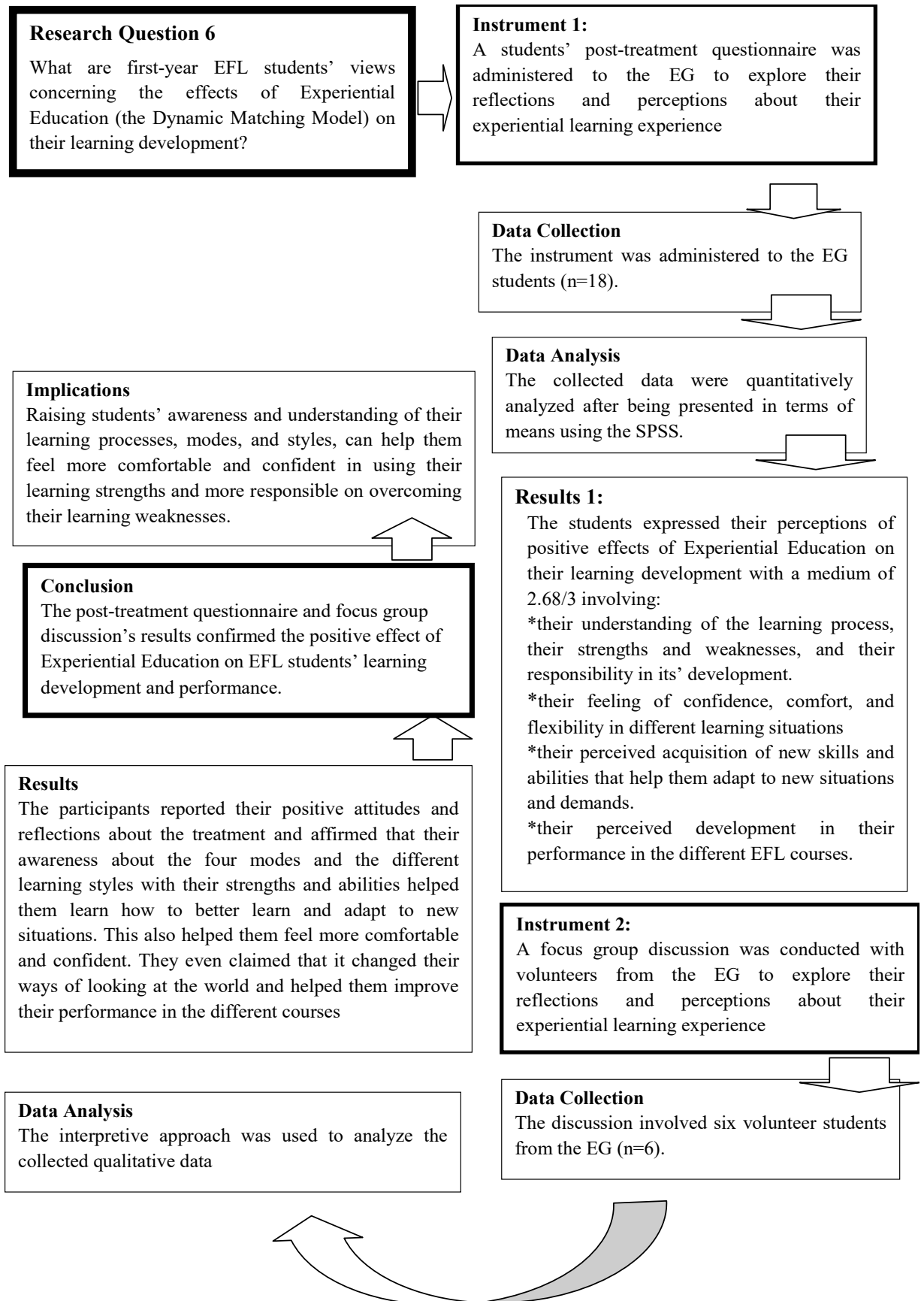
**Learning style:** The EG showed a higher preference for the Imagining, Balancing, Experiencing, and Acting styles that better match the EFL learning demands.

**Backup Styles:** EG developed a wider range of backup styles with a mean difference of 2.67.

**Data Analysis**

\*The independent-samples t-test procedure for data analysis with a critical t-value 2.04 in the row of 36 degrees of freedom and at the level 0.05 (2tailed hypothesis).

\*Students' learning styles-typology are also presented and compared in terms of frequencies and percentages



## References

- (n.d.). Retrieved January 22, 2023, from Association for Experiential Education:  
<https://www.aee.org/what-is-experiential-education>
- Adetunji, P. G. (2004). An evaluation of David Kolb's theory of learning styles. *Ilorin Journal of education* , 23, pp. 39-47.
- Allinson, C. W., Hayes, J., & Davis, A. (1994). Matching the cognitive styles of management students and teachers: A preliminary study. *Perceptual and Motor Skills* , 79, pp. 1256-1258.
- Angelo, T. A., & Cross, P. (1993). *Classroom assessment techniques*. San Francisco, CA: Jossey-Bass.
- Bain, K. (2004). *What the best college teachers do*. Cambridge, MA: Harvard University Press.
- Baker, R. E., Simon, J. R., & Bazeli, F. P. (1987). Selecting instructional design for introductory accounting based on the experiential learning model. *Journal of Accounting Education* , 5, pp. 207-226.
- Bhattacharjee, A. (2012). *Social science research: Principles, methods and practices* (2nd ed.). University of South Florida: Scholar Common.
- Boud, D. J. (2013). *Enhancing learning through self-assessment*. New York, NY: Routledge.
- Boud, D. J., & Falchikov, N. (2006). Aligning assessment with longterm learning. *Assessment and Evaluation in Higher Education* , 31 (4), pp. 399-413.
- Bouguerne, A. (2013). *The relationship between students' learning styles and their performance in the oral expression course: the case of first year LMD students at the Department of English Language and Literature at Setif2 University*. University of Algiers2 Bouzareah (An unpublished dissertation submitted in

partial fulfilment of the requirement for the magistere degree in the Linguistics and Didactics of English).

- Boyatzis, R. E., Cowen, S. S., & Kolb, D. A. (1995). *Innovation in professional education: Steps on a journey from teaching to learning*. San Francisco, CA: Jossey-Bass.
- Boyatzis, R., & Kolb, D. A. (1995). From learning styles to learning skills: The executive skills profile. *Journal of Managerial Psychology*, 10 (5), 3-17.
- Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, 18 (1), pp. 32-41.
- Bruner, J. (1968). *Process of cognitive growth: Infancy*. Worcester, MA: Clark University Press.
- Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research*. Houghton Mifflin Company.
- Chapman, L. A. (2006). *An exploration of executive coaching as an experiential learning process within the context of the integrated experiential coaching model (unpublished dissertation)*. Middlesex University, Western Cape, South Africa.
- Chapman, S., McPhee, P., & Proudman, B. (1995). What is experiential education? In K. Warren, *The theory of experiential education* (pp. 235-248). Dubuque: Kendall/ Hunt Publishing Company.
- Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education*. New York, NY: Routledge Taylor and Francis Group.
- Cornett, C. E. (1983). *What you should know about teaching and learning styles*. Bloomington, IN: Phi Delta Kappa Educational Foundation.



- Creswell, J. W. (2005). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (2nd ed.). Upper Saddle River, NJ: Pearson.
- Darkenwald, G. G., & Merriam, S. B. (1982). *Adult education: Foundations of practice*. New York: Harper and Row.
- Darling-Hammond, L., & Snyder, J. (2000). Authentic assessment of teaching in context. *Teaching and Teacher Education* , 16, pp. 523-545.
- Davenport, J. I., & Davenport, J. A. (1985). A chronology and analysis of the andragogy debate. *Adult Educational Quarterly* , 3 (35), pp. 152-159.
- Davidson, G. V. (1990). Matching learning styles with teaching styles. Is it a useful concept in instruction? *Performance and Instruction* , 29 (4), pp. 36-38.
- Denscombe, M. (2008). Communities of practice: A research paradigm for the mixed approach. *Journal of Mixed Methods Research* , 2 (3), pp. 270-283.
- Dewey, J. (1933). *How we think: A restatement of the relation of reflective thinking to the educative process* . New York, NY: D.C. Heath and Company.
- Dewey, J. (1897). My pedagogic creed. *The School Journal* , 3 (54), pp. 77-80.
- Dörnyei, Z. (2007). *Research methods in applied linguistics: Quantitative, qualitative, and mixed methodologies*. Oxford: Oxford University Press.
- Dunn, R. (2000). Capitalizing on college students' learning styles: Theory, practice, and research. In R. Dunn, & S. A. Griggs (Eds.), *Practical approaches to using learning styles in higher education* (pp. 3-18). Connecticut: Bergin & Garvey.
- Eagleton, S., & Muller, A. (2011). Development of a Model for whole brain learning of physiology. *Adv Physiol Educ* , 35 (4), pp. 421-426.
- Eickmann, P., Kolb, A. Y., & Kolb, D. A. (2004). Designing learning. In M. a. New, F. Collopy, & R. Boland (Eds.). Stanford, CA: Stanford University Press.

- Entwistle, N. (1981). *Styles of learning and teaching: An integrated outline of educational psychology for students, teachers, and lecturers*. New York, NY: Wiley.
- Gagne, R. M. (1984). Learning outcomes and their effects. *American Psychologists* , 39, 377-385.
- Gallimore, R., & Tharp, W. (2004). What a coach can teach a teacher, 1975-2004: Reflections and reanalysis of John Wooden's teaching practices. *The Sports Psychologist* , 18, pp. 119-137.
- Geary, W. T., & Sims, R. R. (1995). Adapting faculty and students learning styles: Implications for accounting education. In R. R. Sims, & S. J. Sims, *The importance of learning styles: Understanding the implications for learning, course design, and education* (pp. 117-128). Westport, CT: Greenwood Press.
- Grasha, A. F. (1994). A matter of style: The teacher as expert, formal authority, personal model, facilitator, and delegator. *Colledge Teaching* , 42, 142-149.
- Green, E. (2014). *Building a better teacher*. New York, NY: W.W. Norton & Company.
- Guilford, J. P. (1988). Some changes in the structure of intellect model. *Educational and Psychological Meseasurement* , 48, 1-4.
- Harrelson, G. L., & Leaver-Dunn, D. (2002). Using experiential learning cycle in clinical instruction. *Human Kinetics* , 7 (5), pp. 23-27.
- Hartel, R. W. (1995). Teaching and learning styles in food science. *Food Technology* , 49 (4), pp. 96-109.
- Hatch, E., & Lazaraton, A. (1991). *The research manual: Design and statistics for applied linguistics*. New York: Newbury House Publishers.

- Henning, E., Van Rensburg, W., & Smit, B. (2004). *Finding your way qualitative research*. Hatfield, Pretoria: Van Schaik Publishers.
- Jones, C., Reichard, C., & Mokhtari, K. (2003). Are students' learning styles discipline specific? *Community College Journal of Research and Practice* , 27, pp. 363-375.
- Kearney, S., & Perkins, T. (2014). Engaging students through assessment: the success and limitation of the ASPAL (Authentic Self and Peer Assessment for Learning) Model. *Journal of University and Teaching Practice* , 11 (3), pp. 1-14.
- Kember, D., & Gow, L. (1994). Orientations to teaching and their effect on the quality of students learning. *Journal of Higher Education* , 65, 58-73.
- Kenneth, S. B., & Bruce, B. A. (2011). *Research design and methods: A process approach* (8th ed. edition ed.). New York, NY: The McGraw-Hill Companies, Inc.
- Knowles, M. S. (1990). *The adult learner: A neglected species*. Houston, TX: Gulf.
- Knowles, M. S. (1980). *The modern practice of adult education: from pedagogy to andragogy*. New York: Cambridge Book Company.
- Knowles, M. S., & Associates. (1984). *Andragogy in action: Applying modern principles of adult learning*. San Francisco: Jossey-Bass.
- Knowles, M. S., Holton, E. F., & Swanson, R. A. (2015). *The adult learner: The definitive classic in adult education and human resource development* (8th edition ed.). Oxon: Routledge.
- Knowles, M. S., Holton, E. F., & Swanson, R. A. (2015). *The adult learner: The definitive classic in adult education and human resource development* (8th ed.). Oxon: Routledge.

- Koh, K., & Luke, A. (2009). Authentic and conversational assessment in Singapore schools: An empirical study of teacher assignments and student work. *Assessment in Education: Principles, Policy and Practice* , 16 (3), pp. 291-318.
- Koh, K., Tan, C., & Ng, P. T. (2012). Creating thinking schools through authentic assessment: The case of Singapore. *Educational Assessment, Evaluation and Accountability* , 24 (2), pp. 135-149.
- Kohonen, V., Jaatinen, R., Kaikkonen, P., & Lehtovaara, J. (2014). *Experiential learning in foreign language education*. London and New York: Routledge Taylor & Francis Group.
- Kolb, A. Y., & Kolb, D. A. (2018). Eight important things to know about the experiential learning cycle. *AEL: The Australian Educational Leader* , 40 (3), pp. 8-14.
- Kolb, A. Y., & Kolb, D. A. (2017). Experiential learning theory as a guide for experiential educators in higher education. *ELTHE: A Journal for engaged educators* , 1 (1), pp. 7-44.
- Kolb, A. Y., & Kolb, D. A. (2005). *Experiential learning theory bibliography: Volume 1 (1971-2005)*. Hay Group.
- Kolb, A. Y., & Kolb, D. A. (2012). *Experiential learning theory bibliography: Volume 3 (2011-2012)*. Hay Group.
- Kolb, A. Y., & Kolb, D. A. (2014). *Experiential learning theory bibliography: Volume 4 (2013-2014)*. Hay Group.
- Kolb, A. Y., & Kolb, D. A. (2019). *Experiential learning theory bibliography: Volume 6 (2017-2019)*. Hay Group.
- Kolb, A. Y., & Kolb, D. A. (2016). *Experiential learning theory bibliography-- Annotated: Volume 5 (2015-2016)*. Hay Group.

- Kolb, A. Y., & Kolb, D. A. (2010). *Experiential learning theory bibliography: Volume 2 (2006-2010)*. Hay Group.
- Kolb, A. Y., & Kolb, D. A. (2022). *Feedback report: Kolb learning style inventory 4.0*. Korn Ferry: David A. Kolb & Alice Kolb Experience Based Learning Systems, Inc.
- Kolb, A. Y., & Kolb, D. A. (2022). *Kolb learning style inventory 4.0: Feedback report*. Korn Ferry.
- Kolb, A. Y., & Kolb, D. A. (2005). Learning style and learning spaces: Enhancing experiential learning in higher education. *Academy of management learning and education* , 4 (2), pp. 193-212.
- Kolb, A. Y., & Kolb, D. A. (2006). Learning Styles and Learning Spaces: A Review of the Multidisciplinary Application of Experiential Learning Theory in Higher Education. In R. a. Sims, *Learning Styles and Learning: A key to meeting the accountability demands in education*. Nova Publishers.
- Kolb, A. Y., & Kolb, D. A. (2022). *The educator role profile: Personal report* . Alice Kolb & David Kolb Experience Based Learning Systems (EBLS), LLC.
- Kolb, A. Y., & Kolb, D. A. (2017). *The experiential educator: Principles and practices of experiential learning*. Kaunakakai, Hawaii: Experience Based Learning Systems.
- Kolb, A. Y., & Kolb, D. A. (2013). *The Kolb learning style inventory 4.0: A comprehensive guide to the theory, psychometrics, research on validity and educational applications*. EBLS: Experience Based Systems, Inc.
- Kolb, A. Y., Kolb, D. A., Passarelli, A., & Sharma, G. (2014, Jul 13). On becoming an experiential educator: The educator role profile. *Simulation & gaming* , 45 (2), pp. 204-234.



- Kolb, D. A. (1984). *Experiential learning: experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice Hall.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.
- Kolb, D. A. (1981). Learning styles and disciplinary differences. In A. W. Chickering, & Associates (Eds.), *The modern American college* (pp. 232-253). San Francisco: Jossey-Bass.
- Kolb, D. A., & Kolb, A. Y. (2005). *The Kolb Learning Style Inventory: Version 3.1. 2005 Technical Specifications*. Experience Based Learning Systems, Inc.
- Kolb, D. A., Boyatzis, R. E., & Mainemelis, C. (2001). Experiential learning theory: previous research and new directions. In R. J. Sternberg, & L. Zhang (Eds.), *Perspectives on thinking, learning, and cognitive style: the educational psychology series* (pp. 227-247). Mahwah, NJ: Erlbaum.
- Kosower, E., & Berman, N. (1996). Comparison of pediatric resident and faculty learning styles: Implications for medical education. *The American Journal of the Medical Sciences* , 312, pp. 214-218.
- Kothari, C. R. (2004). *Research methodology: Methods and Techniques*. Daryaganj, New Delhi: New Age International Publishers.
- Kumar, R. (2011). *Research methodology: A step-by-step guide for beginners* (3rd Ed. ed.). Singapore: Pearson Education.
- Lewis, L. H., & Williams, C. J. (1994). Experiential learning: Past and present. In L. Jackson, & R. S. Caffarella, *Experiential learning: A new approach* (pp. 5-16). San Francisco: Jossey-Bass.
- Litchfield, B., & Dempsey, J. (2015). Authentic assessment of knowledge, skills, and attitudes. *New Directions for Teaching and Learning* , 142, pp. 65-80.

- Lodico, M., Spaulding, D., & Voegtle, K. (2006). *Methods in educational research: From theory to practice*. Jossey-Bass.
- Margolis, F. H., & Bell, C. R. (1984). *Managing the learning process: Effective techniques for the adult classroom*. Minneapolis: Lakewood.
- Matsuo, M. (2014). Instructional skills for on-the-job training and experiential learning: An empirical study of Japanese firms. *International Journal of Training and Development* , 18 (4), pp. 225-240.
- McCarthy, B. (1987). *The 4-mat system: Teaching to learning styles with right/left mode techniques*. Barrington, IL.: Excel, Inc.
- McDonald, B. (2020). *Improving teaching and learning through experiential learning*. Newcastle: Cambridge Scholars Publishing.
- McGoldrick, K., Battle, A., & Gallagher, S. (2000). Service-learning and the economics course: Theory and practice. *The American Economist* , 44, pp. 43-52.
- Merriam, S. B. (1998). *Qualitative research and case study applications in education*. San Francisco: Jossey-Bass Publishers.
- Milne, D., James, I., Keegan, D., & Dudley, M. (2002). Teacher's PETS: A new observational measure of experiential training interactions. *Clinical Psychology & Psychotherapy* , 9, pp. 187-199.
- Mollaie, F., & Rahnama, H. (2012, November). Experiential education contributing to language learning. *International Journal of Humanities and Social Science* , 2 (21), pp. 268-279.
- Morse, J. M. (1991). Strategies for sampling. In J. M. Morse, *Qualitative nursing research: A contemporary dialogue* (pp. 127-145). Newbury Park, CA: Sage.

- Onwuegbuzie, A. J., & Daley, C. E. (1998). Similarity of learning styles of students and a teacher in achievement in a research methods course. *Psychological Reports* , 82, pp. 163-168.
- Ornstein, R. E. (1977). *The psychology of consciousness*. New York, NY: Harcourt Brace Jovanovich.
- Passarelli, A. M., & Kolb, D. A. (2021 in press). The learning ways: Learning from experience as a path of lifelong learning and development. In *Handbook of lifelong learning* (2nd ed.). New York: Oxford University Press.
- Patton, M. Q. (1990). *Qualitative evaluation and research methods*. New York, NY: Sage Publications.
- Piaget, J. (1950). *The psychology of intelligence*. London: Routedledge and Kegan Paul.
- Prosser, M., & Trigwell, K. (1999). *Understanding learning and teaching: The experience in higher education*. Buckingham: SRHE & Open University Press.
- Purkiss, W. (1995). Learning styles and the changing face of community colleges. In R. R. Sims, & S. J. Sims, *The importance of learning styles: Understanding the implications for learning, course design, and education* (pp. 79-98). Westport, CT: Greenwood Press.
- Raschick, M., Maypole, D. E., & Day, P. (1998). Improving field education through Kolb learning theory. *Journal of Social Work Education* , 34, pp. 31-43.
- Rogers, C. (1969). *Freedom to learn*. Columbus, OH: Charles E. Merrill Publishing Company.
- Ruble, T. L., & Stout, D. E. (1991). Reliability and classifications stability, and response set bias of alternative forms of the learning style inventory (LSI-1985). *Educational and Psychological Measurement* , 51 (2), pp. 481-489.
- Sahlberg, P. (2010). *Finnish lessons*. New York, NY: Teachers College Press.

- Santos, P., Cook, J., & Hernandez-Leo, D. (2015). M-AssIST: Interaction and scaffolding matters in authentic assessment. *Educational Technology & Society* , 18 (2), pp. 33-45.
- Schemp, P. G., McCullick, B., & Mason, I. S. (2006). The development of expert coaching. In R. Jones, *The sports coach as educator: Reconceptualising sports coaching* (pp. 145-161). London, England: Routledge.
- Sharma, G., & Kolb, D. A. (2010). The learning flexibility index: Assessing contextual flexibility in learning style. In S. Rayner, & E. Cools, *Style differences in cognition, learning and management: Theory, research and practice* (pp. 60-77). New York, NY: Routledge.
- Silver, H., Strong, R., & Perini, M. (1997). Integrating learning styles and multiple intelligences. *Educational Leadership* , 55, 22-27.
- Sim, J., & Wright, C. (2000). *Research in health care*. The Netherlands: Nelson Thornes.
- Sims, R. R., & Sims, S. J. (1995). Learning enhancement in higher education. In R. R. Sims, & S. J. Sims (Eds.), *The importance of learning styles: Understanding the implications for learning, course design, and education* (pp. 1-24). Westport, CT: Greenwood Press.
- Sims, S. J. (1995). Experiential learning: Preparing students to move from the classroom to the work environment. In R. R. Sims, & S. J. Sims (Eds.), *The importance of learning styles; Understanding the implication for learning, course design, and education* (pp. 147-159). Westport, CT: Greenwood Press.
- Stock, K. L., & Kolb, D. A. (2021). The Experiencng Scale: An Experiential Learning gauge of engagement in learning. *Experiential Learning and teaching in higher education* , 4 (1), pp. 2-21.

- Streubert, J. H., & Carpenter, D. R. (1999). *Qualitative research: Advancing the humanistic imperative*. Philadelphia: JB Lippincott.
- Trigwell, K., & Prosser, M. (1996). Congruence between intention and strategy in university science teacher's approach to teaching. *Higher Education* , 32, 77-87.
- Trochim, W. (2006). *Research methods*. Knowledge Base.
- Varlas, L. (2010). Responding to the research: Harvey Silver and Matthew Perini address learning styles. *Education Update* , 52 (3), 1-3.
- Veres, J. G., Sims, R. R., & Locklear, T. S. (1991). Improving the reliability of Kolb's revised learning style inventory. *Educational and Psychological Measurement* (51), pp. 143-150.
- Wiggins, G. (1989). A true test: Toward more authentic and equitable assessment. *Phi Kappa Phi* , 70 (9), pp. 703-713.
- Willingham, D. T. (2005). Do visual, auditory and kinesthetic learners need visual, auditory and kinesthetic instruction? *American Educator* , 29 (2), 31-35.
- Willingham, D. T. (2009). *Why don't students like school: A cognitive scientist answers questions about how the mind works and what it means for the classroom*. San Francisco: Jossey Bass.
- Yamazaki, Y. (2002). *Learning styles and typologies of cultural differences: A theoretical and empirical comparison* . Working paper 02-1. Department of Organizational Behavior, Case Western Reserve University.
- Yin, R. (2003). *Case study research*. Sage Publishers.
- Zhang, L. F., Sternberg, R. J., & Rayner, S. (2012). Intellectual styles: Changes, milestones, and agenda. In L. F. Zhang, R. J. Sternberg, & S. Rayner (Eds.), *Handbook of intellectual styles preferences in cognition, learning, and thinking* (pp. 1-20). New York: Springer Publishing Company.



Zull, J. (2011). *From brain to mind: Using neuroscience to guide change in education*.

Sterling, VA: Stylus.

Zull, J. (2002). *The art of changing the brain*. Sterling, VA: Stylus.

## **Appendices**

**Appendix A:** Students' Questionnaire

**Appendix B:** Teachers' Questionnaire

**Appendix C:** Korn Ferry Approval to use to the KERP

**Appendix D:** Kolb Educator Role Profile (KERP) Assessment

**Appendix E:** Research Application Form

**Appendix F:** Conditional Use Agreement

**Appendix G:** Korn Ferry Approval to Use the KLSI 4.0

**Appendix H:** KLSI 4.0

**Appendix I:** Feedback Report: KLSI 4.0

**Appendix J:** The Kolb Educator Role Profile

**Appendix K:** Pre-test, Post-test, and PAA Scores

**Appendix L:** Post-Treatment Questionnaire

**Appendix M:** Focus Group Discussion Schedule

**Appendix N :** A Request for Permission to Conduct Research

**Appendix O:** Students' Consent for Participation in the Research

**Appendix P:** Students' Pre- Focus Group Discussion Schedule

**Appendix Q:** Teachers' Pre- Focus Group Discussion Schedule



## Appendix A: Students' Questionnaire

*Students' Perceptions about Learning Styles and Learning in Higher Education: The Case of  
First Year Students at the department of English Language and Literature at Mohammed  
Lamine Debaghin University Sétif 2*

This questionnaire aims to explore EFL learners' perception about their learning styles and learning in higher education. The study invites you to answer sincerely and honestly for your great contribution to its success. There are no wrong and correct answers. Your answers will remain confidential and anonymous.

Please answer the following questions using a tick or a cross and provide full answer whenever it is required. Your contribution is highly appreciated.

Name:..... Age:..... Specialty at Secondary School:.....

### A. Students' Perceptions about Learning Styles

1. Do you know what a learning style is?  
Yes  No
2. Do you think that a learning style is
  - a. innate and cannot be changed
  - b. Changeable and flexible
3. Do you think that
  - a. Teachers must match and adapt their teaching styles to your learning style  
Yes  No
  - b. Teachers must use various teaching styles  
Yes  No
  - c. That teachers should match their teaching style and methods to the learning demands of the course  
Yes  No
  - d. Students need to adapt their learning styles to the teachers' teaching style  
Yes  No



e. Students need to adapt their ways of learning depending on the nature of the course  
Yes  No

4. Do you know what your learning style is?  
Yes  No

5. Do you consider yourself as someone who learns by.....

- a. Intuition and feeling based on personal past experiences so I learn best from small group discussions, videos, films, simulations and storytelling
- b. Rigorous thinking; emphasizing the definition and classification of abstract ideas and concepts so I prefer lecturing, reading and written assignments

And do you prefer.....

- c. understanding the ideas and situations relying on my observation, feelings, thoughts and judgment enjoying activities as personal journals, reflective essays, observation reports, thought questions and discussions
- d. Practical applications in real life contexts. So I learn best from fieldwork/ field projects, laboratory work, games, role plays and simulations

6. Do you think that your learning style is effective in your different courses?  
Yes  No

7. Do you think that you have the ability to adapt your learning style to the different teachers' teaching styles or the different learning situations and demands?  
Yes  No

8. Have you ever felt that your learning style does not fit the learning demands of certain courses and thus conducted to a poor performance in these courses?  
Yes  No

9. Have you ever faced any problems related to the mismatch between your learning style and teachers' teaching style?  
Yes  No

10. How do you feel when you are put in some learning situation that does not match your learning style?

- a. Frustrated
- b. Confused
- c. Excited
- d. Challenged



e. Indifferent

f. Other:.....  
.....

11. Do you think that understanding your strengths and weaknesses is important in the learning process?

Yes

No

12. Is your learning style effective for learning independently outside the classroom (autonomous learning)?

Yes

No

### B. Students' Perceptions about Learning in Higher Education

1. Do you believe that higher education's primary aim is:

a. Helping learners acquire the necessary knowledge for a good mastery of the English language and the different courses related to EFL

b. Helping learners learn how to learn

c. Not sure:

2. Have you perceived any differences in terms of the way you used to learn in the secondary school and the way you're learning at university?

Yes

No

Don't know

3. Have you perceived any differences in terms of the way you were taught in the secondary school and the way you're taught at university

Yes

No

Don't know

\* Are these differences more related to....

a. the materials used books, documents, written lessons

b. the content of the different courses

c. motivation

d. ways of learning

e. ways of teaching

f. objectives and goals

g. evaluation

Others:.....

.....  
.....

4. Based on your learning experience at university, do you think that there is more focus on:



- a. The content of the subject matter
- b. The development of the learning processes and abilities

5. Does learning at university help you to:

(Tick the right answer: Agree, A= Agree, N= Not sure, D= Disagree)

	A	N	D
1. understand your learning and evaluate my learning			
2. discover your learning style and preferences			
3. identify your learning strengths and weaknesses			
4. overcome your learning weaknesses			
5. feel more involved in the learning process			
6. develop your learning and thinking skills, strategies and abilities			
7. feel comfortable and confident in learning situations that mismatch your preference.			
7. become an autonomous learner able to learn outside the classroom			
8. be self-directed toward the achievement of planned goals			
9. adapt your learning styles and ways to different learning situations and demands			
10. be effective in your future career			
11. Understand your responsibility of improving your own learning in the classroom, real life situations, and future career			
12. Develop your knowledge about how to learn			

- 6. As an EFL university student, do you focus more on .....
  - a- Learning the content of the different modules related to EFL
  - b- Learning how to learn independently
- 7. Which one do you think is more important and should be focused on in higher education
  - a- All the knowledge required for learning and teaching EFL
  - b- Students' ability to learn how to learn

8. Do you think that your teachers adopt:
- a. a warm affirming style and create personal relationships with learners facilitating conversation in small groups
  - b. an authoritative, reflective style teaching by examples and modeling to encourage critical thinking.
  - c. *They adopt a collaborative, encouraging style, often working with individuals to help them learn from experiences in their life and assist in the creation of personal development plans*
  - d. *an evaluator and standard setter style* as they set the knowledge requirements needed for quality performance. They create performance activities for learners to evaluate their learning.

9. Which of the above four mentioned styles do you prefer?

a

b

c

d



## Appendix B :Teachers’ Questionnaire

Dear teachers,

You’re hereby invited to participate in my research Entitled: “Effect of Experiential Education on Students’ Learning Development”. This questionnaire aims to explore EFL teachers’ perceptions about learning styles and learning development in higher education. Therefore, I would be enormously grateful if you answer the following questions using a tick or a cross and provide full answer whenever it is required. Your contribution is highly appreciated.

Age: ..... Teaching Experience: ..... Degree:.....

### Section One: Teachers’ Perceptions about Learning Styles

Please choose the *yes* or *no* depending on your belief. Do you think that:

Statements	YES		NO	
	F	%	F	%
1. Learning styles (L.S.) are flexible and developmental				
2. Students can adapt their L.S. to the demands of the different courses				
3. Students’ learning is hindered by their L.S. weaknesses				
4. My students’ L.S. are effective for learning outside the classroom				
5. Students’ L.S. fit the learning demands of my courses				
6. I take my students’ L.S. into consideration in my teaching				
7. Teachers must match their teaching styles to their students’ L.S.				
8. I know what my students’ learning styles are				
9. Teachers must match their teaching style with the course learning demands				

### Section Two: Teachers’ Perceptions about Learning Development in Higher Education

Statements	YES		NO	
	F	%	F	%
1. Learning development is the most essential goal in higher education (H.E.)				
2. Teachers’ main role is to be content experts				
3. As a teacher at university I focus on developing my students’ learning abilities				
4. I use activities that aim at helping learners learn how to learn				
5. I take adult learning principles into consideration in my teaching				
6. I make efforts to help my students’ learn how to learn independently				



7. Students are open to new different teaching styles and methods				
8. I match my teaching style to my students' learning styles				
9. My teaching style is effected by the nature of the course being taught				
10.I have felt that my teaching is hindered by my students' learning				
11.Adopting a balanced variety of teaching styles and roles can help students' develop their learning abilities				
12.I adopt a balanced variety of teaching styles and roles in my lessons				
13.H.E. helps students develop their learning flexibility to adapt to the different learning situation and demands				

14. Do you consider yourself as a teacher who adopts (*You may choose more than one*):

e. *a warm affirming style* and create personal relationships with learners facilitating conversation in small groups

f. *an authoritative, reflective style* teaching by examples and modeling to encourage critical thinking.

g. *a collaborative, encouraging style*, often working with individuals to help them learn from experiences in their life and assist in the creation of personal development plans

h. *a standard setter style and evaluator style*: as I set the knowledge requirements needed for quality performance and create performance activities for learners to evaluate their learning.

15. Which of these styles do you think students prefer the most?

a.                       b.                       c.                       d.

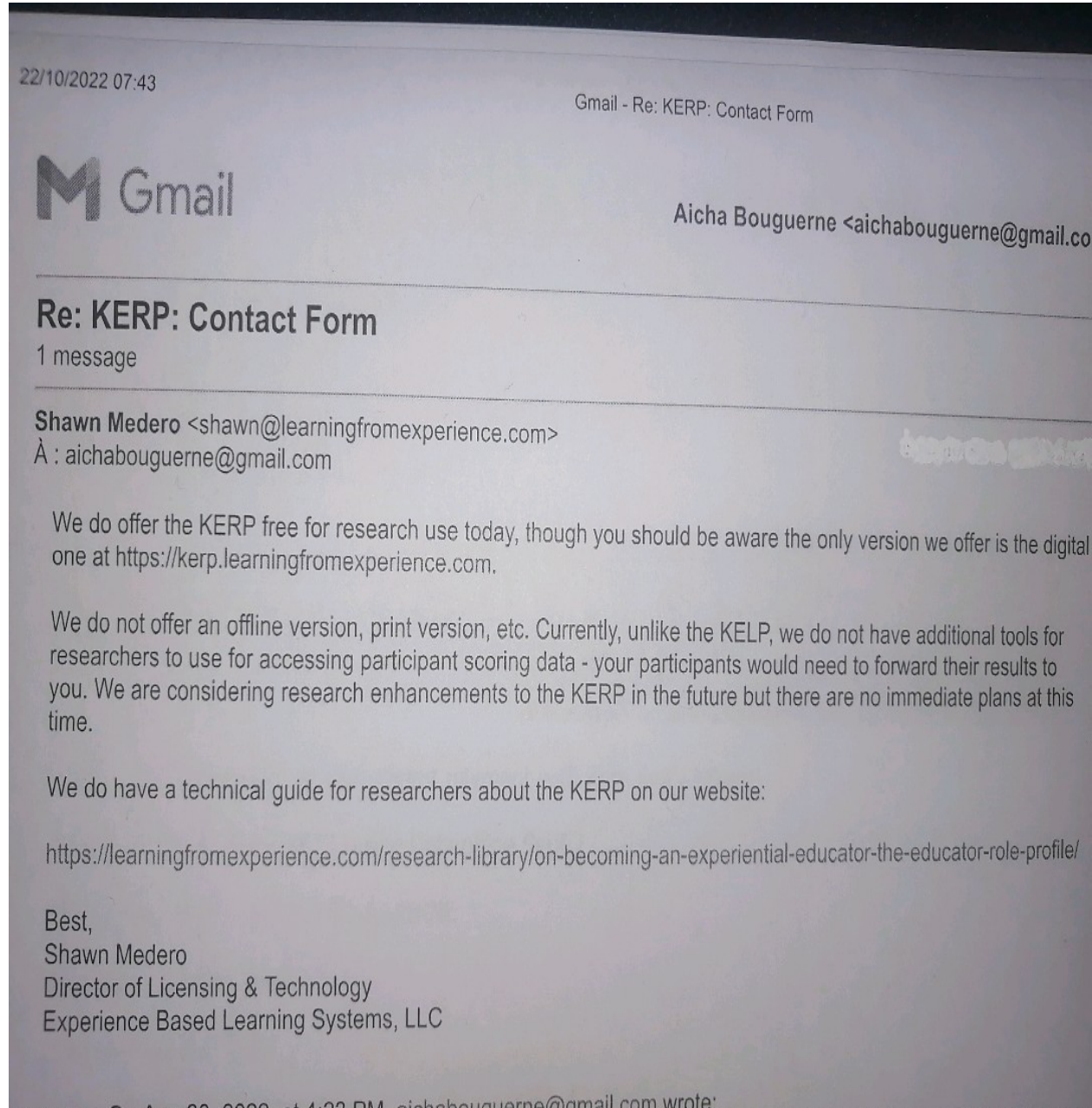
16. Which of them do you think is most effective for the EFL field in Higher Education?

a.                       b.                       c.                       d.

**Thank you for your participation!**



## Appendix C: Korn Ferry Approval to use to the KERP





## **Appendix D: Kolb Educator Role Profile (KERP) Assessment**

Dear Teachers,

You're hereby requested to take part of my PhD. Research entitled "Effect of Experiential Education on Students' Learning Development" by taking the Kolb Educator Role Profile Assessment.

The Kolb Educator Role Profile was created to help you clarify the role you prefer to take in helping others learn. This role includes your educational philosophy, your teaching style, the goals you set for learners, and the practices you use to promote learning. While the educator role is most often associated with teaching in the classroom or workshops, we also find ourselves taking it as a manager, consultant, parent or friend.

CHOOSE THE ALTERNATIVE THAT BEST DESCRIBES YOUR PREFERRED APPROACH TO ADUCATION FROM EACH OF THE ITEM PAIRS BELOW. If you are faced with a conflict between what you prefer in general and what you are required to do in a specific situation, choose your preference. If you don't feel that you have much experience as an educator, pick the alternative that you would like to do as an educator.

***Select a statement:***

***(The content of the KERP is omitted for copyrights reasons)***



## Appendix E: Research Application Form

Please fill out our application form with your biographical data, description of proposed research and attach a copy of your résumé or CV. Please email these documents to [business\\_office@kornferry.com](mailto:business_office@kornferry.com)

Name **AichaBouguerne**

Title/Position **Student**

Organization **Mohamed Lamine Debaghine Setif 2 University**

Address **200 logts. Universitaires n 69- Ain Mous**

City, State/Province **Setif**

Zip Code/Postal Code **19000**

Country **Algeria**

Phone **00213558048448**

Fax

E-mail **aichabouguerne@gmail.com**

Professional credentials or licenses: ***Master in Applied Linguistics and English Language Teaching***

*(Please attach your resume or CV)*

---

### Research Type:

**Doctorate**    **Masters**    **University Affiliated/Professor**



Corporate

Other

Please complete the following if you are a graduate student:

Thesis advisor: Pr.Said Keskes

University your advisor is affiliated with **Mohamed LamineDebaghineSetif**  
**2 University**

Address [REDACTED]

City, State/Province Setif

Zip Code/Postal Code 19000

Country Algeria

Phone [REDACTED]

Fax [REDACTED]

E-mail [REDACTED]

---

Instrument being used- please indicate one of the following. *LSI 3.1 paper, LSI 3.1 online or LSI 4.0: LSI 4.0*

**A. Description of research question and proposal hypotheses:**

My research is about the effect of experiential education on EFL students' learning development and it aims to answer the following questions:

1. What are first year EFL students' perceptions about learning styles and learning development in higher education?
2. What are EFL teachers' perceptions about learning styles and learning development in higher education?
3. What is the effect of experiential education on first-year EFL students' learning development as indicated by the KLSI 4.0 profile?
4. What students' perceptions about the effect of experiential education on their learning ?

It is hypothesized in this research that:



**"If EFL students are taught around the learning cycle using Kolb's Dynamic Matching Model they would demonstrate development in their learning profile as assessed by the KLSI 4.0."**

## **B. Description of sample to be studied:**

**The research Sample includes 40 male and female EFL students (20 in the experimental group and 20 in the control group) conveniently chosen from a population of 200 first year students at the Department of the English Language and Literature at Mohamed LamineDebaghineSetif 2 University. All the students are Algerians and their age is between 18 and 20 years.**

## **C. Description of other measures and data to be collected:**

**Both qualitative and quantitative are aimed to be gathered using:**

- 1. The KLSI 4.0 in the pre-test and the post-test phases**
- 2. The KERP to evaluate teachers' use of the four roles**
- 3. The PAA to evaluate students' abilities development**
- 4. Students' Questionnaire to explore students' perceptions**
- 5. Teachers' Questionnaire to explore teachers' perceptions**
- 6. Post-treatment Questionnaire to explore students' reflections about the experiment and its effects**
- 6. Focus Group Discussion to explore students' perceptions about the effect of experiential education**

## **D. Please list your independent and dependent variable(s):**

**The independent variable in this research and all its hypotheses is the experiential education's dynamic teaching for teaching around the learning cycle as it is hypothesized to have impact on the**



following dependent variables: the EFL students learning styles (abilities) and their academic achievement

**E. Size of sample: 40 persons**

**F. Expected dates you will begin/complete project:**

July, 2022

**G. References:**

Kolb, A. Y., & Kolb, D. A. (2005). Learning style and learning spaces: Enhancing experiential learning in higher education. *Academy of Management Learning and Education*, forthcoming.

Kolb, A. Y., & Kolb, D. A. (2005). *The Kolb learning style inventory - version 3.1: Technical Specifications*. Boston, MA: Hay Resources Direct.

Kolb, A. Y., & Kolb, D. A. (2006). Learning styles and learning spaces: A review of the multidisciplinary application of experiential learning theory in higher education. In R. R. Sims & S. J. Sims (Eds.), *Learning and learning styles* (pp. 45 – 91). New York: Nova Science.

Kolb, A. Y., & Kolb, D. A. (2009). The learning way: Meta-cognitive aspects of experiential learning. *Simulation and Gaming: An Interdisciplinary Journal*, 40(3), 297–327.

Kolb, A. Y., & Kolb, D. A. (2014). On becoming an experiential educator: The educator role profile. A working paper.

Kolb, D. A. & Yeganeh, B. (2012). Deliberate experiential learning: Mastering the art of learning from experience. In Elsbach, K., Kayes, C. D., & Kayes, A. (Eds.). *Contemporary Organizational Behaviour in Action* (1st Ed.). Upper Saddle River, NJ: Pearson Education.

Kolb, D. A. (1971). *Individual learning styles and the learning process* (Working paper #535-71). Cambridge: MIT Sloan School of Management.

Kolb, D. A. (1976). *Learning Style Inventory*. Boston, MA: Hay Resources Direct.



- Kolb, D. A. (1981). Learning styles and disciplinary differences. In A. W. Chickering and Associates (Eds.). *The modern American college* (pp. 232–253). San Francisco: Jossey-Bass.
- Kolb, D. A. (1984). *Experiential learning: Experience as a source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.
- Kolb, D. A. (2000). *Facilitator's guide to learning*. Experience Based Learning Systems, Inc. Boston: TRG Hay/McBer Training Resources Group (distributors).
- Kolb, D. A., Boyatzis, R. E., & Mainemelis, C. (2001). Experiential learning theory. Previous research and new directions. In R. J. Sternberg & L. Zhang (Eds.), *Perspectives on thinking, learning, and cognitive style: The educational psychology series* (pp. 227–247). Mahwah, NJ: Erlbaum.
- Mainemelis, C., Boyatzis, R. E., & Kolb, D. A. (2002). Learning styles and adaptive flexibility: Testing experiential learning theory. *Management Learning*, 33, 5–33.
- Neuman, W. L. (2003). *Social research methods: Qualitative and quantitative approaches*. Sydney: Allyn & Bacon.
- Passarelli, M. A. & Kolb, D. A. (2012). Using experiential learning theory to promote students learning and development in programs of education abroad. In Micael Vande Berg, Michael Page, & Kris Lou. *Student Learning Abroad*. Sterling, VA.



## Appendix F: CONDITIONAL USE AGREEMENT

For good and valuable consideration, the receipt and legal sufficiency of which are hereby acknowledged, I hereby agree that the permission granted to me by the Korn Ferry ("KF") to receive and utilize the Learning Style Inventory ("LSI") is subject to the following conditions, all of which I hereby accept and acknowledge:

1. I will utilize the LSI for research purposes only and not for commercial gain.
2. I will pay to KF a fee per launch of \$3 for LSI3.1 online or \$\*\* for LSI4 online. KF will invoice monthly, and I agree to pay such invoices within thirty (30) days of the date of invoice. **\*\*Paper-based assessments used for research purposes only are provided free of charge.**
3. The LSI, and all derivatives thereof, is and shall remain the exclusive property of KF; KF shall own all right, title and interest, including, without limitation, the copyright, in and to the LSI.
4. I will not modify or create works derivative of the LSI or permit others to do so. Furthermore, I understand that I am not permitted to reproduce the LSI for inclusion in my thesis/research publication.
5. I will provide KF with a copy of any research findings arising out of my use of the LSI and will cite KF in any of my publications relating thereto.
6. To translate the LSI, I need specific permission from KF. If permission is granted, I will use the translation for my research only, and I am not permitted to include this translation in my thesis/research publication.
7. KF will have no obligation to provide me with any scoring services for my use of the LSI other than the Algorithm used to score results.



8. KF will not be deemed to have made any representation or warranty, express or implied, in connection with the LSI, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.
9. My rights under this Agreement are non-transferable and non-exclusive and will be limited to a period of two (2) years from the date of this Agreement.
10. KF may immediately terminate this Agreement by giving written notice to me in the event I breach any of this Agreement's terms or conditions.
11. This Agreement will be construed in accordance with the laws of Pennsylvania without recourse to its conflict of laws principles.
12. This Agreement may not be assigned by me without the prior written consent of KF.
13. Failure by KF to enforce any provisions of this Agreement will not be deemed a waiver of such provision, or any subsequent violation of the Agreement by me.
14. This is the entire agreement with KF pertaining to my receipt and use of the LSI, and only a written amendment signed by an authorized representative of KF can modify this Agreement.

Agreed and understood:

Signature

Print Name

Date

*Bouguerne*

AichaBouguerne

15.01.202



## Appendix G: Korn Ferry Approval to Use the KLSI 4.0

22/10/2022 11:09 Gmail - KLSI 4.0

**M Gmail** Aicha Bouguerne <aichabouguerne@gmail.com>

---

**KLSI Research Request**  
5 messages 16 janvier 2020 à 17:59

**Business\_Office** <Business\_Office@kornferry.com>  
À : "aichabouguerne@gmail.com" <aichabouguerne@gmail.com>  
Cc : Alice Kolb <aliceykolb@gmail.com>

Hello Aicha,

Congratulations!

We would like to inform you that your research request has been approved!

Best of luck,

**Britta Muldoon**  
Analyst, Commercial Operations  
Korn Ferry

33 South 6<sup>th</sup> St. Suite 4800 | Minneapolis, MN 55402  
Phone: (612) 337-8295  
Pronouns: She/Her

[www.kornferry.com](http://www.kornferry.com)

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---

**Aicha Bouguerne** <aichabouguerne@gmail.com> 19 janvier 2020 à 00:08  
À : Business\_Office <Business\_Office@kornferry.com>  
Cc : Alice Kolb <aliceykolb@gmail.com>

Thank you so much!  
[Texte des messages précédents masqué]



M Gmail

# 00639779: Welcome to Korn Ferry [ ref:\_00Df42ZqbX.\_5005GdFwtO:ref ]

8 messages

8 février 2021 à 20:01

KFADG Support2 <support2@kornferry.com>  
À : 'aichabougueme@gmail.com' <aichabougueme@gmail.com>

Hello Aicha,

Welcome to Korn Ferry! We are excited to be working with you!

We have created your client account on the platform and now we will require the Client Admin details to complete the setup.

Please provide the first name, last name and email address of the individual Admins.

First Name	Last Name	Email Address

Once we receive this from you, we will update your account and provide the Admins with login details along with training materials for them to learn how to use our platform and understand the process of setting up and launching an assessment.


We also added 2 free LSI credits to your account that you can use to test the features of the platform.

If you would ever like to share a compliment, suggestion, or any matter that might require escalation, please contact our manager, Nikola Fidrova, at Nikola.Fidrova@KornFerry.com

Thank you again for your partnership and for choosing Korn Ferry.

Kind Regards,

The Korn Ferry Operations Team

 id:image004.png@01D62685.565E4A20

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For information about how we protect and use personal information go to: [www.kornferry.com/privacy](http://www.kornferry.com/privacy)

ref:\_00Df42ZqbX.\_5005GdFwtO:ref

Aicha Bougueme <aichabougueme@gmail.com>  
À : KFADG Support2 <support2@kornferry.com>

11 février 2021 à 21:06

I'm really grateful for your help and cooperation. I'm the the only admin.

First Name: Aicha  
Last Name: Bougueme  
E-mail: aichabougueme@gmail.com



**KORN FERRY**

## Welcome Aicha Bouguerne

Welcome to the Korn Ferry Surveys Administration Center. This site enables you to administer survey assessments individually or as part of a program.

Find Participants

### What would you like to do?

- Create a new project
- Create a project to administer surveys for one or more participants.
- View participants
- View and modify participants, the raters they have nominated and their survey status.
- View projects
- View and manage your projects: manage participants/raters, check survey status, send email reminders and create feedback reports.

### Calendar

3 projects start in the next 5 days.

### Available Billing Credits

LSI

My Account

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## Appendix H: KLSI 4.0

### KOLB LEARNING STYLE INVENTORY 4.0

There are a total of 20 items for this survey, all of which must be answered. To respond these items, consider some of the learning situations you have been in recently. Remember that learning happens everywhere in your life not just in school. Each item consists of a sentence beginning followed by 4 possible sentence endings. You need to rank order the sentence endings according to how well each ending describes the way you learn. For example:

When I learn:	Least like	Less like	More like	Most like
I like to think about ideas	✓			
I like to deal with my feelings		✓		
I like to watch and listen			✓	
I like to be doing things				✓

In this example “I like to think about ideas” is the ending for **least like you**, and “I like to be doing things” is the ending for **most like you**.

- Use a tick to make your choice.

\*The KLSI 4.0 questions are omitted due to the Korn Ferry copyrights

Full name:	Group:
E-mail :	
Age:	
Specialty at secondary school:	



## **Appendix I: Feedback Report: KLSI 4.0**

# Feedback Report Kolblearningstyleinventory4.0

**University Mohamed Lamine Debaghine**



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Dear AichaBouguerne

Congratulations! You have successfully completed the Kolb Educator Role Profile. We are pleased to present you with this personal report of your result.

We welcome your questions and comments. Email us at: <https://learningfromexperience.com/contact/>

Sincerely,  
The EBLS Team



## The Kolb Experiential Role Profile

© 2022 Alice Kolb & David Kolb Experience Based Learning Systems (EBLS), LLC

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EBLS can be found online at: <https://learningfromexperience.com>

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## Appendix K : Pre-test, Post-test, and PAA Scores

### Control Group Pre-test Scores

Pre-Test									
P	CE	RO	AC	AE	Learning Style	Flexibility Score	Back-up Styles	Gender	Secondary School
C1	23	32	78	63	Deciding	0.63	Balancing, Thinking, Analyzing	F	S
C2	51	99	65	6	Reflecting	0.34	Analyzing, Thinking	F	L
C3	23	42	65	76	Deciding	0.83	Thinking, Balancing, Analyzing	M	L
C4	96	98	18	0	Imagining	0.12	Reflecting	F	L
C5	45	58	18	63	Experiencing	0.72	Thinking, Balancing, Imagining, Acting	F	L
C6	51	99	65	6	Reflecting	0.33	Analyzing, Thinking, Balancing	F	L
C7	95	58	27	19	Imagining	0.93	Balancing, Experiencing, Reflecting, Deciding, Initiating	F	L
C8	21	63	24	82	Balancing	0.44	Deciding, Thinking, Analyzing, Acting	F	L
C9	44	23	60	57	Acting	0.59	Balancing, Reflecting, Thinking, Analyzing	F	S
C10	45	19	59	56	Acting	0.58	Balancing, Reflecting, Thinking, Analyzing	F	L
C11	23	53	54	56	Thinking	0.59	Balancing, Deciding, Reflecting	M	S
C12	45	72	52	55	Balancing	0.85	Analyzing, Experiencing, Imagining, Thinking, Deciding	F	L
C13	23	32	78	63	Deciding	0.63	Balancing, Thinking, Analyzing	F	L
C14	24	85	60	50	Analyzing	0.30	Reflecting	M	S
C15	58	28	65	75	Acting	0.82	Thinking, Deciding, Balancing, Experiencing, Initiating	F	L
C16	71	95	43	12	Imagining	0.62	Initiating, Reflecting, Thinking, Analyzing	F	L
C17	46	22	59	56	Acting	0.60	Balancing, Reflecting, Thinking, Analyzing	F	L
C18	100	83	0	7	Imagining	0	Experiencing	F	L



### Control Group Post-test Scores

Post-Test						
CE	RO	AC	AE	Learning Style	Flexibility Score	Back-up Styles
51	63	88	19	Analyzing	0.83	Initiating, Imagining, Balancing, Thinking
23	85	64	50	Analyzing	0.31	Reflecting
20	29	76	64	Deciding	0.61	Balancing, Thinking, Analyzing
51	99	65	6	Reflecting	0.34	Analyzing, Thinking, Balancing
95	53	54	44	Experiencing	0.78	Balancing, Imagining, Initiating
28	80	68	49	Analyzing	0.31	Reflecting
40	71	53	56	Balancing	0.87	Analyzing, Experiencing, Imagining, Thinking, Deciding
19	31	77	63	Deciding	0.60	Balancing, Thinking, Analyzing
31	80	15	63	Balancing	0.35	Reflecting, Analyzing, Thinking
40	22	60	57	Acting	0.57	Balancing, Reflecting, Thinking, Analyzing
23	32	78	61	Deciding	0.63	Balancing, Thinking, Analyzing
65	92	22	17	Imagining	0.81	Balancing, Reflecting, Experiencing, Analyzing, Thinking
22	53	54	56	Thinking	0.59	Balancing, Deciding, Reflecting
25	84	60	49	Analyzing	0.27	Reflecting, Balancing
43	43	69	51	Thinking	0.88	Balancing, Imagining, Analyzing, Deciding
90	58	28	18	Imagining	0.91	Balancing, Experiencing, Reflecting, Deciding, Initiating
19	63	24	82	Balancing	0.42	Deciding, Thinking, Analyzing, Acting
49	86	23	50	Experiencing	0.18	Imagining



### Experimental Group Pre-test Scores

P	CE	RO	AC	AE	Learning Style	Flexibility Score	Back-up Styles	Gender	Specialty in S.S.
E1	100	82	0	8	Imagining	0	Experiencing	F	L
E2	89	76	18	17	Imagining	0.42	Deciding, Acting, Thinking, Initiating	F	L
E3	72	3	69	100	Acting	0		F	L
E4	31	58	94	56	Thinking	0.63	Reflecting, Analyzing, Balancing	F	S
E5	51	99	65	6	Reflecting	0.34	Analyzing, Thinking, Balancing	F	L
E6	23	62	22	82	Balancing	0.42	Deciding, Thinking, Analyzing, Acting	F	L
E7	30	80	18	63	Balancing	0.35	Reflecting, Analyzing, Thinking	F	L
E8	23	52	54	57	Thinking	0.48	Balancing, Deciding, Reflecting	F	S
E9	20	96	27	29	Reflecting	0.74	Analyzing, Thinking, Balancing, Imagining	F	L
E10	45	23	59	56	Acting	0.59	Balancing, Reflecting, Thinking, Analyzing	F	L
E11	45	71	54	56	Balancing	0.89	Analyzing, Experiencing, Imagining, Thinking, Deciding	F	L
E12	88	76	18	16	Imagining	0.42	Deciding, Acting, Thinking, Initiating	M	L
E13	23	86	59	52	Analyzing	0.28	Reflecting, Balancing	M	S
E14	92	63	39	28	Imagining	0.99	Reflecting, Thinking, Acting, Experiencing, Initiating	F	L
E15	30	96	88	3	Analyzing	0.63	Thinking, Balancing, Deciding	F	S
E16	43	24	59	56	Acting	0.58	Balancing, Reflecting, Thinking, Analyzing	M	S

E17	71	95	43	12	Imagining	0.62	Initiating, Reflecting, Thinking, Analyzing	F	L
E18	96	100	18	1	Imagining	0		F	L
E19	22	49	56	60	Thinking	0.56	Balancing, Deciding, Reflecting	F	S
E20	39	44	27	26	Reflecting	0.83	Balancing, Analyzing, Thinking, Deciding, Initiating	F	L

### Experimental Group Post-test Scores

Post-Test						
CE	RO	AC	AE	Learning Style	Flexibility Score	Back-up Styles
30	80	18	63	Balancing	0.33	Reflecting, Analyzing, Thinking
56	29	63	76	Acting	0.82	Thinking, Deciding, Balancing, Experiencing, Initiating
89	76	18	16	Imagining	0.42	Deciding, Acting, Thinking, Initiating, Balancing
53	99	67	9	Reflecting	0.36	Analyzing, Thinking, Balancing
40	43	28	28	Reflecting	0.84	Balancing, Analyzing, Thinking, Deciding, Initiating
92	70	46	15	Imagining	1	Balancing
95	53	54	44	Experiencing	0.78	Balancing, Imagining, Initiating, Reflecting, Analyzing
45	23	59	56	Acting	0.59	Balancing, Reflecting, Thinking, Analyzing
45	60	54	55	Balancing	0.90	Analyzing, Experiencing, Imagining, Thinking, Deciding, Balancing
45	58	18	63	Experiencing	0.72	Thinking, Balancing, Imagining, Acting, Analyzing
40	70	54	57	Balancing	0.88	Analyzing, Experiencing, Imagining, Thinking, Deciding
23	32	78	63	Deciding	0.63	Balancing, Thinking, Analyzing, Reflecting, Acting
20	76	69	55	Imagining	0.26	Reflecting, Balancing
96	72	49	12	Imagining	1	Balancing
74	58	24	60	Experiencing	0.98	Balancing, Thinking, Reflecting, Acting, Initiating, Imaginig
89	73	17	14	Imagining	0.41	Deciding, Acting, Thinking, Initiating, Balancing
97	55	56	43	Experiencing	0.80	Balancing, Imagining, Initiating, Reflecting, Analyzing
23	63	22	82	Balancing	0.42	Deciding, Thinking, Analyzing, Acting, Reflecting
19	88	63	51	Initiating	0.83	Analyzing, Experiencing, Imagining, Thinking, Deciding
57	28	65	76	Acting	0.83	Thinking, Deciding, Balancing, Experiencing, Initiating



### PAA Scores

Assessment rubric	Assessment Criteria	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20
Concret Experience	a. Objective description (2pts.)	1	1.5	0	2	1	2	1.5	2	1	1	0.5	1	0.5	2	1.5	1	1	1.5	1	2
(2pts.)	b. Subjective description of feelings, perceptions and thoughts	1	2	1	1	2	2	2	2	1	1	1	2	1	2	2	1	1.5	2	1	2
Total/4		2	3.5	1	3	3	4	3.5	4	2	2	1.5	3	1.5	4	3.5	2	2.5	3	2	3
Reflective Observation	a. Looking at the experience from the different points of views	2	1.5	1	1.5	2	2	1.5	2	1	2	1	1	1	2	1.5	0.5	0.5	1	1	1.5
(1pt.)	b. Finding explanations for the experience's participants' behavior	1	1	0.5	1	1	0	1	1	1	0.5	0.5	1	0.5	1	1	0.5	0	0.5	0.5	1
(1pt.)	c. Significant meaning of the different perspectives and behavioral analysis	0	1	0.5	0	1	0.5	1	1	0	0.5	1	0.5	0	0.5	1	0.5	0	0.5	0.5	0.5
Total/4		3	3.5	2	2.5	4	2.5	3.5	4	2	3	2.5	2.5	1.5	3.5	3.5	1.5	0.5	2	2	3
Abstract Conceptualization	a. The use of theoretical definitions of concepts and citations	1	1.5	1	0.5	1	1	0.5	1.5	0.5	1	1	1.5	1.5	1.5	1.5	1	0.5	1	0.5	1.5
(2pts.)	b. Application of concepts and theories to the experience	1	2	1.5	1	2	1	0	2	0.5	0.5	1.5	1.5	1	1	2	1	0.5	1	0.5	1.5
Total/4		2	3.5	3.5	1.5	3	2	0.5	3.5	1	1.5	2.5	3	2.5	2.5	3.5	2	1	2	1	3



Active Experimentation	a. Summary of the practical lessons derived from the experience	1	1	1	1	1	1	1	1	0.5	1	1	0.5	1	1	1	1	0.5	1	1	1
(1pt.)	b. Description of four effective action-steps to be more effective in the future	1	0.5	1	0.5	1	0.5	1	1	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0	0.5	0.5	0.5
(1pt.)	c. Description of one action-step based on what they learned about themselves as a result of writing this paper	1	0	0.5	0	1	0.5	0.5	1	0	0	0.5	0.5	0	1	1	0	0	0.5	0	0.5
(1pt.)	d. Originality of action-steps	1	1	1	0.5	1	1	1	1	0.5	0.5	0.5	0.5	1	1	1	0.5	0	1	0.5	0.5
Total/4		4	2.5	3.5	2	4	3	3.5	4	1.5	2	2.5	2	2.5	4	3.5	2	0.5	3	2	2.5
Integration, Synthesis, and writing	a. General layout, organization and integration of themes	1	1	1	0.5	1	1	0.5	1	0.5	0.5	1	1	1	1	1	0.5	0.5	0.5	0.5	1
(1pt.)	b. Clarity of the paper and and good writing	1	1	1	1	1	1	0.5	1	0.5	1	0.5	1	0.5	1	1	0.5	0	1	0.5	1
(2pts.)	c. Spelling and grammar errors	1	1.5	1	1	2	1	0.5	2	1	1.5	1.5	0.5	1	1.5	2	1	1.5	2	1.5	1.5
Total/4		3	3.5	3	2.5	4	3	1.5	4	2	3	3	2.5	2.5	3.5	4	2	2	3.5	2.5	3.5
Final Score/20		14	16.5	13	11.5	18	16.5	12.5	19.5	8.5	13	12	13	10.5	17.5	18	9.5	6.5	13.5	9.5	15



## Appendix L: Post-Treatment Questionnaire

Dear Students,

Now that the experiment we had together has ended, I'd like to know your feelings and thoughts about your experience in the oral expression course. These are mainly about your attitudes towards your experience with the dynamic matching model of experiential education and your perceptions about its effects of on your learning development. Your cooperation is so valuable and precious and I'm enormously grateful for it.

1. Do you feel that your learning experience in the oral expression course has helped you: *(Put a tick)*

	Agree	Not Sure	Disagree
10. better understand the learning process	20	0	0
11. understand your learning style and preferences	19	1	0
12. identify your learning strengths and weaknesses	20	0	0
13. overcome your learning weaknesses	15	3	2
14. feel that your learning style has changed	11	2	7
15. feel able to use learning modes you were not comfortable with before	15	2	3
16. feel you have more flexibility in your ways of learning	14	3	2
17. feel more involved in the learning process	16	1	3
18. develop your learning skills, strategies and abilities	13	2	5
19. feel comfortable and confident in learning situations you don't prefer	15	2	3
20. become an autonomous learner able to learn outside the classroom	16	0	4
21. be self-directed toward the achievement of planned goals	14	4	2



22. adapt your learning styles and ways to different learning situations and demands	16	2	2
23. acquire necessary skills for your future career	13	5	2
24. understand your responsibility over improving your own learning inside and outside the classroom	18	2	0
25. develop your capacities to learn how to learn	16	4	0
26. be more effective as an EFL student	15	4	1
27. enhance your performance in the oral expression course	18	2	0
28. enhance your performance and learning in the other courses	12	5	3
29. be better able to cope with different teaching styles	18	2	0
30. change my attitudes and perceptions in everyday life	9	7	4

***Thank you VERY MUCH for your cooperation!***



## **Appendix M: Post-treatment Focus Group Discussion Schedule**

### **Introduction**

Good afternoon ladies,

I've invited you today to talk about our 12-session experiential learning experience in the oral expression course. After your participation in the experiential learning sessions and being involved the experiential dynamic matching model of teaching around cycle, I'd like to discuss your reflections about this learning experience and your perceptions about the effect of experiential education on your learning and performance. Consequently, your sincere opinions and reflections are highly appreciated.

### **Main Discussion Schedule**

- Q1. How do you feel about your experiential learning experience in the OE course?
- Q2. Are there any changes you have noticed in your learning in general? What are they?
- Q3. Do you think that experiential education is an effective model for developing EFL students' learning?
- Q4. How has this experience affected your learning and performance in the different EFL courses?
- Q5. What are the positive and the negative aspects in your experiential learning experience?

***THANK YOU VERY MUCH FOR YOUR HELP AND COOPERATION***



## Appendix N :

### A Request for Permission to Conduct Research

Head of the Department of English Language and Literature  
Mohammed Lamine Debaghin Setif 2 University  
El Hidhab  
19000Sétif

Sir,

I, Aicha Bouguerne, request to be granted permission to conduct an Educational research for my PhD. Quasi-experimental research in the Linguistics and Didactics of English.

I am a PhD. candidate majoring in the Linguistics and Didactics of English in the Department of English Language and Literature at Mohammed Lamine Debaghin Setif 2 Univeristy.

My research topic is:

#### **THE Effect of Experiential Education on EFL Students' Learning Development**

The purpose of this research is to gain understanding about the effect of experiential education on EFL first-year students' learning development.

The research will take place through, questionnaires, pre-test and post-test, treatment through the application of the dynamic matching model of experiential education during my oral expression classes, in addition to a focus group discussion. The quasi-experiment study will be undertaken during the regularly scheduled sessions of my groups.

I am aware of the rights of the participants to consent to participation and withdraw. I will adhere to the moral and ethical principles as well as policy and practice as a researcher.

For reasons of anonymity and confidentiality the names of the participants will not be mentioned throughout the data and findings of the research, instead numbers will be used. The collected data will be used for research purposes only.

The direct benefits of this study for the department and participants is that the findings of the research will be shared with the stakeholders, and will add to the body of existing knowledge in EFL



and learning in Higher Education.

Thanking you in advance.

Yours Sincerely

**A. Bouguerne**

**Mob. Phone:** 0553421807

**E-mail:** [Aichabouguerne@gmail.com](mailto:Aichabouguerne@gmail.com)



## Appendix O:

### Students' Consent for Participation in the Research

I hereby consent to participate in the research entitled:

**THE EFFECT OF EXPERIENTIAL EDUCATION ON EFL STUDENTS' LEARNING  
DEVELOPMENT**

I understand I will take part of Mrs. Aicha Bouguerne quasi-experimental research during the oral expression sessions. I understand that, as a result, I will be required to take a questionnaire, a pre-test, a post-test, a Personal Application assignment, participate in a focus group discussion, and might be or not exposed to certain instructional treatment. I give my informed consent to the researcher to use the collected data for this research.

I understand that my data will be reviewed only by the researcher in charge of the study and that my confidentiality will be protected. I also understand that the researcher will use a pseudonym for me (no last name will be used) when writing the results of this research. This will serve to protect the confidentiality of my answers and performance.

Mrs. Aicha Bouguerne, the researcher, has explained the purpose of the study, the procedures to be followed, and the expected duration of the observation.

I acknowledge that I have had the opportunity to obtain additional information regarding the study and that any questions I have raised have been answered to my full satisfaction. Furthermore, I understand that I am free to withdraw my consent at any time and to discontinue participation in the study without prejudice to me.

Finally, I acknowledge that I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

**Participant's Signature** \_\_\_\_\_ **Date** \_\_\_\_\_

**Researcher's Signature** \_\_\_\_\_ **Date** \_\_\_\_\_



## **Appendix P: Students' Preliminary Focus Group Discussion Schedule**

### **Introduction**

Good afternoon ladies,

I've invited you today to discuss your opinions and perceptions of the difference between learning in higher education and learning at university, your learning styles, your adaptation to the learning demands of the different courses. Consequently, your sincere opinions and reflections are highly appreciated.

### **Main Discussion Schedule**

Q1. Based on your learning experience at university, have you conceived any differences in terms of the teaching methods between secondary school and university?

Q2. What about the learning demands or requirements of the different course?

Q3. Do you know what term learning Styles means? What do you know about it?

Q4. Have you ever faced any difficulties with your teachers' ways of teaching? Do you think that these difficulties are related to your learning style preferences?

Q5. Do you feel that your teachers are making any efforts to help you develop your ways of learning?

Q6. Do you think the main goal of higher education is to develop students' learning ways?

Q7. Do you feel that your learning ways are changing after getting to university?

***THANK YOU VERY MUCH FOR YOUR HELP AND COOPERATION***



## **Appendix Q: Teachers' Preliminary Focus Group Discussion Schedule**

### **Introduction**

Good afternoon ladies,

I've invited you today to talk about your perceptions of learning styles, learning development, and your practices regarding these two concepts. Consequently, your sincere opinions and reflections are highly appreciated.

### **Main Discussion Schedule**

Q1. What do you know about the term learning styles?

Q2. Do you take your students' learning styles into consideration? How?

Q3. Do you feel that your students have any difficulties with adapting their learning styles to the demands of the EFL courses?

Q4. Do you make any efforts to help your students better understand their learning styles?

Q5. Do you think that learning styles can be developed? If yes, do you try to help your students develop them?

Q6. Do you believe that the focus in higher education should be on equipping students with the necessary specialized knowledge or on helping them develop the necessary skills and abilities for their specialty?

***THANK YOU VERY MUCH FOR YOUR HELP AND COOPERATION***

## Résumé

L'enseignement supérieur devrait mettre davantage l'accent sur le développement des processus d'apprentissage des étudiants. Cependant, une étude préliminaire impliquant des enseignants et des étudiants de première année du Département de langue et littérature anglaises de l'Université Mohamed Lamine Debaghine Setif 2 a révélé les difficultés des étudiants à adapter leur apprentissage aux exigences de leurs cours et a montré que l'accent était mis sur la présentation de contenu d' EFL (l'anglais comme langue étrangère) plutôt que sur le développement de l'apprentissage des étudiants. Ainsi, parce que l'éducation expérientielle est largement recommandée pour l'enseignement supérieur, cette étude a tenté d'étudier son efficacité dans la promotion du développement de l'apprentissage des étudiants EFL telle qu'évaluée par le Kolb Learning Style Inventory4.0 (KLSI4.0). Par conséquent, un plan quasi-expérimental a été adopté impliquant un échantillon commodément sélectionné de 38 étudiants de première année d'EFL. Le groupe témoin (n=18) et le groupe expérimental (n=20) ont pris le KLSI 4.0 dans les phases pré-test et post-test pour évaluer leur apprentissage en fonction de leurs préférences de style, de l'utilisation des modes d'apprentissage, du niveau de flexibilité et des styles de sauvegarde. De plus, un traitement de douze séances utilisant le modèle d'appariement dynamique de l'éducation expérientielle a été appliqué au groupe expérimental qui a également pris le devoir de demande personnelle pour évaluer ses progrès d'apprentissage après les séances d'apprentissage par l'expérience. Les résultats du t-test ont révélé un développement significatif de leur apprentissage, comme indiqué par le KLSI4.0. De plus, un questionnaire post-traitement et une discussion de groupe ont été utilisés pour explorer les réflexions du groupe expérimental affirmant les effets positifs de cette méthode sur le développement et la performance des étudiants dans les différents cours de l'EFL. Par conséquent, l'éducation expérientielle a été recommandée pour développer les processus d'apprentissage des étudiants algériens.

**Mots clés:** Éducation expérientielle, enseignement supérieur, développement de l'apprentissage, flexibilité, modes d'apprentissage, KLSI 4.0, le modèle d'appariement dynamique

## ملخص

إن الحاجة المتزايدة لنقل التعليم العالي من مجرد إلقاء المحاضرات والدروس إلى تطوير عمليات تعلم الطلاب تعني التحول العاجل إلى نهج تعليمي يعزز المرونة والتعلم المستقل. لذلك ، يُعتبر التعليم التجريبي ونموذج المطابقة الديناميكي كأفضل دليل منطقي وعملي وواقعي لإجراء هذا التحول وتحقيق المزيد من الأهداف التنموية في التعليم العالي. ونتيجة لذلك، تهدف هذه الدراسة إلى التحقيق في فعالية التعليم التجريبي في تعزيز تنمية تعلم الطلاب كما يتضح من قدرات التعلم والمرونة. لذلك ، تم اعتماد تصميم المنهج المختلط شبه التجريبي الذي شمل عينة مختارة شكل ملائم من 38 طالبًا في السنة الأولى في قسم اللغة والادب الإنجليزي في جامعة محمد لمين إغين سطيف 2. أخذت كل من المجموعة الضابطة (ن = 18) ومجموعة التجربة (ن = 20) مقياس KLSI4.0 في مرحلة الاختبار المسبق. بعد ذلك، تم تطبيق اثنتي عشرة جلسة علاجية على المجموعة التجريبية التي أخذت أيضًا واجب التطبيق الشخصي لتقييم تقدم قدرات التعلم لديهم. بعد جلسات التعلم التجريبية بعد ذلك ، تم إجراء الاختبار اللاحق لكلا المجموعتين. كشفت مقارنة اختبار بين نتائج المجموعات في الاختبار القبلي والبعدي أن قدرات التعلم لدى المجموعة التجريبية ومرونتها قد تطورت بشكل ملحوظ. بعد العلاج. تم أيضًا تكييف أنماط التعلم للمجموعات التجريبية لتناسب شكل أفضل مع متطلبات الدورة التدريبية وتم الحصول على مجموعة واسعة من أنماط الدعم. كما تم استخدام استبيان ما بعد العلاج ومناقشة جماعية مركزة مع المجموعة التجريبية لاستكشاف انعكاسات التعليم التجريبي على تعلم واداء الطلبة اين تم تاكيد التأثير الإيجابي لهذا النوع من التعليم على تطور تعلمهم وأدائهم في اللغة الإنجليزية كلغة أجنبية مختلفة. نتيجة لذلك ، يوصى التعليم التجريبي لتطوير تعلم الطلاب في التعليم العالي.

كلمات مفتاحية: التعليم التجريبي ، التعليم العالي ، تطوير التعلم ، المرونة ، قدرات التعلم ، KLSI 4.0 ، نموذج المطابقة الديناميكي للتدريس حول دورة التعلم

## Abstract

This research aims to investigate the effects of Experiential Education through the Dynamic Matching Model of teaching around the learning cycle on first-year EFL (English as a Foreign Language) students' learning development as assessed by the Kolb Learning Style Inventory 4.0 (KLSI 4.0). For that reason, it started with exploring teachers' and first-year students' perceptions about learning styles and learning development at the Department of English Language and Literature at Mohamed Lamine Debaghine Setif 2 University. The data revealed the students' difficulties with adapting their learning to the demands of their courses and showed a perceived focus on the delivery of EFL content rather than the development of students' learning. The research proceeds then with a quasi-experimental stage that involved a conveniently selected sample of 38 first-year EFL students to test the effectiveness of Experiential Education in developing students' learning. Both the control group (CG) (n=18) and the experimental group (EG) (n=20) took the KLSI 4.0 in the pre-test and post-test phases and a twelve-session treatment using the Dynamic Matching Model of was applied to the EG. The t-test results revealed a significant development in the EG's learning modes' use and flexibility level. Their learning styles were also adapted to better match the EFL demands with a wider range of backup styles. Moreover, a post-treatment questionnaire and a focus group discussion were used to explore the EG's reflections affirming the positive effects of this method on students' learning development and performance in the different EFL courses. As a result, this study suggests the implementation of Experiential Education through the Dynamic Matching in the EFL classroom to help learners develop their learning abilities, styles, and flexibility to better match their different courses' demands. In addition, decision makers in the Algerian Higher Education are invited to create Experiential Learning Centers to provide both students and teachers with training opportunities to develop their Experiential Education knowledge and practices.

**Key Words:** Experiential Education, Dynamic Matching Model of Teaching around the Learning Cycle, learning development, learning cycle, learning flexibility, learning styles, Kolb Learning Style Inventory (KLSI 4.0).

### ملخص

يهدف هذا البحث إلى دراسة تأثير التعليم التجريبي من خلال نموذج المطابقة الديناميكي للتدريس حول دورة التعلم على تطور تعلم الطلبة في التعليم العالي. ولهذه الغاية، تم اعتماد تصميم الطريقة المختلطة شبه التجريبية التي تضمنت عينة مختارة من 38 طالباً في السنة الأولى في قسم اللغة والأدب الإنجليزي جامعة محمد لمين باغين سطيف 2. تم تحليل نتائج المجموعة الضابطة (n = 18) والمجموعة التجريبية (n = 20) في الاختبار القبلي والبعدى باستخدام إجراءات المجموعات المزدوجة والمستقلة في اختبار t-test. كشفت النتائج عن تأثير إيجابي ملحوظ للتعليم التجريبي على قدرات، وأنماط ومرونة تعلم الطلاب وفقاً لتقييم KLSI 4.0. بالإضافة إلى ذلك، فإن تصورات الطلبة التي تم استكشافها باستخدام استبيان لرضا الطلبة حول المعالجة بالإضافة إلى إجراء مناقشة جماعية مركزة قد أكدت أيضاً أن للتعليم التجريبي تأثيراً إيجابياً على تطور قدرات تعلم الطلاب وأدائهم في اللغة الإنجليزية كلغة أجنبية. وهذا يعني أن هذه النتائج تكشف عن فعالية التعليم التجريبي في تطوير قدرات التعلم لدى الطلبة والمرونة التي من شأنها أن تمكنهم من التكيف مع مواقف التعلم المختلفة ومتطلبات الدورات.

**كلمات مفتاحية:** التعليم التجريبي، التعليم العالي، تطوير التعلم، القدرات، المرونة، KLSI 4.0، نموذج المطابقة الديناميكي للتدريس حول دورة التعلم