Investigating the Effect of Activities Tiered by Cognitive Complexity on EFL Students’ Written Production
The Case of Third Year Students of English at L’arbi Ben M’Hidi University

A Dissertation Submitted to the Faculty of Letters and Languages, Department of English, in Partial Fulfilment of the Requirements for the Degree of
Master in Language Sciences and Teaching English as a Foreign Language

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2013-2014
DEDICATION

“In the name of Allah, the Most Gracious, the Most Merciful”

I dedicate this work to my mother, from whom I learnt that patience takes more courage than any action.

I dedicate this work to my father, my brothers and sister for their patience and their support. I also dedicate it to the rest of my family; aunts, uncles and cousins; and to all my old and new friends.
ACKNOWLEDGMENTS

All praise is first and foremost to Allah, the Most Gracious, the Most Merciful.

My deep gratitude is due to my supervisor Dr. Merrouche Sarah whose enlightened guidance and heartfelt encouragements made this work possible. I can never thank her enough for all the assistance and attention she gave me, but I would like to earnestly thank her for being a role model and a source of inspiration.

I would also like to thank Mrs. Bechoua for her kindness, help, and precious time.

I am grateful to Mr. Bouri, Mrs. Belkacem Bouricha, Mrs. Arrouf, Mrs. Khaldi and to Miss. Zaidi for their support and care. I will always be indebted to anyone who has ever showed the slightest interest in my work and in me as a student.
Abstract

In the overtly crowded Algerian EFL classrooms, teaching rarely responds to learners’ differences; therefore, an observer may spend a long time in such classrooms and never notice any instance of Differentiated Instruction. This study was twofold. It first attempted to examine the teachers’ awareness and ways of dealing with students’ differences. Secondly, it attempted to examine the effects of implementing one of the strategies of differentiation, namely tiered activities, on students’ written production. To support the first aim, a questionnaire to the English Department confirmed teachers at the University of Oum El-Bouagui was used as the instrument of gathering data. Twenty teachers responded to this questionnaire that aimed also at scrutinizing their knowledge and perceptions of differentiation. A one-group pre-test post-test pre-experiment was conducted to fulfil the second aim of the study, and twenty of the English third year students at the same university participated in this pre-experiment. The students received a one-size fits all activity in the pre-test, and based on their scores, they were divided according to their cognitive readiness into three levels. Each level received a matching activity in the post-test. These matching activities are the tiered activities that were structured by cognitive complexity. The results extracted from the questionnaire show that despite their awareness of the students’ differences, teachers seldom adapt their teaching to these differences; thus, they seem not to implement differentiation. Furthermore, the results obtained from comparing the pre-test and the post-test scores in the pre-experiment show that students’ written production is positively affected by the use of tiered activities.

**Key Words:** learners’ differences, Differentiated Instruction, differentiation, tiered activities, written production, one-size fits all activity, cognitive readiness, and cognitive complexity.
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GENERAL INTRODUCTION

1. Statement of the Problem
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4. Population and Sampling
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1. Statement of the Problem

A challenge daily met by every English as a Foreign Language (EFL) teacher is the one of teaching a large mixed ability class where the fact that learners are cognitively different often takes over, and beats to the ground any attempt to teach effectively and with equity. According to Baker and Westrup (2000), “a large class can be any number of students, if the teacher feels there are too many students for them all to make progress”. Thus the number of students attending a class is only felt heavy if the teacher is unable to meet all of their heterogeneous learning needs. While the problem may seem to be with this heterogeneity, the reality is that it is rather with the lack of adaptation to learners’ differences. However, how we do that remains an open question.

One-size fits all has been the easy way of dealing with the students’ diversity, and the prevailing portrait of Algerian EFL classrooms causing, therefore, an achievement gap between learners. In a regular classroom, learners are often classified into high, middle and low level students, and teaching to the middle is by convention the right way to teach. However, acknowledging the students’ levels of readiness and cognitive capacities is like acknowledging their heights in a gym class. It is not a statement of worth; it is one of reality (Tomlinson, 2001). In a foreign language classroom, diversifying one’s teaching and adapting it to learners’ levels may push those levels towards progress.

A concept based on the rationale that teaching to the norm does not work is called differentiated instruction (DI). It holds that delivering the same curriculum in a number of different ways may be the right way of teaching large multilevel classrooms. The most important principle of differentiated instruction is to meet the student at his current position, i.e., to instruct him within his Zone of Proximal Development (Tomlinson, ibid). This ZPD, as defined by Vygotsky (1978) is a metaphorical area of potential development; it is the difference between what a person is capable of learning alone and what s/he can do with the collaboration of teachers or more capable peers (Mitchell and Myles, 2004, p.196).

2. Aims of the Study

As sound as the rationale behind DI sounds, the Algerian EFL teachers may still find it new and complicated, for little quantitative research supports DI to date (Scott, 2012), and much of the qualitative research supporting it has been conducted on the American soil since the practice itself has its roots there (Chen, 2007). Therefore, the
first aim of this study is to examine teachers’ perceptions of students’ differences and to provide an overview of DI for EFL teachers seeking a better understanding of it in order to cope with those differences.

Even a deep understanding of the concept of DI is not much by itself. The teacher needs concrete strategies to implement. One of the used strategies in DI is the strategy of tiered activities. To differentiate instruction by using tiered activities does not mean to give more to do to the more advanced learners. It rather means varying the cognitive complexity and level of support, i.e., the scaffolding of those activities in a way that ensures the acquisition of the essential skills for all students while still being challenged each according to his or her level (Kingore, 2011). In other words, and according to Vygotsky (1986), students need to be engaged in activities that they find slightly beyond easy and comfortable or difficult enough for learning to happen (as cited in Kingore, ibid). However, complexity and difficulty are not synonymous. Complexity is defined in terms of the demands tasks make on the learners’ cognitive capacity, while task difficulty refers to the way learners perceive the task as a result of their abilities (Robinson, 2001). Thus, difficulty depends on the learner’s level while complexity can be manipulated to create difficulty. Based on this premise, the second aim of this study is to investigate the effect that tiered activities manipulated by cognitive complexity according to students’ levels has on their written production.

3. Research Questions and Hypotheses

The study is guided by the following questions:

- How do teachers treat and cope with students’ differences?
- What effect does differentiating instruction using tiered activities have on students’ written production?

Accordingly,

First, we hypothesise that students’ differences may be ignored by teachers, and thus differentiating instruction may be neglected.

Second, we hypothesise that using activities tiered by cognitive complexity would positively affect the students’ written production.

4. Population and Sampling

To test the first hypothesis of our research we dealt with the teachers of the Department of English at the University of Oum El Bouagui. The population consisting
of the confirmed teachers was handled the questionnaire to investigate their ways of dealing with students’ differences and their perception of DI. Due to the importance of argumentation for successful academic writing, we opted for working on the argumentative essay. This essay being part of the second year, third year and first year master program, we chose to work on third year students at the same department as a population of interest, for they have about enough but not much experience with this kind of essay. In other words, they have already been instructed about how to write an argumentative essay, but still do not fully master it which means that any change in their production can be perceived. A sample consisting of one group of third year students received the pre-experiment which was designed to test the second hypothesis.

5. Research Tools and Methods

Drawing on Robinson’s (2001) Cognition Hypothesis, our research was underlain by one of the strategies used while differentiating the instruction process according to learners’ levels of readiness; the strategy used was the tiered activities. The research was mainly of two parts. The first part took the form of a questionnaire, and the second part of the study was a one-group pre-test post-test design pre-experiment (Abbott & Mckinney, 2013) that consisted of a series of steps.

A questionnaire was designed for EFL teachers. Through this questionnaire we investigated the Algerian EFL teachers’ understanding and ways of dealing with students’ cognitive differences at the University of Oum El Bouagui. We also examined their knowledge and perceptions of DI.

The second part of the research started when we designed and gave the same writing task (the pre-test) to all the participants. In this writing task, which was of medium level of complexity, the students were invited to write an argumentative essay. The levels of complexity were manipulated through topic familiarity, scaffolding and perspective taking. Therefore, a familiarity test was given before the pre-test to allow us to choose the essay topics on its (the familiarity test) basis. After that, we evaluated the students’ written production. This evaluation was done primarily through measuring the errors in the essay organization then the linguistic accuracy. The essay organization was chosen as the essential skill to be acquired by all students of all levels since targeting an essential skill or concept is the basic effect that tiered activities are supposed to result in. Secondly, we chose to evaluate the linguistic accuracy in order to measure the other effects that manipulating task complexity has on students’ written production. A
holistic scale, which is one of the linguistic accuracy measures used in foreign language writing research, was chosen because it goes beyond counting a wide range of errors to judging their severity. The essays of the pre-test were then scored.

According to the scores of the first task (pre-test), students were divided into three groups: high level, medium level and low level, and a new task was assigned to them. This task was an argumentative essay writing task which was tiered by cognitive complexity; in this case we changed the topic of the essay from least to most familiar and added scaffolding and perspective taking to the assignments in order to match their complexity with students’ levels. The members of the high level group were given the most complex task to work on individually; those of the medium level were given a less complex task, and the low level ones were given the simplest task, for decreasing the complexity of the task allows the learners to direct more attention to the linguistic aspects of the task (Robinson, op.cit.). Scaffolding in this task took the form of an introductory text to the question of the essay. As a final step, we measured the students’ writing production in this tiered task (the post-test) and compared the findings with those of the non-tiered or the one-size fits all task (the pre-test).

6. Structure of the Study

The study is composed of four chapters. In the first chapter, we introduce, in a first section, DI by providing its definitions, history and theoretical background, principles, strategies and challenges. In the second section of the first chapter, we deal with the concept of activity as a first step then we analyze the strategy of tiered activities by cognitive complexity based on the Cognition Hypothesis model. The second chapter of the study is concerned with writing, academic writing and the writing production in a foreign language (FL). In this chapter we emphasize the importance of the argumentative essay in the students’ academic success. In the third chapter, we deal with the questionnaire of this study. We present the data gathered through this questionnaire, the analysis and the interpretation of these data. In the final chapter, we cover the one group pre-test post-test pre-experiment. The analysis of the data and the discussion of the results are displayed in this same chapter.
Chapter One: Differentiated Instruction

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Conclusion
Introduction

One might argue that in a country like the USA, where students typically come from different cultural backgrounds, DI is highly needed, whereas it is not in Algeria, where diversity in schools is hardly apparent. However, diversity goes much deeper than one’s origin or mother tongue. Being different is what we all have in common; it is the result of what we have experienced, and the way we have internalized those experiences. Nevertheless in Algeria, like anywhere else, education is based on conformity not diversity. Its ultimate purpose is to find out what learners can do under a narrow spectrum of success, a spectrum standardized for every student, which results in many condemned to never taste any success. Blindfold education needs to break free and gain back sight. It needs to look the learner in the eye and see the human, and teachers need to stop teaching lessons and start teaching learners.

In this chapter, we introduce DI as a humanistic attempt to fix education. We tackle its tenets that are based on a strong belief in the uniqueness of each student and on teaching being responsive to that uniqueness. We overview some of DI strategies that can be implemented when teachers plan for the content of the lesson, when they deliver it and when students demonstrate learning. In this chapter, we also attempt to demonstrate that treating each learner, in a large classroom, as an individual may seem unconceivable for many teachers, yet it is feasible, for it is not more work; it is different work.

1.1. An Overview of Differentiated Instruction

1.1.1. Introducing Differentiated Instruction

Differentiated instruction goes by several names. It is sometimes called responsive instruction and in some others mixed-ability teaching, but for most it is known as differentiation. Consequently, it has almost as many definitions as names. Those definitions range from presenting it as a platonic philosophy to describing it as a systematic practice. Some have defined it as a theory, some as an instructional approach, and some others as a process (Schumm & Avalos, 2009, p. 145).

1.1.1.1. Definition of Differentiated Instruction

Gregory and Chapman (2007) along with Tomlinson (2001) are among those that perceive DI in abstract terms. Accordingly, the two authors define differentiation as “a philosophy that enables teachers to plan strategically in order to reach the needs of
diverse learners in classrooms today to achieve targeted standards” (op.cit, p. 2). Whereas, Tomlinson (2001) defines it as “a teaching theory based on the premise that instructional approaches should vary and be adapted in relation to individual and diverse students in classrooms” (p. 5). She also defines it as “an instructional approach that addresses the unique learning needs of each student in a classroom” (ibid).

Hall (2002) and Benjamin (2005) see differentiation in more concrete terms. For Hall (op.cit, p. 1) differentiation is “a process to approach teaching and learning for students of differing abilities in the same class. The intent of differentiating instruction is to maximize each student’s growth and individual success by meeting each student where he or she is”. For Benjamin (op.cit, p. 1), however, DI “refers to a variety of classroom practices that allow for differences in students’ learning styles, interests, prior knowledge, socialization needs, and comfort zones”.

DI, thus, is a complex concept and a highly systematic and detailed process based on the idea that teaching should be responsive to students’ differences. This is a seemingly simple idea that suggests matching two complex entities: curricular standards and students’ needs. Thus, DI is both a philosophy and a practice (Fox & Hoffman, 2011, p. 10). It “is a concept that embodies both a philosophy of addressing individual needs of students in heterogeneous classrooms and the instructional approaches embedded within and supportive of that philosophy” (Schumm & Avalos, op.cit, p. 145).

1.1.1.2. Characteristics of Differentiated Instruction

Teachers may start with the idea of differentiation being a practice reinforced by a philosophy and have the best intentions regarding students, yet they fail to differentiate because of the complexity of the concept and its numerous details. This is why Tomlinson (2001) and others like Fox and Hoffman (op.cit) and Wormeli (2006) tried to provide a clearer image about DI by describing its characteristics.

First, DI is proactive. In contrast to reacting to learners’ needs and adjusting the lesson plan after it proves not working for all of them, in differentiated classrooms, teachers plan in advance the lesson in multiple ways. Counting on the knowledge they already have about the learners’ different needs, each plan they prepare will certainly fit one group of those learners. As a final step all they have to do is to fine-tune instruction to individuals if needed (Tomlinson, 2001, pp. 3-4).
Second, DI is more qualitative than quantitative. Teachers do not simply give more of the same task to advanced learners (Wormeli, op.cit, p.16). They rather change the nature of the task, stop practicing the mastered skill and move to the subsequent one.

Third, DI is rooted in assessment which is not just an evaluative way to know “who got it” by the end of a unit or a term. It takes place at the beginning to match the unit goals with the individuals’ needs, and then it takes place throughout the unit to test variation in interests and preferences and growth in readiness. It is a tool to build adequate learning experiences. Afterwards, students are able to demonstrate what they have come to master through a final assessment in differentiated ways (Tomlinson, 2001, p.4).

Fourth, DI is student centred. The teacher starts from the premise that students are positioned at different points of understanding, interest and preferences. They get engaged in different ways, get curious about and see meaning in different things, and develop in different speeds. Therefore, the teacher has to guide them towards this growth with whatever pace and through whatever path working for them. Her/his main concern is the student as an individual learner.

Fifth, DI is a blend of a whole class, group, and individual instruction. Tomlinson (ibid) presents the flow of instruction in a differentiated classroom as a wavy line with students coming together as a whole class at one phase, then form groups, or work individually, and come together again in cycles.

Sixth, DI is organic which means that teachers consider themselves as learners. They continuously try to discover more about how their students learn, for the match-making between the learning and the learner is their job, and it is an ongoing and dynamic process (Tomlinson, ibid, p. 5).

Seventh, DI evaluates differently. Students should be graded for learning even when they do not demonstrate the same knowledge at the same time as other learners. It is insensible to think that different students would prove to equally master the same thing by the grading period. It is, likewise, insensible to wait for each student to be ready and then test him/her individually. Therefore, test deadlines are still held, but sincere efforts and real development should count when it comes to grading (Wormeli, op.cit, p. 114).

1.1.1.3. What Differentiated Instruction Is Not

There are many misconceptions formed around DI by teachers eager to differentiate, not only because differentiation is new and complex, but also because few of these
teachers have ever been in a differentiated classroom as learners. Therefore, advocates of DI tried to remove those misconceptions by explaining what differentiation is not.

First, DI is not just a fad. Many teachers and researchers believe that differentiation is just one more instructional trend that will take its time then fade, but Tomlinson (1999, 2001) declares that differentiating is not optional; it is what a good teacher does. A good teacher accepts that learners are different. This acceptance has the power to engage them. Every teacher has to differentiate even if in small bits each time, for it is not “Something a teacher does every once in awhile and then is finished. DI is a philosophy that is backed up by practice.” (Fox & Hoffman, op.cit, p. 10)

Second, DI is not “Individualized Instruction”. Although individualization is highly sensitive to learners’ differences, it is unpractical. It results in fragmented and irrelevant learning experiences when tried with large heterogeneous classes. However, teachers should know when to work with the whole class, when to work with small groups and when to focus on individuals, for DI is built on both similarities and differences.

Third, DI is not chaotic. Teachers fear losing control over the classroom; however, in a differentiated classroom, the students’ movements and talking are purposeful, orderly and disciplined; they are guided by the teacher along with several simultaneous activities.

Forth, DI is not just a way to form homogeneous groups. Assigning students to groups is fluid and flexible. Differentiating teachers know when to construct groups based on the same levels and when to blend levels in order to take advantage of students’ strengths to complete a task that requires a variety of skills. They also know when to let students choose for themselves (Tomlinson, 2001, pp. 2-3).

Fifth, DI is not just tailoring the same suit of clothes. Differentiation is not to ask the ones who seem to understand what is being taught the most complex questions when the task given is too easy. It is not to assign easy to the less ready when difficult is an essential part of the instruction. It is not to tailor the same suit of clothes out of the same fabric to fit different sizes. Tomlinson (2001, p. 6) claims that this is a step towards differentiation, and it may turn out to be an effective strategy. However, she suggests that this is insufficient. What needs to be done is to change the nature of the instruction, to make it moderately challenging and respectful for all learners without cutting off its essence. It is not the size; it is the texture that needs change.
1.1.1.4. History of Differentiated Instruction

Tomlinson (1999, p. 17) states that DI is not “a recently hatched idea from wherever it is that educational ‘innovations’ begin”, but it is “a natural outgrowth of a burgeoning understanding of the ways children learn”. DI is also the natural outcome of the teachers’ desire to gain competence, creativity and professionalism as educators (Tomlinson, 2000, p. 1). Thus, DI is the result of the evolution of both learning and teaching. As we have already deduced, DI is a practice supported by a theory that acknowledges students’ differences in prior knowledge, readiness levels, learning styles, and interests which calls for responsive teaching that is appropriate to students’ diverse needs (Tomlinson & Kalbfleisch, 1998, p. 53). Accordingly, DI is mainly informed by works on cognitive psychology, brain research, special education practices and continuing observation in classrooms (Tomlinson, 1999; Santamaria, 2009).

Humanism and constructivism are two theoretical frameworks that join to form differentiation. While works of humanists like Maslow (1970), Dewey (1975) and others emphasise acknowledging individuality, potentiality, creativity, and freedom of the learner, constructivists like Piaget (1973) and Bruner (1960, 1990, 1996) believe that learning is a personal experience that is based on the individual’s prior knowledge and beliefs (as cited in Chen, op.cit, pp. 40-63). In this respect, the work of Csikszentmihalyi (1990) has greatly influenced the concept of differentiation. As a humanist and through his concept of ‘Flow’, he supports attending to students’ different interests and maintaining their engagement to enhance their learning results. ‘Flow’ is a state of consciousness where an individual obtains satisfaction and happiness by being completely absorbed in an activity that engages all his/her senses (as cited in Erickson, op.cit, p. 29). On the other hand, the social constructivist learning theory proposed by Vygotsky (op.cit) plays a major role in DI, for recognizing and responding to students’ differences are socially constructed. Vygotsky’s Zone of Proximal Development (ZDP) puts forward that instruction should be slightly above students’ readiness level, to moderately challenge learners to grow (Tomlinson, 1999, p. 19).

The founding of DI was saliently supported by multiple intelligence theory, cognitive styles, learning preferences and brain research. According to the multiple intelligence theory, intelligence has many facets. Several researchers like Thurstone (1924), Thorndike (1931) and Gardner (1983) have given different divisions and names to those intelligences (as cited in Tomlinson, 1999, p. 18). Gardner (1997; as cited in Erickson, op.cit, p. 30) asserts that eight intelligences exist: verbal-linguistic, logical-
mathematical, visual-spatial, bodily-kinaesthetic, musical-rhythmic, interpersonal, intrapersonal, and naturalistic; hence, learners vary in strengths and weaknesses, and teachers should be responsive. Another fact about intelligence is that it is fluid, so rich learning experiences increase it. Sternberg and Grigorenko (1995, 1997) suggested three major thinking styles which are analytical, creative, and practical (Caine & Caine, 1991; as cited in Tomlinson, 1999, P. 18). Research on cognitive styles and learning preferences also influenced DI. “Cognitive styles are characteristic ways of processing information that develop unconsciously around underlying personality trends” (Messick, 1994; as cited in Moreno, 2010, p. 48), while “Learning preferences (commonly called learning styles) are individuals’ approaches to studying and learning and differ from cognitive styles in that they are conscious inclinations that may be subject-specific” (Sternberg & Grigorenko, 2000; as cited in Moreno, ibid). According to Tomlinson (1999), brain research has given ample evidence to advocate the tenets of DI. She cites the work of researchers like Caine and Caine (1991, 1994, 1997), Jensen (1998), Kalbfleisch (1997) and Sylwester (1995) who assert that the brain looks for meaningful and patterned information that is organized around ideas and categories. It learns by seeking regularity and patterns and connecting familiar to new; and its physiology changes by vigorous learning. Therefore, it responds best to what it finds relevant, important, personal and interesting. Brain research recommends DI to teachers, for each student’s brain is unique, and what is familiar to one is unfamiliar to another. Furthermore, challenging students to actively engage in exploring what is new pushes their neurons to grow and develop (Tomlinson, ibid, pp. 18-19).

DI comes out of education research and practice; it is best portrayed through the movement of critical pedagogy. Thoughts of figures like Freire (1970) and Giroux (1981, 1983) nourished it (as cited in Orban, 2012, p. 8). Tomlinson (2005) argues that “the concept of differentiated instruction is at least as old as Confucius. He reflected its core meaning when he advised that people differ in their abilities. To teach them, he counseled, you have to start where they are” (p. 8). Centuries after Confucius, in the 1600s, differentiation became a necessity in the USA one-room schoolhouses where students of different ages, experiences and motivation met to learn in one classroom. Teachers knew they have to be flexible to teach the large variety of students that their classrooms could contain. Back then, it was a lot easier not to take for granted that learners are alike. Once that era gone, learners were put in different classrooms according to their chronological age; consequently, it became assumable that their
learning needs are the same, and differentiation disappeared (Tomlinson, ibid). Preston (1889), however, strived to raise awareness of students working at different paces, and encouraged teachers to build an environment for success. In 1912, the achievement tests were introduced and gaps in learners' abilities were revealed. A movement towards self-instructive textbooks began and it looked like students’ differences gained some recognition at last (as cited in Gundlach, 2012).

DI has its roots in special education for those with disabilities and in gifted education. These two types of education were the main interest of Tomlinson’s work in the 1990s. Over the years, Tomlinson shifted her attention to regular classrooms and set the basic principles of DI as it is known today. She has become by this fact the voice of differentiation (Bafile, 2009; Knowles 2009; as cited in Erickson, op.cit, p. 34). Tomlinson’s assertions were based on her own long and impressive career as a teacher, program administrator, writer and researcher. Although only a small portion of research proving the effectiveness of DI was conducted by her personally, her writings are cited in all the studies about differentiation. Tomlinson’s work opened the doors of regular classrooms to the practice of DI. It evolved to support and serve all learners, for all are special not only the disabled or the talented ones (Erickson, op.cit).

1.1.2. Elements of Differentiated Instruction

Various models of categorizing the elements, or areas, of DI have been suggested. However, we have chosen to focus on Tomlinson’s (1999, 2001, 2003, 2005) model, for it is the most prominent model (as cited in Erickson, op.cit). Tomlinson (2001, pp. 4, 72) claims that there are at least three curriculum elements that offer the teacher the opportunity to differentiate what students learn, how they learn it and how they demonstrate learning; those elements are respectively: content, process and product. Inside a classroom, these elements are inseparable. Therefore, it is tricky to think of differentiating one and leaving the others, but it is easier to focus on one at a time.

1.1.2.1. Differentiated Content

“Content is what she [the teacher] wants students to learn and the materials through which that is accomplished” (Tomlinson, 1999, p. 11). By “what” the author means the facts to know, the concepts and principles to understand and the skills to be able to perform (Krupičková, 2005, p. 28) or, in other words, the “input”, whereas “materials” are the ways through which students get access to what they are supposed to learn.
Usually the change happens at the level of the materials and mechanisms while what is being taught remains stable, but the latter can also be changed if need presents itself, especially when teaching a set of progressive skills like spelling, for example. Content can be differentiated through three main avenues namely: readiness levels, interests, and individual learning profiles, or it can be differentiated through the combination of two or all of them (we will tackle those avenues in more details when discussing the principles of differentiation). In practice, there are many strategies to differentiate content (Tomlinson, 2001, pp.72-73).

Many examples of how to differentiate by content have been suggested by Covery and Coyle (1996). One of them is to differentiate by text. This can be done when students work with spoken or written materials at different levels of complexity, abstractness, depth, breadth and challenge while the same basic fact or skill is targeted (as cited in Krupičková, op.cit, p. 28).

### 1.1.2.2. Differentiated Process

Tomlinson (1999, p. 11) defines process as “the activities designed to insure that students use key skills to make sense out of essential ideas and information”. She also describes these activities as opportunities to pass the input through one’s own filter of meaning and make it one’s own. For this reason she calls them “sense making activities”. Like content, process can be differentiated to respond to students’ levels of readiness, interest, learning profiles or a combination of them (Tomlinson, 2001, p.79).

Covery and Coyle (op.cit) suggest that different ways of differentiating process exist. One way is by differentiating support or scaffolding. The teacher must assist students of different levels by offering them different types and amounts of support like by giving them various explanations and resources or different amounts of time to process a given piece of information (as cited in Krupičková, op.cit, p. 32).

### 1.1.2.3. Differentiated Product

For Tomlinson (1999, p. 11) products are the “vehicles through which students demonstrate and extend what they have learned” while Heacox (2002) defines them as the end results of learning. For example, a product may be something tangible, like a report, brochure, or model; it may be verbal, like a dialogue, speech, or debate; or it may involve action, like a skit, mock
trial, or dance. Products reflect what students have understood and been able to apply. They show learning in use and may reveal new thinking and ideas. (p. 11)

Product is a long endeavour that reflects what students have come to learn over a long period of time which can be a unit, a semester or even a whole year. It is the students’ property that reflects their overall understanding and application. It can also serve as assessment that supplements, or replaces, tests. Products are supposed to allow students to demonstrate, think about, apply and expand on what they have learned (Tomlinson, 2001, p. 85).

Differentiating product is fine-tuning expectations according to what teachers know students are ready, interested and inclined to do while the core expectations or the basics to be demonstrated (knowledge, understanding, and skills) do not alter (Tomlinson, ibid, pp. 85-86). Products can be differentiated in a multitude of ways. Differentiating the outcome format is one way (e.g., writing an essay or giving an oral presentation); however, format is difficult to manipulate when it is part of the curriculum requirements (Tomlinson, 2001, p. 86). Therefore, Heacox (op.cit, p. 12) suggests differentiating by challenge or variety of choices. The former means expecting products that match the students’ potentials and interests, or challenging them to venture into new areas. The latter, which is choice, is also an option in DI. Mastery of concepts and demonstration of real competence must be the teachers’ priorities; the product format, the extra abilities manifested and the choices made are just means.

1.1.3. Principles of Differentiated Instruction

The fact that there is no single formula to differentiate instruction makes it a hard enterprise. It is one that must result from a deep understanding of DI underlying principles. Those latter are four fundamental from which other principles derive. According to Tomlinson (1999, 2001, 2003), Wormeli (op.cit) and others, the basic principles of DI are the following ones:

1.1.3.1. Attending to Students’ Differences

Individuals are far from being alike. This is a fact we learn and accept from an early age, yet we are the same in our longing for belonging, achievement and fulfilment (Tomlinson, 1999, p. 10). Differentiating teachers are well aware that their students
walk at different paces through different paths towards a common quest. Therefore, they strive to give the most adequate guidance and assistance. Readiness, interests and learning profiles are the three students’ characteristics that teachers can use to differentiate instruction (Tomlinson, 2001, p. 49).

Tomlinson (1999, p. 11) defines readiness as “a student’s entry point relative to a particular understanding or skill”, and by this she means the level of complexity at which a student is ready to work and develop (Tomlinson & Eidson, 2003, p. 4). Differentiating by readiness means providing students with a challenge that is slightly more difficult than what they can do alone then assisting them in overcoming this challenge (Fox & Hoffman, op.cit, p. 23). Students’ readiness is elaborately explained in the section 1.2.1.

Interest is one’s “affinity, curiosity, or passion for a particular topic or skill” (Tomlinson, 1999, p. 11). It is one of the strongest motives for engagement, but not all students share the same interests, which calls for differentiation. Teachers can either build their interest-based instruction on existing interests or create new ones in their students. Differentiating by interest can show students how relevant what they learn is to what they know and like to do (Tomlinson, 2001, pp. 52-53).

There are different conceptions to a learning profile and what it is composed of, but for Tomlinson (ibid, p. 60), it “refers to the way in which we learn best as individuals”. She also argues that it is composed of learning style, intelligence preference, gender and culture, with the first two being the main components.

Learning styles are defined by Ausubel, Novak and Hanesian (1978) as “self-consistent, enduring individual differences in cognitive organization and functioning” (as cited in Wilson, 1998, p. 3). Although the dichotomies and the labels created by learning style research (like verbal vs. visual or holist vs. analytic) have been widely criticised, it is hard to deny that better learning results from attending to students’ special ways and preferred environments of learning (Tomlinson, 2001, pp. 61-62).

Intelligence preferences “refer to the brain based predispositions we all have for learning” (Tomlinson, ibid, p. 62). According to the two theorists Stenberg (1985) and Gardner (1993), brains are differently “wired”, i.e., individuals are predisposed to be better in some areas of intelligence than in others. Differentiating instruction according to students’ intelligence preferences means allowing them to work and develop within their areas of comfort and encouraging them to discover less comfortable areas too (as cited in Tomlinson & Eidson, op.cit, p. 186).
Culture is also one of the components of a learning profile since it influences the learner’s identity and ways of seeing and doing things related to learning. For example, it can determine whether learners are reserved or not about expressing emotions, or whether they work best as a team or individually. Every culture has its own view about learning; therefore, understanding learners’ diverse views will help the teacher create a flexible and encouraging classroom for all students (Tomlinson, 2001, p. 62).

The final constituent of a learning profile is gender. Distinct learning patterns exist amongst the two genders, yet the typical pattern of one gender is not followed by all its members. Hence, a differentiating teacher has to understand regular patterns like competitiveness in males vs. collaboration in females, and to be able to notice and respond to exceptions (Tomlinson & Eidson, op.cit, p. 186).

1.1.3.2. Ongoing Assessment

Assessment is a major part of DI. It is ongoing and mainly formative or diagnostic. It is a source of information that provides the data related to students’ differences upon which tomorrow’s instruction is built. It is the teachers’ way to discover where students are in order to help them move forward. Furthermore, even when it is used to evaluate students’ work at the end of a unit or a semester (when it is summative), assessment is supposed to inform and help teachers know their students more than to categorize them (Tomlinson, 1999, pp. 10-11).

According to Wormeli (op.cit), in a differentiated classroom, assessment has to be good, and good assessment has the following properties:
- It is integral to learning, and it advances it.
- It provides a clear idea where students are.
- It determines what is worth assessing according to the teachers’ overall goals
- It is highly formative and ongoing.
- Teachers are never reserved with assessment. Students never have to ask what will be included in a test. All that is important is included, and what is important is known.
- It focuses on what students know, understand and are able to do, i.e., it is based on students’ readiness and is often tiered.
- It is authentic to the class learning, and when appropriate it reflects real life.
- It is valid: it assesses what is meant to assess.
- It is reliable: it would always yield the same results.
- It is scheduled according to learning points not points of time.
– It calls for the use of different tools and skills.
– It is revealing of misunderstanding.
– It is conducted with multiple experiences over time (pp. 39-41).

1.1.3.3. **Flexible grouping**

In a differentiated classroom, students work in different ways and play various roles. Tomlinson (1999) describes this classroom by saying:

As in an orchestra composed of individuals, varied ensemble groups, sections, and soloists, the differentiated classroom is built around individuals, various small groups, and the class as a whole. They all work to ‘learn and play the score,’ albeit with varied instruments, solo parts, and roles in the whole. (P. 13)

Therefore, students may work individually, in pairs, in small groups or as a whole class, and this depends on the students’ learning needs. Groups are formed, changed or not formed at all for a specific instructional purpose, and this purpose is not mere collaboration since the teacher forms groups based on similar or dissimilar levels of readiness, interest, learning profiles or students’ own choices. The overall aim is to respond to their differences (Tomlinson & Eidson, op.cit, p. 185). The point, here, is that whatever the teacher’s decision regarding grouping, it has a basis discovered through assessment and it has a goal.

1.1.3.4. **Scaffolding**

Scaffolding is one of the basic principles of DI, and its tools form some of the major strategies of differentiation. The concept is defined by Wormeli (op.cit, p. 200) as:

The kind and extent of the teacher’s direct support of students; the teacher’s goal is to move from heavy scaffolding to zero scaffolding—we might provide many templates and direct instruction experiences early on, but then remove those structures incrementally as students build autonomy regarding the skill or concept.
In a differentiated classroom, scaffolding is crucial since teachers are supposed to moderately challenge students within their (ZPD) after they assess students’ levels of readiness. Tiered lessons, activities and assessments are designed to help students achieve all what they can achieve with the help of a more capable person. This person may be the teacher or a peer (Tomlinson, 2001, pp. 22-23). Scaffolding is, therefore, the help students receive, and by which they are pushed to surpass their current level of development to become finally autonomous in demonstrating a particular skill. Guidance during thinking, cues during problem solving, breaking down complex into simple, repeating the learning objectives and providing informational feedback are examples of scaffolding (Moreno, op.cit, pp. 91-92). Scaffolding tools are thoroughly explained in the subsection 1.1.4.2.

1.1.4. Strategies of Differentiated Instruction

An endless list of strategies by which teaching can be differentiated exists. The strategies and techniques are designed to help teachers with attending to students’ differences; any strategy that is used with this purpose in mind is a differentiating one. DI strategies are the instruments of good teaching which, according to Fox and Hoffman (op.cit, p. 62), “is like good jazz. Teachers need to be well versed in their teaching ‘instruments’ and tools at hand and be able to improvise when needed by pulling out new tools and giving them a try.” Through this section, we will present the strategies that are most relevant to our study.

1.1.4.1. Tiered lessons

The tiered lesson has the same learning objectives for all learners, but it provides different activities through tiers or groupings. Tiers can be made on the basis of students’ readiness, interests, or learning styles. Tiering, as a concept (to be dealt with in details in the subsection 1.2.2.3), means matching the difficulty of a question or a task to the students’ differences. To tier by readiness is to divide students into ability groups after pre-assessing them, and to provide each group with a task that is proper to their level. Another way to tier lessons is by interest. Students are asked to complement a task by choosing the option that suits their interest. Lessons of this type are most effective when the teacher uses interest inventories. A final way of tiering is by learning profile. When a teacher decides to tier a lesson by learning profile, s/he first has to investigate students’ learning preferences through the use of check lists or
questionnaires, for example. Tiering is only used when it is necessary and makes sense; all lessons do not have to be tiered (Tomlinson & Eidson, op.cit, p.190).

1.1.4.2. Scaffolding Tools

Scaffolding as a concept is one of the tenets of DI, and it is dealt with in the principles subsection 1.1.3.4. Scaffolding has also tools that form an instructional strategy through which students are supported to succeed in tasks that are moderately challenging (Tomlinson, 2001, p.22). Scaffolding tools can take many forms. They can be diagrams, hand gestures, pictures, extra explanations, examples of completed work, guidance and directions, clues, and any help that may facilitate understanding and task completion. All of this seems typical to any lesson, for what is teaching if not helping learning? However, in a differentiated classroom scaffolding is not the same for everyone. Its amount and tools change according to students’ differences. Fairness gains a new meaning; where one student needs extra verbal directions to complete a writing task, another needs a written model to follow (Fox & Hoffman, op.cit, p. 66).

1.1.4.3. Flexible Grouping

Forming groups of students based on differences between them and instructing them accordingly is a DI principle, and it is also one of its strongest strategies. It is used to reach a diversity of learners. Grouping should be associated with learning objectives (as we have mentioned before in the principles section). ‘Flexible’ implies that the teacher puts students into different arrangements according to their needs and to the learning context. Each student in the group is assigned a role (e.g., a leader, a monitor, a recorder or a reporter) that suits him/her. Flexible grouping and tiering form a good combination to challenge students at all levels along with providing assistance (Fox & Hoffman, op.cit, pp. 83-84).

1.1.5. Objections to Differentiated Instruction

For its advocates DI is synonymous with good teaching, and it is difficult to think of one teacher who would not want to practise good teaching. All teachers want their students to be engaged and motivated, to learn and grow so that none of them is left behind, to connect with what is being taught, to become responsible for their own learning, and finally to become autonomous (Hasty & Hakett, 2012, p. 6). However, not all of them opt for DI, for they find it contradictory to their beliefs and classroom realities; therefore, they object to differentiation as a concept and as a practice. Their
objections fall under three main types which are time, resources and complexity (VanSciver, 2005).

1.1.5.1. Time

Teachers usually think of DI as time consuming. Continuously pre-assessing students’ readiness, interests and learning profiles, planning for different ways to give the same lesson, and then adapting the instruction to the findings seem overwhelming considering that they have a big number of students to instruct and a program to cover. Schmoker (2010) concurs that instead of differentiating, teachers need to come up with one good plan for a really good lesson. It is a lesson that has clear objectives, guided practice, checks for understanding and continuous adjustment.

Tomlinson and Imbeau (2010) think that differentiation has not to be planned on top of everything; it is another way to plan everything (p. 137). According to them, pre-assessment saves teachers the time they spend amending wrongs caused by random decisions. Another point that has been discussed by Tomlinson (2001) is that differentiation is not individualization; it is actually feasible despite the large number of students. Finally DI does not dictate curriculum for it is an approach to teaching it. If anything, it offers different and better ways of teaching the standards.

1.1.5.2. Resources

Teachers who object to DI ask the question: how can we differentiate with just one textbook? Tomlinson and Imbeau (op.cit) answer it by arguing that a countless number of equally reliable materials exist especially on the Internet. Those materials may not replace the textbook, but they can provide the same content with different levels, yet this response satisfies few because entering a classroom with a pile of materials that matches each student's or group's presumed level, interest, and learning profile after a long quest does not guarantee results, and it is just frustrating (Schmoker, op.cit).

1.1.5.3. Complexity

Central to the protest against DI is the argument that it is complicated; it demands too much from a single teacher and its strategies are too many and too complex to implement. However, no one ever said that DI is “a piece of cake” (Tomlinson, 1999). In fact,
we understand that teaching is a devilishly difficult profession, made more so by external mandates to achieve the delusional—that is, to ensure that all students reach the same point of mastery of an unwieldy amount of content on the same day, and to demonstrate that mastery under the same conditions. (Tomlinson & Imbeau, op.cit, p. 149)

The aim of DI is not to complicate what is already complicated; it is to promote learning regardless of the troubles that teachers may face. Teachers should start with small bits of differentiation (one strategy at a time), and reduce the areas (readiness, interests, learning profiles) they focus on at a time (Tomlinson, 1999).

Objections that some teachers have against DI may be mere excuses. They are a way to resist the change that will disrupt the comfortable routines they have established for themselves. Those teachers want to continue teaching the way they were taught. Change is not only resisted because it is unpractical, but also because the point behind it may be misunderstood or fuzzy; thus, even when change happens naturally as a part of an evolving world, concerns persist (Tomlinson & Imbeau, op.cit, p. 139). Therefore, Wood and Blanton (2009) suggest that teachers should change not only their practices, but also their beliefs about schooling, and for this to happen research must provide them with manageable and feasible strategies (p. 152).

1.2. Activities Tiered by Cognitive Complexity

1.2.1. Students’ Readiness

“Readiness is the point at which a student is ready, willing, and able to learn” (Fox & Hoffman, op.cit, p. 22). Therefore, it is related to the learner’s developmental process and ability to understand (Fox & Hoffman, op.cit). It is necessary, though, to clarify that readiness and ability are not synonymous; the latter merely forms a part of the former. While ability denotes static and innate qualities, readiness is transitory and susceptible to development through instruction. This fact implies that academic growth can be reached if students are instructed at a level slightly higher than their current one and encouraged to step into their next developmental level (Tomlinson & Imbeau, op.cit, p. 16).
1.2.1.1. Cognitive Readiness

By adding “cognitive” to readiness, we imply that we are more concerned about the intellectual readiness of students without denying that factors like motivation, emotional states, willingness, attitudes and sociological factors are important constituents of readiness. They just are not within the scope of our study. Cognitive readiness is differently defined by different disciplines. In education, it means having what it takes to learn some set of concepts or skills, while in training for a given job, for example, it means being prepared to perform a task. However, we learn by and through doing; thus, we can argue that the two meanings are interrelated (Fletcher & Wind, 2013, p. 25).

1.2.1.2. Vygotsky’s Zone of Proximal Development

Readiness is defined by Tomlinson and Imbeau (op.cit) as “A student’s current proximity to specified knowledge, understanding, and skills” (p. 16). This definition ties readiness closely to Lev Vygotsky’s (op.cit) Zone of Proximal Development (ZPD). According to Vygotsky’s (ibid) Sociocultural Theory, learning is a shift from collaborative inter-mental activity to autonomous intra-mental activity, and it occurs when simple innate mental activities are transformed into higher order functions (Mitchell & Myles, op.cit, p.195). Those mental functions which are beyond an individual’s current level must be performed in collaboration with other people before they are achieved independently. This collaboration happens within an area of potential development which is the ZPD. The ZPD is defined by Vygotsky (op.cit) as “The difference between the child's developmental level as determined by independent problem solving and the higher level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (as cited in Mitchell & Myles, op.cit, p.196). A learner learns through a process of other-regulation with language as a medium. Put otherwise, the learner is inducted into shared knowledge through collaborative talk at first then s/he appropriates the new knowledge or skills into his own individual consciousness.

The help given to learners by others as verbal guidance to perform tasks is the scaffolding (defined in the principles subsection) which is tightly related to the ZPD concept. In fact, Moreno (op.cit, p. 91) defines scaffolding as “An instructional method in which support is given to students early on in the learning process, as they navigate their ZPD”. As the learners move through their metaphorical developmental area
towards autonomy, scaffolds are bit by bit removed by the teacher. The process of removing scaffolding bit by bit is called “fading” (Moreno, op.cit).

1.2.2. Differentiating Activities

1.2.2.1. Definition of Activity

Donato and McCormick (1994) state that “Activity is defined in terms of sociocultural settings in which collaborative interaction, intersubjectivity and assisted performance occur” (as cited in Mitchell and Myles, op.cit, p.199). This definition of activity is purely sociocultural. It derives from the activity theory which is a learning theory developed by one of Vygotsky’s successors, Leontiev; it studies both individual and collaborative behaviour, and motivation within a socio-cultural setting (the EFL classroom in our case) (Parks, 2000, p. 65). Therefore, the theory is highly relevant to DI since it sees undertaking a classroom activity as a subjective endeavour that occurs within a sociocultural context. Such undertaking is called “investment” by Norton (1977), and it involves acknowledging more than the learners’ strategies or motivation; it involves their agency and sense of identity (as cited in Parks, ibid, pp. 66-67).

1.2.2.2. Activity versus Task

The activity theory has led sociocultural scholars to argue that each individual interaction is different in nature from another one, even when the participants undertake the same task. According to the activity theory, students have personal goals that vary from individual to individual when approaching a particular task or problem; thus, for example, a language learner may approach a conversational task under test conditions with the prime personal goal of achieving accuracy, even if the task designers intended it as a test of fluency, or vice versa. According to Roebuck (2000), student subjectivity is an inalienable component of tasks in progress (as cited in Mitchell and Myles, op.cit, p.207).

According to the activity theory, activity and task are not two terms that can be used interchangeably. Contrary to activity where the learner’s perspective is accounted for, a task is seen to be a “unitary fixed construct” or a “behavioural blueprint” (Parks, ibid, p. 66). It is defined by Breen (1989) as “. . . a structured plan for the provision of opportunities for the refinement of knowledge and capabilities entailed in a new language and its use during communication” (as cited in Ellis, 2012, p. 198). Breen’s definition suggests that a task is both a plan for work and a process (or an activity) into
which the learner engages, and it results in a new language use. The definition leaves
the impression that the language use resulting from the “task-as-workplan” can be
predicted and that “task-as-process” corresponds to this plan (Ellis, ibid). However,
Ellis (op.cit, pp. 203-204) argues that it is not the case, but it is quite achievable to
design tasks that result in the required use of language if learners’ variation and
subjectivity are considered. Hence, comes the need to manipulate the design and
implementation of the task according to the learners’ differences in order to influence
the learners’ production.

1.2.2.3. What Tiering Is

Most definitions suggest that tiering is how teachers adjust lessons, assessments or
classroom activities to fit students’ readiness levels, interests, and learner profiles. It is
used when there is a gap between the current learning situation and the expected
outcome, i.e., when there is a difference between what students can, are willing or
prefer to do, and what they have to do (Turville, Allen & Nickelsen, 2010, p. 6).
Wormeli (op.cit), however, argues that tiering has little to do with interests and learning
profiles since they imply lateral change, whereas tiering by definition implies vertical
change according to levels which are those of readiness. He uses Tomlinson’s (1995)
terms to describe tiering as “ratcheting up and down the challenge level” (as cited in
Wormeli, op.cit, p. 56). Turville et al. (op.cit) give a comprehensive definition that
describes tiering as

> providing different learning activities when there is such a variance in
> readiness levels among the learners that students might not be able to
> learn effectively and be engaged if no adjustments are made. Tiered
> lessons are created based on the diagnosis of the students’ needs. The
> goal is for all students to be appropriately challenged so that success
> occurs with each child. Learning is focused on the standards, and all
> students are expected to reach them, but with different kinds of support,
> complexity, and pacing.” (pp. 6-7).

This definition suggests two components for tiering which are focusing on standards
and structuring tiers on a given basis such as challenge, complexity or support.
According to Adams and Pierce (2003), “A tiered lesson addresses a particular standard, key concept and generalization but allows several pathways for students to arrive at an understanding of these components” (as cited in Turville et al., op.cit, p. 6). The teacher is the “architect” of the learning process; s/he plans for students’ success in reaching the learning goals s/he has in mind. Those goals reflect the curriculum standards. The teacher begins levelling where standards are, and never loses sight of essential ideas, concepts and skills a lesson should convey, and students should master (Turville et al., ibid, p. 9).

Teachers tier content, process and product to match the students’ levels of readiness. There are several scales through which this can be done. For Heacox (op.cit), it is essential to adjust the quality of the instruction, not its quantity; thus, tiered instruction adds depth and breadth to students’ understanding of essentials. She suggests six ways by which tiered instruction can be structured: challenge level, complexity, resources, outcome, process and product (pp. 91-94). While most of DI experts argue mainly for tiering by challenge level using Bloom’s (1956) Taxonomy, Kingore (2004) argues ardently for tiering by complexity. She insists on advising teachers to avoid assigning ‘simple thinking tasks’, for all students need to engage in high levels of thinking, i.e., analyzing, synthesizing, and evaluating information (p. 110).

Tiering has been described by Turville et al. (op.cit, p. 6) as the most difficult part of DI to describe, for it involves many tricks and tweaks. It has to be invisible to avoid students’ resentment. Additionally, support or scaffolding is needed at every tier; even learners who make it on their own need feedback (Kingore, 2004, p. 110). Finally, a classroom cannot always be composed of high, medium and low level groups; sometimes the whole class is at the same level regarding a given concept or skill, or those once at a low level are now at a high level in performing a different task; therefore, the teacher needs to know when to tier and when to abstain and to keep grouping flexible (Wormeli, op.cit, p. 57).

1.2.2.4. Tiered activities

Conklin (2010, p. 26) defines tiered activities as “parallel tasks designed to have varied levels of depth, complexity and abstractness along with varied degrees of scaffolding, support, or direction depending on each student and the topic.” They are the teachers’ way to differentiate the instruction process by level of readiness. There is
no one way to design a tiered activity, yet Tomlinson (1999) offers a set of basic guidelines to follow. According to her a teacher has to do the following:

a. Select the essential concepts and skills on which the activity focuses.

b. Use assessment as a way to think about students’ differences in terms of readiness for the activity.

c. Create one activity that is interesting, requiring high-level thought, and focused.

d. Draw a ladder of which you put students on rungs from the lowest skill and low complexity of understanding up to the highest skill and complexity of understanding.

e. Place the activity on the ladder to see who will most likely be challenged by it; hereafter, the teacher can decide if tiering is needed and which version is needed by whom.

f. Use the ladder to “clone” the activity and provide as many versions as needed at different degrees of difficulty.

g. Match different versions to different students based on their needs with the aim of challenging them slightly beyond their comfort zone (pp. 83-84).

If the teacher uses his/her sense of students’ needs and never loses sight of learning objectives and essential ideas, the guidelines suggested above can easily be applied to create the perfect tiered activity.

1.2.3. Ways of Structuring Tiered Activities

As we have mentioned before (in the ‘What Tiering Is’ subsection), there are many tools to structure a tiered activity. In this study, we choose to focus on tiering by level of challenge using Bloom’s Taxonomy and tiering by complexity. Following Kingore’s (2004) footsteps, we will argue against the first and for the second.

1.2.3.1. Tiering by Level of Challenge

According to Fox and Hoffman (op.cit), teachers can differentiate instruction by challenge according to students’ readiness when using Bloom’s Taxonomy, which has been the foundation of teachers’ lesson planning for many decades. It is, for them, a ‘staple’ in planning for differentiation since it pays attention to developing cognition (p. 48). Bloom’s (1956) taxonomy is a classification system for cognition. It allows teachers to guide students to develop from the most basic levels of thinking to the most complex ones. It takes the form of a hierarchy of thinking skills beginning with knowledge and moving forward towards comprehension, application, analysis,
synthesis, and then evaluation. Only when a student masters a given level of thinking, he can move to the next one (Fox & Hoffman, ibid, p. 20).

The taxonomy views about cognition are similar to Tomlinson’s (1999) ladder metaphor. It assumes that students must acquire separate and simple skills before applying them in a more complex and genuine context. This assumption “may make intuitive sense (as does the observation that the world appears flat)” (Tomlinson & McTighe, 2006, p. 119). However, the taxonomy is proved to be a simplistic view by the contemporary theories of learning that are based on cognitive psychology, and argue that learners construct their own meaning by drawing connections between previous and new knowledge, and develop their own cognitive maps.

Tomlinson and McTighe (ibid) describe the use of Bloom’s taxonomy in teaching as ‘ironic’ and ‘unwitting’, for Bloom’s taxonomy was first intended to be an assessment construct to classify degrees of cognitive complexity of university exams items. Furthermore, they assert that Bloom (1956) insisted on having students work on all the taxonomy levels; no learner should be deprived from engaging in higher levels of thinking and the chance to find personal meaning in each activity. Therefore, it is used as a misguided approach to differentiation. While high level students engage in synthesising and evaluating complex concepts, low level students struggle with memorizing the basics, and may never learn to go beyond doing that (pp. 119-120). We believe that a tool other than Bloom’s Taxonomy should be used to tier activities.

1.2.3.2. Tiering by Complexity

In Kignore’s (2004, p. 110) words:

Avoid always allocating simple thinking tasks for the students with the fewest skills, mid-level thinking tasks for the students in the middle range of readiness, and high-level challenges for learners at advanced readiness levels. There are occasions when knowledge comprehension and application level tasks (at students’ readiness level) are needed by all students. Conversely, all students need opportunities to analyse, synthesize and evaluate information.
High-level students will most likely analyse, synthesize and evaluate more often and with more abstractness and complexity, but low-level students are also required to think at a high level with less abstractness and complexity (ibid).

The difficulty of activities is influenced by a range of factors or variables that teachers select and perceive to be most appropriate to manipulate the design of the activity. To start developing a tiered activity, teachers must identify those factors. Some of those factors can easily be manipulated while others such as the students’ background knowledge and skills have to be adjusted to. Kingore (2004) gives some examples of complexity factors and states that they are numerous, and that many have attempted to work on manipulating task complexity like Robinson (1995). In his Cognition Hypothesis, Robinson (2003) presents many variables through which the cognitive demands of the task can be tuned. Examples of these variables can be topic familiarity, the number of steps included in the task and the supporting information. Heacox (op.cit) advocates the use of Tomlinson’s notion of ladder even when tiering by complexity.

1.2.3.2.1 Definition of Cognitive Complexity

Cognitive complexity is different from ‘complexity’ as a measurement dimension of L2 production. Complexity describes performance and indicates learning; it is studied as a dependent variable, and it is explained in the second chapter of this dissertation dealing with L2 written production. However, our concern here is about complexity as related to the instruction; it is studied as an independent variable. Because it is defined in relation to L2 learners’ cognition and not in an absolute manner, it is cognitive. According to Hulstijn and De Graaff (1994; as cited in Bulté & Houssen, 2012, p. 23), cognitive complexity “refers to mental ease or difficulty with which linguistic items are learned, processed or verbalized in the process of language acquisition and use”. Similarly, Robinson (2001) defines it in terms of information processing demands such as attention, memory, and reasoning that tasks design and implementation make on the learners’ cognitive capacity. Skehan and Foster’s Limited Attentional Capacity Model and Robinson’s Triadic Componential Framework (TCF) are the two most influential models of L2 task complexity. The two models concur that the learners’ attention is limited; therefore, any increase in cognitive task complexity will induce them to pay attention to L2 meaning then form, and this will have a negative effect on their linguistic production. However, Robinson’s model is more sophisticated in that it
makes different predictions about different complexity variables depending on the way they influence attention, and it takes the learners’ differences as a separate category that influences L2 learning and performance when manipulating task complexity (Kuiken & Vedder, 2007, p. 263-266). This model of task complexity is the one of interest to us.

1.2.3.2.2 Robinson’s Cognition Hypothesis

The main focus of Robinson’s (2001) approach to task based research is on the learners’ information processing stages, cognitive processes, and attentional resources used to complete tasks. His approach is concerned with investigating the design and implementation of tasks as being the basic units of a syllabus (Ellis, op.cit, p. 196). The aim of his work is to investigate the effects of manipulating the tasks cognitive complexity on different aspects of linguistic production and development in task-based language teaching (TBLT). Robinson’s model, TCF, is also known as the Cognition Hypothesis (Kuiken & Vedder, op.cit., p. 261-262). Through this model, he aims at providing

- a feasible basis for operationalizing the proposal that pedagogic L2 tasks could be sequenced for learners on the basis of increases in their cognitive complexity, rather than on the basis of linguistic grading and subsequent sequencing of the language input to tasks. (Robinson, 2003, p. 45)

In other words, Robinson attempts to provide principled ways to design, sequence, and implement tasks based on their cognitive complexity, rather than being just a means to deliver linguistic syllabuses (Robinson, ibid). Robinson’s (2001) Cognition Hypothesis distinguishes between two types of dimensions to manipulate tasks complexity which are the ‘resource-directing’ dimensions and the ‘resource-dispersing’ ones, and accordingly predicts how L2 production and development may be affected (Robinson, 2011, p. xii).

The TCF, as illustrated in Table 1, is a three-dimensional model that Robinson (2003) proposes to examine the implications of the Cognition Hypothesis for classroom practice and syllabus design. The model distinguishes between three different factors which are task complexity, task difficulty, and task conditions. While, according to Robinson (2003, p. 56), task complexity makes reference to “the intrinsic cognitive
demands of the task”, task difficulty is concerned with the “learners’ perceptions of the demands of the task, and is dependent on differences between learners in the cognitive factors (e.g., aptitude, working memory) and affective variables (e.g., anxiety, confidence)”, and task conditions are “the interactive demands of task performance, such as participation factors, e.g., whether the information is equally distributed (a two-way task) or is passed from one person to another”. Robinson (ibid) argues that complexity factors should play the major role in manipulating tasks, for they are the most flexible. However, he recognizes the importance of difficulty factors which cannot be altered but may contribute to a priori decision making about sequencing the tasks, and this is a point to stress when working on DI, for it is greatly concerned with learners’ cognitive differences. Task conditions also can be manipulated, and some advocate doing it, but Robinson (2003, p. 57) prefers to specify them then hold them constant while manipulating the cognitive complexity factors.

As stated previously, the task complexity factors can be manipulated to increase or decrease the cognitive demands of the task through two categories of dimensions: the resource-directing and the resource-dispersing dimensions. The former are the variables “in which the demands on language use made by increases in task complexity can be met by specific aspects of the linguistic system” (Robinson, ibid, p. 57). In other words, they are the dimensions that direct the learner’s attention towards a specific form of language, and they are claimed to foster language acquisition. An example of these variables (also called developmental variables) is whether the task requires the learner to take just one first-person perspective on a concept, or multiple second and third person perspectives which implies the use of more complex linguistic forms (Robinson & Gilabert, 2007, p. 165). The perspective-taking variable will be the resource-directing variable used in our study; it is presented in Table 1 with the other five variables.

The resource-dispersing dimensions form the second category of variables (also called performance variables). They are those dividing the learner’s attention between the linguistic aspects of the task and its other components. When manipulated, they increase the learner’s control over and access to an existing L2 repertoire, which means they do not influence learning but affect task performance. An example of these variables is providing or having prior knowledge needed to perform the task as opposed to not providing or having it (Robinson, 2003, pp. 46-47; Robinson & Gilabert, op.cit, p. 167), like when the topic of an essay writing task is familiar or not. Prior knowledge
is the second variable according to which we will manipulate the complexity of the
tasks in our study. The other resource-dispersing variables are found in Table 1.

Table 1
*The Triadic Componential Framework*

<table>
<thead>
<tr>
<th>Task Complexity</th>
<th>Task Condition</th>
<th>Task Difficulty</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a) Resource-directing</strong> variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+/- here and now</td>
<td>+/- open solution</td>
<td>h/l working memory</td>
</tr>
<tr>
<td>+/- few elements</td>
<td>+/- one-way flow</td>
<td>h/l reasoning</td>
</tr>
<tr>
<td>+/- spatial reasoning</td>
<td>+/- convergent solution</td>
<td>h/l task-switching</td>
</tr>
<tr>
<td>+/- causal reasoning</td>
<td>+/- few participants</td>
<td>h/l aptitude</td>
</tr>
<tr>
<td>+/- intentional reasoning</td>
<td>+/- few contributions needed</td>
<td>h/l field independence</td>
</tr>
<tr>
<td>+/- perspective-taking</td>
<td>+/- negotiation not needed</td>
<td>h/l mind/intention-reading</td>
</tr>
<tr>
<td>b) Resource-dispersing** variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+/- planning time</td>
<td>+/- same proficiency</td>
<td>h/l openness to experience</td>
</tr>
<tr>
<td>+/- single task</td>
<td>+/- same gender</td>
<td>h/l control of emotion</td>
</tr>
<tr>
<td>+/- task structure</td>
<td>+/- familiar</td>
<td>h/l task motivation</td>
</tr>
<tr>
<td>+/- few steps</td>
<td>+/- shared content knowledge</td>
<td>h/l processing anxiety</td>
</tr>
<tr>
<td>+/- independency of steps</td>
<td>+/- equal status and role</td>
<td>h/l willingness to communicate</td>
</tr>
<tr>
<td>+/- prior knowledge</td>
<td>+/- shared cultural knowledge</td>
<td>h/l self-efficacy</td>
</tr>
</tbody>
</table>

*Note.* Adapted from Robinson and Gilabert (2007, p. 164)

The Cognition Hypothesis makes many predictions about the effects of manipulating task complexity variables on L2 development and production. It basically claims that increases in task complexity lead to measurable increases in language learning and production. Furthermore, the hypothesis predicts that as the task complexity increases, learners’ differences gradually differentiate learning and production. In other words, when performing complex tasks, there should be a gap between the learning and production of the high-level learners and those of the low-
level learners (Robinson, 2011, p. 19). This gap is one that DI seeks to reduce (Tomlinson, 2001).

**Conclusion**

Differentiation is about different teaching for different learning. Treating all learners as if they were different copies of the same person; as if they all have the same abilities, passions and learning inclinations; is not even close to treating them fairly, and it does not bring about any success. Teachers need to adopt a new attitude. They need to know moment by moment where each learner is and fight the reluctance to work with every student in the classroom. They need to grow responsive to their students’ different needs when considering the content of their lessons, when processing their presentation, and when asking for mastery demonstration. They also need to become technically skilled at DI strategies.

While differentiating successfully seems to be a task fit to a fictional superhero, not one fit to a regular teacher, DI is very doable, yet it is not a piece of cake. When starting to differentiate, a teacher needs to take it slowly. One strategy at a time is a piece of advice that experts give to novices. It is an idea that we follow in this study by choosing tiered activities as the differentiation strategy to implement and investigate. While there are many ways to level activities according to students’ readiness, cognitive complexity is the one that ensures opportunities of high level of reasoning for all learners. Research has shown that manipulating the cognitive complexity of tasks influences L2 learning and production, a point to be discussed in the second chapter along with other points about L2 written production and argumentative essay writing.
Chapter Two: EFL Written Production

Introduction

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Conclusion
Introduction

Abraham Lincoln once said: “The written word may be man's greatest invention. It allows us to converse with the dead, the absent, and the unborn” (Goodreads, 2014), a belief that every literate man should hold with pride. Therefore, writing is a very important skill to acquire, but it is also the most difficult one, for writing does not come naturally. It necessitates instruction and requires practice. Every act of writing is a personal expression and a reflection of one’s inner world, but it is also social and interactional. It is both a process and a product that have a purpose, and it is done within a context. In academic context, writing is a matter of life or death. A well sculpted writing craft is the student’s winning card to demonstrate learning in a writing situation. It is his/ her means to manipulate facts and opinions and have a voice in the academic discourse. Putting it this way, academic writing appears to be mainly argumentative, which is a major claim we try to make in our study.

In this chapter, we introduce writing as the investigated skill in our study. After that, we move to present the characteristics of this skill within the context of academia. Therein, and in a second section, we explain our major claim about the importance of argumentation in students’ academic life, and more precisely, when it takes an essay format. In the third section we tackle the dimensions and ways of measuring our dependent variable which is the EFL written production.

2.1. Approaches to Writing in the EFL Classroom

Writing is like swimming; we only learn it in an appropriate environment and with explicit teaching. We are not born to be writers, or at least, not the same way we are born to be walkers and talkers (Brown, 2001, p. 334). With instruction, average people come to learn the skill of writing in their mother tongue years after they acquire speaking it, and if lucky, they learn writing in a foreign language (FL) too (Trible, 2003, p. 1).

“Writing is a technology that has to be learned”, writes Trible (ibid). What the nature of this technology is, and how it is learned are, however, subjects for debate, for many beliefs about writing and learning to write exist. Different perceptions of writing focus on different areas. The areas of focus are language structures, functions, expression, writing process and context.
2.1.1. Language Structures

Writing is “marks on a page or a screen, a coherent arrangement of words, clauses, and sentences, structured according to a system of rules” (Hyland, 2003, p. 3). This definition was quite famous in the 1960s, with the thriving of both structural linguistics and behaviourism, when learning to write meant “imitating and manipulating models provided by the teacher” (Hyland, ibid). Teachers holding this belief mainly focus on language structures. They see writing as a product measured up against a model that meets the conventional standards of grammatical and lexical accuracy, organization and rhetorical style. This way of teaching writing is called the product approach. However, as much as it is important for a writer to control the language system, language is not composed only of surface features, and teaching writing is not an extension of teaching grammar (Brown, op.cit, Hyland, 2003, Hyland, 2009).

2.1.2. Language Functions

According to Richards (1990),

Writing is not ‘merely a way of recording language by means of visible marks,’ as the American linguist Bloomfield once remarked. . . . written language is primarily transactional or message oriented (Brown and Yule 1983). The goal of written language is to convey information accurately, effectively, and appropriately.” (p. 101)

Therefore, particular structures are related to particular meanings or communicative functions. Like the first definition, this one also draws on structuralism. It recognizes meaning, but it sees the written texts as products composed of structural units like introduction- body conclusion. The teachers focus on following certain models to teach different types of paragraphs that contain topic sentences, supporting ideas and transitions. This functional approach is mostly prominent in teaching academic writing where students are asked to produce certain organizational patterns like argumentation, narration and description. Under the ‘functional approach’, writers are passive. They are supposed to follow rules and patterns to represent meaning without having any personal purpose. However, writing cannot be completely removed from the context, purposes and experiences of the writers (Hyland, 2003, pp. 6-7).
2.1.3. Creative Expression

By turning attention toward the learner as a writer that creates language and has personal purposes, a new approach to teaching writing began; it is the process approach (Brown, op.cit, p. 336). Elbow (1973) defines writing as

An organic developmental process in which you start writing at the very beginning– before you know your meaning at all– and encourage your words gradually to change and evolve. Only at the end will you know what you want to say or the words you want to say it with. . . . Think of writing, then, not as a way to transmit a message but as a way to grow and cook a message. (as cited in Brown, op.cit, pp. 336-337)

Writing, according to theorists such as Elbow (1998) and Murray (1985), is “a creative act of self-discovery in which the process is as important as the product” (as cited in Hyland, 2009, p. 19). Such theorists are called expressivists, for writing to them is learned as a way of expressing oneself. However, it cannot be taught; all the teachers can do is to guide students toward finding their voices and forming opinions about their topics of interest. They do not impose a model nor insist on error-free structures. Expressivists look at the learner as an individual that has ‘innate creative potential’ but not as a part of a social group where writing may have other roles than self-expression. They also give no clear criteria to define, judge or achieve good writing (Hyland, 2003, pp. 8-9).

2.1.4. Writing Process

Flower and Hayes (1981) established a model of writing processes which is the planning-writing-reviewing framework in which writing is defined as a “non-linear, exploratory and generative process whereby writers discover and reformulate their ideas as they attempt to approximate meaning” (Zamel, 1983; as cited in Hyland, 2003, p. 11). This writing model emphasizes the cognitive processes that learners engage in rather than their creativity. It allows teachers to differentiate between novice writers and advanced ones who approach writing as a problem solving process and use their intellect to deal with the task complexity and the lack of familiarity with the topic.

Teaching according to this model means many things. It firstly means to guide students elaborate strategies to come up with ideas and put them into words. Secondly,
it means to help students reflect about those strategies. Finally, and most importantly, teaching means to respond to the learners’ writing by providing feedback. However, pushing the learner to reflect on the strategies used by good writers and to adopt them does not guarantee for him/her to become one of these good writers because it is difficult to know what happens in the head of good writers, and the exact reason why they choose a given strategy. The model, therefore, assumes that all learners are the same and should use the same strategies. Furthermore, it assumes that all contexts are the same (Hyland, 2003, pp 10-4, Hyland, 2009, pp. 20-6). It overlooks the social aspect of writing and the fact that a student should learn how topic, audience, purpose, and social norms shape a text (Hyland, 2002; as cited in Hyland, 2003, p. 14).

2.1.5. Context

A definition of writing that takes us beyond the writers’ inner world and focuses on the writing context as a ‘situation of expression’ (Nystrand, 1987; as cited in Hyland, 2009, p. 26) is the one given by Hyland (ibid): “writing is an interactive, as well as cognitive, activity which employs accepted resources for the purpose of sharing meanings in that context” (p. 30). According to Flower (1989), “context cues cognition” (as cited in Hyland, 2009, p. 26), which means that the writing environment activates the learners’ prior knowledge, makes them choose certain writing processes and influences what they write and the way they express themselves (Hyland, ibid). In other words, the writing context, let it be the academic context, for example, determines the linguistic and cognitive resources the learner uses to interact with a targeted audience. Teaching writing looks beyond forms, functions, processes or writers, for writing is not just undertaken for the sake of writing; it has a specific purpose which consists of doing something like presenting an argument or narrating an event within certain constraints imposed by the context. This orientation to teaching writing is the genre orientation where genres are “abstract, socially recognized ways of using language for particular purposes” (Hyland, 2003, p. 18).

Many beliefs concerning writing and writing instruction have been emerging since EFL writing established itself as a distinct area of interest to researchers, and teachers have been following those beliefs and translating them into methodologies. However, each new conception about writing and each new methodology was merely a new piece in the puzzle, a new idea to enlighten teachers about how to do their jobs. The different
conceptions of writing that are outlined here should be seen as complementary and overlapping rather than replacing each other.

2.2. Academic Writing

Writing is decisive for the learners’ academic success. According to Murray and Moore (2006), not learning to write is opting for “an academic half-life in which one’s legitimate scholarly voice has not been sufficiently exercised or respected” (p. 4). A full academic life, therefore, is one in which learners are capable to communicate their ideas through writing, participate effectively in the academic community and respond to a writing situation. A simple definition of academic writing is nowhere to be found; it is a complex set of skills through which learners express their ideas in response to others’ ideas in a conventional form (such as an essay or a paper) with the primary aim of demonstrating learning to a knowledgeable audience (like the teacher or the classmates) within a given context, which is usually an assignment or an exam. The expressed ideas, the form, the learner’s and teacher’s aims, the audience and the context are called by Irvin (2010) the writing situation. In academia, writing has a particular situation and has its own conventions (Graff & Birkenstein, 2007; Irvin, op. cit).

2.2.1. Characteristics of Academic Writing

No writing task exists in isolation. All writing has a situation that gives it some characteristics. In academia, writing has its particular characteristics.

2.2.1.1. Responding to Others’ Ideas

According to Graff and Birkenstein (2007), academic writing has a “social conversational base . . . [despite the fact that it] does require some degree of solitude” (p. XVIII). Therefore, academic writing is responding to others’ thoughts with one’s own thoughts after understanding and summarizing their opinions. Writing never happens in a ‘vacuum’; it is entering a ‘conversation’ in which the learner bases his/her ideas upon others’ ideas (Graff and Birkenstein, ibid, p. 3). Academic writing usually starts with a learner forming views about others’ ideas and ends by expressing more sophisticated views. Therefore, it is not totally impersonal (DasBender, 2011, p. 43); it is the learner’s personal opinion that helps him/her enter the conversation and attain enlightened conclusions.

Academic writing is never just writing. It requires the ability to recognize, understand, interpret, analyze and respond to key concepts of a given discipline.
Before proceeding into writing, a learner has first to distinguish between facts and opinions and weigh the latter. Secondly, s/he has to find meaning in what is new and show understanding by interpreting what has been read or learned via summarizing or paraphrasing it. Thirdly, the learner has to analyze by breaking the concept into pieces to inspect them and see how they fit together. The connections that the learner draws between those pieces are the claim of his/her academic assignment. The learner has finally to respond to what s/he has read and learned by presenting arguments that defend his/her claim (Irvin, op.cit, pp. 7-11). Graff and Birkenstein (op.cit) state that “broadly speaking, academic writing is argumentative writing” (p. 3). If academic writing is like entering a conversation, as claimed before, then it requires having a stand and enough evidence to support and defend it. The learner’s aim is to make the reader consider this stand or even adopt it (Irvin, op.cit, p. 9). Having arguments and not just restating facts and others’ opinions are what makes the written piece non-flat and interesting to read and score.

2.2.1.2. Conventional Form

The most common form of academic writing asked for in EFL classrooms at the university level is the essay. Essays rely on a set of conventions which, according to Cioffi (2005), relate to “what kind of format to use, what level of formality, what tone to adopt, what kinds of syntax, language, and vocabulary to employ” (p.3). Writers have to respect these conventions though no strict formula exists. The arrangement of these conventions is more or less flexible. To explain more, it is conventional to use the five paragraph essay in academic writing; however, writing at university is far more sophisticated. It is also conventional to be formal and not use the “I”, but in some assignments, where the learner’s opinion is explicitly asked for, a semi-formal style is more appropriate. In academic writing, the learner is supposed to adopt a disciplined and logical tone, but may also be creative and show emotions. Furthermore, the kind of language used, usually, has to be as logical and formal as possible, but with the tone and level of formality changing, language also changes (Irvin, op.cit, pp. 3-5).

2.2.1.3. Demonstrating Learning

The basic aim of student writing is to demonstrate learning. For Irvin (op.cit), “Academic writing is always a form of evaluation that asks you to demonstrate knowledge and show proficiency with certain disciplinary skills of thinking,
interpreting, and presenting” (p, 8). Therefore, the teacher’s aim is not to merely ask for the students’ opinion that is based on their previous experience and knowledge. The teacher’s aim is rather to evaluate how the students apply what s/he has taught them and how they mix it with what they already know, what they found out through research and what they think to be right. Learners also have aims. They want to demonstrate learning and understanding and have good grades (Irvin, ibid, pp. 7-8).

2.2.1.4. The Audience

For academic writing, there is an audience which consists mainly of the teacher and the student’s peers. One gains membership of an academic audience by building a background of knowledge that is shared by specialists in the field. This knowledge constitutes one’s ‘frames of reference’. In other words, the academic piece of writing targets a group of specialists in the field who share interest in this piece because they all have enough understanding about the significance and extent of the concepts discussed in it. The frames of reference are, according to Cioffi (op.cit, p. 4), what Becker (1956) calls ‘the climate of opinion’ which means the knowledge that is accepted and commonly owned by the members of a given field or subject matter. This common knowledge reduces what needs to be stated and explained in the conversation.

2.2.1.5. The Context

Contrary to free writing where special occasions may or may not present themselves for writers to induce them to write, academic writing has a special occasion. The writing occasion is called by Irvin (op.cit, p. 7) a context, and it is usually, for students, the occasion of submitting an assignment or of taking an exam.

2.2.2. Argumentative Writing

According to Cioffi (op.cit, p.1), argumentative writing is the most important type of writing that a university student should master. The writer emphasizes the fact that argumentative writing is a replication of the ways ideas are generated inside one’s head; therefore, its importance lies in the fact that it teaches logical thinking, a skill that is imperative inside and outside the classroom, before and after graduation. Argumentative writing also allows the learner to understand argumentation, which is essential whenever analysis of a situation is needed. For this reason, and before venturing into talking about the argumentative essay as the basic form of argumentative writing used at university, we will first present argumentation.
2.2.2.1 Argumentation

Ramage, Bean and Johnson (2010) claim that argumentation is far from being a fight or a debate where there is a winner and a loser. It is rather a fruitful and gratifying activity that involves reasonable thinking and where truth seeking and persuasion instead of winning a game are the aim (pp. 2-3). Argumentation “requires writers or speakers to justify their claims, it is both a product and a process, and it combines elements of truth seeking and persuasion” (Ramage et al, op.cit, p. 2).

According to Cioffi (op.cit), an argument “refers to a kind of discourse, an organized verbal attempt to persuade an audience through the use of logic and reason” (p. 6). This definition suggests that writers or speakers have to appeal to their audiences through the use of logic and only logic. Aristotle thought approximately the same, for he suggested three kinds of appeals which he named ‘logos’, ‘ethos’ and ‘pathos’. For Aristotle a writer’s or a speaker’s claim may appeal to the audience’s logical reasoning or logos; it may appeal to its ethics or ethos, or it may appeal to its emotions or pathos. While the Greek philosopher favoured the first (logos), contemporary argumentation scholars do not underestimate the influence of a well formed emotional claim, for even the most unemotional person has emotional areas that are common to all humans and where logic has no effect (Jones, 2010, pp. 166-167). Nevertheless, writers and speakers have to justify their claims and clarify their reasons by providing rational explanations (Ramage et al, op.cit, p. 12).

An argument, claim Ramage et al (op.cit), “can be viewed as a process in which two or more parties seek the best solution to a question or problem. [An] argument can also be viewed as a product” (p. 12). The argument as a process is what two (or more) parties bring to the discussion in the form of opinions or facts during the time this discussion takes. It is the dynamic search for claims and the use of these claims in a conversation. The argument as a product, however, is the parties’ contribution in the conversation at a given moment (Ramage et al, op. Cit, pp. 12-13). We can say, therefore, that argument as a process is the conversation itself, whether it is a discussion between several parties or one individual’s (writer or speaker) responses to already established arguments, while argument as a product is the final outcome of this discussion; it has a form that can be short or long, written or oral and formal or informal. Hence, an argument can be an activity (more accurately called argumentation) or an object (Goddu, 2009).
An argument is a combination of truth seeking and persuasion. An arguer thinks about the answer to the question at hand while constantly considering the audience opinions, assumptions and beliefs and what proofs have the power to convince the members of this audience. Through the use of language, the writer (or speaker) shifts emphasis between subject matter and readers’ (or listeners’) attention without completely neglecting any of the two at any phase of the argumentation. However, an arguer has to start by seeking truth; s/he has first to be convinced by his/her own claims. S/he has to master the subject matter before venturing into persuading others (Ramage et al, op.cit, pp. 13-15).

Argumentation, therefore, is handling facts and others’ opinions with respect; it is not a quarrel or a debate. It aims at creating a balance between the search for truth and the art of persuasion that uses logical evidence to justify one’s claims and appeal to the audience so that it drops any resistance. Argumentation is also both a process and a product. Understanding the nature and features of argumentation is the first step to construct an argumentative piece of writing.

### 2.2.2.2 Argumentative Essay

To argue means “to give reasons for or against something; to consider the pros and cons; to persuade by giving reasons” (Fulwiler, 2002, p. 99). An argumentative essay, therefore, stands for or against a given issue, and it has one home, according to Cioffi (op.cit, p. 1), which is academia. An argumentative essay is defined as “a genre of writing that requires the student to investigate a topic; collect, generate, and evaluate evidence; and establish a position on the topic in a concise manner” (Backer, Brizee & Angeli, 2013, para. 1). Cioffi (op.cit) also argues that argumentative essays have one prevailing structure. Before delving into further explanation of this type of essay, we first have to overview academic essays in general.

The word essay comes from the French word “essayer” which goes back to the Latin verb “exigere” that means “to examine, test, or (literally) to drive out” (Backer et al, op.cit, para. 6). Therefore, the word itself implies that an essay is meant to scrutinize the student’s knowledge and ideas (ibid). Tagg (2000, para. 1) states that “Frederick Crews . . . defines an essay as ‘a fairly brief piece of nonfiction that tries to make a point in an interesting way’”; thus, an essay is a short piece of academic writing that displays facts, ideas and opinions but not fiction, and this does not stand against some creativity and imagination (Cioffi, op.cit, p. xii). Another important aspect of essays is
that whatever the type of the essay is, it is supposed to make a point, i.e., it presents a claim that is supported by evidence. According to Tagg (op.cit, para. 4), it points towards one direction and “leads to one conclusion”. Furthermore, an essay targets a given audience (as we have already explained with academic writing) which implies that an essay must be interesting and engaging.

Argumentative essays form a type of essay that makes a sound claim supported by logical evidence about a debatable issue. It requires the learner to weigh the arguments and the counterarguments of this issue, and usually to pick a side in order to end up with a final resolution. This way of conceptualizing argumentative essays implies a particular structure which is the one of five paragraphs, which is a common and straightforward structure but definitely not the only one (Backer et al, op.cit). The argumentative essay is usually structured into three parts which are the introduction, the body and the conclusion.

In the first paragraph, which is an introductory paragraph, the writer is supposed to clearly state his/her thesis in the last sentence of the paragraph. Before that, the writer introduces his topic or issue to the reader and explains why it is worth the debate. The thesis statement is the core of the essay, for it holds its major claim, outlines and supports the essay body (Tagg, op.cit). A thesis is defined by Fulwiler (op.cit, p. 100) as “the stand you take on an issue, the proposition you believe, and what you want your readers to believe too.”

The body of the essay is composed of three paragraphs. Each one of the three starts with a topic sentence that puts the general idea of the paragraph forward. The student is supposed to devote one paragraph for each one of the conflicting positions about a given issue. Therefore, the first paragraph of the body can tackle the arguments for the issue while the second can tackle the ones against, or the other way around. The third paragraph is left for the perspective taking or the student’s own stand regarding the issue.

In the concluding, paragraph the student restates the thesis statement and synthesize what has been presented in the body of the essay. The student is supposed to emphasize the importance of the issue again and review the main points of the essay. Finally, the student should conclude with a statement that leaves impression on the reader and closes the essay but should not add what has not been mentioned before (Backer et al, op.cit).
2.3. Dimensions and Measurement of L2 Production

Complexity, accuracy and fluency are the three dimensions or components of language proficiency and production. According to Housen, Kuiken and Vedder (2012), Skehan (1996, 1998) gathered the three dimensions (or what the three authors call CAF) for the first time in one proficiency model. Before Skehan (ibid), the history of the CAF went back to the 1970s when researchers like Hunt (1965) and Brown (1973) tried to develop objective and reliable measurements of grammatical accuracy and complexity. The 70s also witnessed the pedagogic distinction between L2 fluency and L2 accuracy. Henceforth, the dimensions were given definitions and ways of measurement (as cited in Housen et al, op.cit, p. 2).

2.3.1. Dimensions of Written Production

Complexity, accuracy and fluency as dimensions of L2 written production often appear simultaneously as dependent variables in L2 research. However, in other types of research, the CAF may be investigated for their own sake, i.e., as separate phenomena of the psycholinguistic process of L2 acquisition (Housen et al, op.cit, p. 2).

2.3.1.1 Complexity

Skehan and Foster (1999) define complexity as
the capacity to use more advanced language, with the possibility that such language may not be controlled so effectively. This may also involve a greater willingness to take risks, and use fewer controlled language subsystems. This area is also taken to correlate with a greater likelihood of restructuring, that is, change and development in the interlanguage system (as cited in Fahim, Nourzadeh & Fat'hi, 2011, p. 4).

In fewer words, complexity is basically “elaborated language” (Ellis & Barkhuizen, 2005; as cited in Vercellotti, 2012), but this definition does not make it easier to understand complexity nor can any other definition. Complexity is the most ambiguous dimension among the CAF because the term is used to refer to cognitive complexity as well as to linguistic complexity. However, the two concepts are very different, as we have already mentioned in the first chapter. While the cognitive complexity is treated as an independent variable and is related to the task difficulty (which depends on learners’
differences), the linguistic complexity is treated as a dependent variable and has nothing to do with the learner. It is, according to Housen et al (op.cit, p. 4), objective and related to “the formal and semantic-functional properties” of the language. It can, however, be considered as part of the cognitive complexity when the researcher uses the forms and meanings of the L2 to make the task more difficult.

2.3.1.2 Accuracy

Skehan and Foster (op.cit) define accuracy or more precisely linguistic accuracy as “the ability to avoid error in performance, possibly reflecting higher levels of control in the language, as well as a conservative orientation, that is, avoidance of challenging structures that might provoke error” (as cited in Fahim, Nourzadeh & Fat’hi, op.cit, p. 4). Whereas, Housen et al (op.cit, p. 2) define it simply as “the ability to use target-like or error-free language.” This definition of accuracy is the most agreed upon across different studies (Housen & Kuiken, 2009, Pallotti, 2009; as cited in Housen et al, op.cit, p. 4). However, such clear and straightforward definition does not make of accuracy a simple concept. It is difficult to decide about the nature of errors and the criteria that evaluate them; for example, a researcher may find him/herself asking whether errors should be measured against standard L2 or against non-standard L2 norms. Thus, accuracy is not just defined as correctness, but it is often treated as ‘appropriateness’ or ‘acceptability’ (Housen et al, op.cit; Vercellotti, op.cit).

2.3.1.3 Fluency

Skehan and Foster (op.cit) define fluency as the capacity to use language in real time to emphasize meanings, possibly drawing on more lexicalized systems (as cited in Fahim et al, op.cit, p. 4). It is also referred to as the “learner’s or user’s global proficiency, particularly as characterized in terms of the ease, eloquence, ‘smoothness’ and native likeness of speech or writing” (Chambers, 1997, Lennon, 1990; as cited in Housen et al, op.cit, p. 5). Unlike complexity and accuracy that can be observed at all levels of language, fluency has mostly, but not exclusively, to do with phonology. It is ‘multidimensional’, and the dimensions that are concerned more with speech are ‘the breakdown fluency’ and ‘the repair fluency’, while the ‘speed fluency’ can also be a writing property. Housen et al (op.cit, p. 5) refer to breakdown fluency as the “number, length and location of pauses”; repair fluency, for them, is “false starts,
misformulations, self corrections and repetitions”, and speed fluency is the “rate and density of linguistic units produced”.

2.3.2. Measures of Written Production

Ways of measuring CAF are numerous in applied linguistics. They can be holistic, qualitative and subjective measures or quantitative and objective measures (Ellis & Barkhuizen, 2005; as cited in Housen et al, op.cit, p.8). The latter are specific and favoured by researchers, while the former are general and less favoured, and the two can be said to form two ends of a spectrum of methods. The pendulum has been swaying between the two ends of the spectrum of measuring across the years, but the real question is about their appropriateness and usefulness to the study at hand rather than which method is trendier (Housen et al, ibid).

2.3.2.1 Qualitative Measures

Many researchers like Halleck (1995), Wolfe-Quintero (1998), Ortega (2003) and Norris and Ortega (2009) have critically surveyed the methods used in measuring the CAF across research (as cited in Housen et al, op.cit, pp. 8-9). Polio (1997) conducted a study in which she described and compared three measures of linguistic accuracy in L2 (English) essay writing. Her aim was to help researchers in L2 writing choose the appropriate measure of linguistic accuracy. Polio (op.cit) found out through her survey that the dominant measures of linguistic accuracy are the holistic scales, the number of error-free units and the number of errors. The measure of choice in our study is holistic, for it is “suitable for a wide range of proficiencies” (Ishikawa, 1995; as cited in Polio, op.cit, p. 112), and it can also discriminate between high and low quality essays as Polio (op.cit) claims.

According to Hyland (2003, p. 227), a “holistic scale is based on a single, integrated score of writing behaviour”. It is a method that measures the quality of a writing piece in one single and general impression. For those who use this kind of measure, writing forms one entity, and the quality of this entity is best accounted for by one global score. Furthermore, the holistic scale emphasizes what the writer can do well instead of focusing on the weaknesses in his/her writing and tracking the errors in it (Write, 1994; as cited in Hyland, 2003, p. 227).

In a holistic scale, criteria are made explicit through the use of scoring guides or rubrics. A holistic rubric is “a rating scale . . . that outlines the scoring criteria. Holistic
scoring rubrics generally consist of 4 to 10 levels or bands, each of which corresponds to a score and a set of descriptors.” (Park, 2008, p. 1). In other words, these rubrics can take the form of a step scale in which each step describes a given proficiency criterion and is given a specific score. According to Hyland (2003), rubrics are meant to reflect the scorer’s objectives and perception of good writing. They are designed to fit a particular genre, a given topic or a set of topics and learners’ differences. Already established scales may be used or adapted by teachers to score the learners’ pieces of writing.

Holistic scales may be easy, appropriate and useful for judging the quality of essays, but they also have many shortcomings. According to Cohen (1994), holistic scoring gives a global impression of a wide range of abilities and is time saving; it is also simple to use by a single novice scorer and can emphasize some specific criteria of a writing task. However, holistic scales give no diagnostic information about particular abilities such as the ability to use complex sentences; therefore, teachers cannot use them to give feedback to learners. Details are not given, thus the exact areas of deficiency are not distinguishable (as cited in Hyland, 2003, p. 227).

Despite the cons of the holistic scale, researchers generally agree about its reliability. Polio (op.cit) reported in her previously mentioned study that holistic scales are highly reliable in measuring linguistic accuracy, which is not the only but a major indicator of good writing. Among the four studies using different holistic scales that Polio (op.cit) surveyed, Hamp-Lyons and Henning’s (1991; as cited in Polio, op.cit) scale was reported to be the most reliable; therefore, she created a holistic scale based on the one of Hamp-Lyons and Henning (1991), used it in her study and compared it to the other scales. She concluded that it was reliable. From Polio’s (op.cit) scale, we adapted one of the two traits used in this study (see Appendix 1) which is the linguistic accuracy trait. The other trait we used is the essay organization trait that was adapted from a rubric for persuasive writing found in “501 Writing Prompts”, a book written by the Expert Writers of the Learning Express Organization. The scale we used is a multiple-trait scoring which means that it is sharper and more sophisticated than the holistic scale.

As a final point, it is important to note that Polio (op.cit) puts both the holistic scale and the multiple-trait scale in the same category which is holistic or global measures, while others like Hyland (2003) put it in a separate category. However, what we emphasize is that despite their differences both measure errors globally and weigh their
severity. The multiple-trait scoring resembles the analytic scoring in the fact that distinct writing features are scored separately; however, all features must be related and share the same context; thus, writing is many-sided but also forms a unity.

2.3.2.2 Quantitative Measures

According to Housen et al (op.cit), a wide range of quantitative measures for the CAF exists, among which are frequencies, ratios and indices. These measures are designed to evaluate each one of the three dimensions (complexity, accuracy and fluency) separately from the others in different ways for each dimension.

When measuring accuracy, the researcher may adopt either a specific quantitative measure or a general one. Using a specific measure means that the researcher targets a specific structure by engaging his/her participants in a focused task (Ellis & Barkhuizen, 2005; as cited in Vercellotti, op.cit, p. 10). In other words, to measure the accuracy of a given form of language, the task given to the students must elicit this target form (Ellis, 2012, p. 226). An example of measuring linguistic accuracy on a specific form is counting the number of subject-verb agreement errors per clause. This specific way of measuring errors, according to Ellis and Barkhuizen (2005), does not reflect the students’ overall linguistic accuracy (as cited in Vercellotti, op.cit, p. 10). Furthermore, the change of topic across tasks affects the ability to compare the results obtained by measuring accuracy in this way because certain topics may call for the use of the specific form more than others. In the other way of measuring accuracy, the general quantitative measure, the researcher counts the overall number of errors in a unit that can be a clause or in 100 words (Vercellotti, op.cit, p. 11). General measures are better at reflecting the learners’ overall linguistic accuracy.

According to Vercellotti (ibid, p. 14), a countless number of language complexity measurements exist. Complexity can be measured based on sophistication or variety. For example, the research question may target measuring the use of a variety verb tenses like in Robinson, Cadierno, and Shirai (2009; as cited in Vercellotti, op.cit, p. 15). Another way to measure complexity is by measuring the syntactic or grammatical complexity of a text. To do this, the researcher may use the tool of estimating the length of a sentence by counting the number of its words. Another tool of measuring grammatical complexity is to count the additional phrases in each sentence, and a third tool is the one of counting the subordinate clauses. Complexity can also be measured through measuring the lexical variety. To capture such variety the number of word
types is divided by the total number of words; for example, a researcher may choose to count the number of functional words to lexical words. This measure is called the type-token ratio (TTR) (Ellis and Barkhuizen, 2005; as cited in Vercellotti, ibid, p. 18). Another way to measure lexical complexity is by counting the relative frequency of the sophisticated words. For example, a researcher may count the number of hard words in a unit of ten words (Vercellotti, op.cit, p. 19).

Measuring fluency across research focuses mainly on oral production by estimating the rapidity of speech or the articulation rate, number of hesitations or repairs. However, in writing measuring fluency is more or less different. In previous research, fluency was measured through counting the total number of words written within a specific time limit for a given task. However, other tools are used in more recent research. In studies like the one of Wigginsworth and Storch (2009), fluency was measured by counting the total number of T-Unit (Terminable Unit), knowing that a “T-unit is defined as an independent clause and all its attached or embedded dependent clauses” (as cited in Sadeghi & Mosalli, 2012, p. 53).

Quantitative measures of linguistic accuracy are criticized for not reporting the severity of errors. Furthermore, Polio (op.cit) states in her study that while the reliability of holistic measures was high in evaluating essays, the one of quantitative measures was low. The holistic measures are also more reliable in measuring the production of heterogeneous populations, which is arguably the case in our study. This reliability justifies our choice of using a holistic measure.

**Conclusion**

Writing is a valuable skill for second language teaching and learning. It is also one that is far from being easy to learn. While the ability to write is common, good writing is not. However, once mastered, writing gives a voice to the learner, a way to prove his/her existence in the academic life. In this chapter, we presented the writing skill in the academic context as the learner’s means to demonstrate learning and discuss opinions. Therefore, academic writing is presented basically as argumentative. Measuring the written product is another point discussed in this chapter. This product has different dimensions that can be measured qualitatively and holistically or quantitatively and separately. These dimensions are accuracy, complexity and fluency. For our study, linguistic accuracy is the dimension of choice that will be measured holistically.
Chapter Three: Teachers’ Perceptions of Differentiated Instruction

Introduction

3.1 Sample
3.2 Description of the Questionnaire
3.3 Analysis of the Results

Conclusion
Introduction

The current chapter deals with the research situation supporting our study. The source of the data presented, analysed and interpreted in this chapter is a questionnaire for teachers. The questionnaire gives the English Department teachers at the University of OEB an opportunity to express their attitudes towards their students’ differences. We aim at answering the first question of our study which asks about the way teachers treat and cope with students’ differences. We suggested that students’ differences may be ignored by teachers and thus DI may be neglected. Through this chapter, we describe the questionnaire and analyse the data extracted from it to verify the first hypothesis of this study.

3.1. Sample

A total number of 24 questionnaires were distributed to the confirmed teachers of the English Department at the University of OEB. The 29 teachers are our population of choice. The entire population was chosen to be studied because of its small size (Dörnyei, 2003, p.73). However, the questionnaires were distributed only to the available teachers, and our supervisor was exempted from answering the questionnaire because of her awareness of the study. The 24 participants were handed the questionnaire and 20 of them returned it with the answers while four of them did not respond. Seventeen of the questionnaires that were returned were distributed by hand in a paper format while electronic copies of the three remaining questionnaires were sent and recovered by e-mail.

We also like to note that the questionnaire was not piloted for time limitation reasons. Therefore, we do not dismiss the fact that the results may be slightly affected by the absence of this important but also time consuming step (Dörnyei, ibid, p.51), and reference to the questions were change could have taken place is made in the analysis part.

3.2. Description of the Questionnaire

The questionnaire (see Appendix 2) consists of twenty seven questions, which vary between multiple options and closed-ended questions. It was designed to investigate teachers’ awareness of their students’ differences and how they cope with those differences. Another aim behind designing the questionnaire was to examine the teachers’ knowledge and perceptions of Differentiated Instruction.
The questionnaire was meant to answer the first question of our research: “How do teachers treat and cope with students’ differences?” We hypothesise that students’ differences may be ignored by teachers and thus differentiating instruction may be neglected.

The questionnaire includes four sections which are divided as it follows:

**Section I: General Information**

The first section which is composed of three questions (Q1-Q3) is the General Information section of the questionnaire. It is about the degrees the teachers hold, the experience they have at the university and how much they like their profession. The questions asked in this section aim at having an idea about the participants’ teaching careers and their attitudes toward their profession. The questions are used to draw a relationship between the teachers’ experience, how much they like their profession and their awareness of their students’ differences.

**Section II: Learners’ Differences**

The second section of the questionnaire is composed of nine questions (Q4-Q12), and it is meant to examine the teachers’ awareness of their students’ differences. It asks questions about the teachers’ perceptions of and attitudes toward the existence (Q4), the nature (Q5) and the impact of students’ differences (Q6 and Q7). The section also asks about the teachers’ understanding of the three students’ characteristics that are used to differentiate instruction, namely interest (Q8), learning profile (Q9) and readiness level (Q10). After that, the section questions are used to figure out the nature of the teachers’ beliefs about their students’ differences and relate those beliefs to some decisions about the way they teach in Q11 and Q12.

**Section III: Differentiated Instruction**

This section contains 14 questions (Q13-Q26), which are about the teachers’ understanding of DI as a concept and as a practice. The section deals first with what teachers may erroneously conceive as DI (Q13). Secondly, it deals with the principles of DI, namely attending to students’ differences (Q14, Q15, Q16, Q17, Q18 and Q19), ongoing assessment (Q20 and Q21), flexible grouping (Q22, Q23 and Q24) and scaffolding (Q25 and Q26). The questions are intended to investigate whether consciously or unconsciously teachers implement DI principles and translate them into strategies.
Section VI: Further Suggestions

This section consists of one question (Q26) which is about any suggestion or comment that the respondents may want to add in order to clarify their answers or contribute to the aim of the questionnaire.

3.3. Analysis of the Results

Section I: General Information

Q1: What degree do you hold?

Answers to the first question can be put in one category which is Magister. Another category corresponding to ‘No answer’ has been added. The results are displayed in Table 2 where \(n\) indicates the number of a sample portion members and \(N\) indicates the total number of the sample members.

<table>
<thead>
<tr>
<th>Held degree</th>
<th>(n)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magister</td>
<td>19</td>
<td>95</td>
</tr>
<tr>
<td>No answer</td>
<td>01</td>
<td>05</td>
</tr>
<tr>
<td>(N)</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2 shows that 95\% of the respondents, who are confirmed teachers at the university level, hold a Magister degree which is a high degree in English as a Foreign Language and is, along with the Doctorate degree, required to teach at this level. Table 2 also shows that one teacher did not answer Q1, a fact we link to forgetfulness or lack of attention as a probability, for no other teacher seemed to have a problem with answering this question. The results obtained demonstrate that our teachers have all a high degree in teaching which means that they were highly instructed and well trained to handle all types of learners and all kinds of instructional practices.

Q2: How long have you been teaching English at the university?

Teachers’ answers to this question ranged from six months to 20 years. The exact answers are presented in Table 3 in years of experience \(x_i\) and the number of teachers giving the same answer \(n_i\), where \(i\) is the number of the cases that changes between 1 and 20.
The majority of the teachers have the experience of four years of practice at the university level. We deduced that by extracting the mode \((M_o)\), which is the modality that corresponds to the highest frequency \(Max (f_i) = 0.25\), where \(f_i = n_i/N\). The mode is, therefore, given by the following equation: \(f(M_o)= Max (f_i): Max (f_i) = 0.25\).

To know the average experience of our respondents, we calculate the mean \((\bar{X})\) that is given by the following equation: \(\bar{X}= \frac{1}{N} \sum_{i=1}^{n} n_i x_i \Rightarrow \bar{X} = 4.75\).

The average experience of the respondents is of 4.75 years. This signifies that they rather have a short experience which can affect their familiarity with students’ differences and how to deal with them. However, we deduce from counting the standard deviation \((SD = 4.41)\) that the teachers’ experiences deviate from the mean by 4.41 years. This means that most teachers (almost 90% if we follow the distribution in Table 3) have an experience between four months \((\bar{X}–SD)\) and 9.16 years \((\bar{X}+SD)\). Therefore, we can say that since there is a fairly big variance between different teachers’ experiences, it is impossible to affirm that teachers are not familiar with their students’ differences relying only on the average of their experience.

We note that standard deviation \((SD)\) is given by the following equation:

\[
SD = \sqrt{\frac{1}{N} \sum_{n=1}^{n} n_i. x_i^2 - \bar{X}^2} \Rightarrow SD = 4.41
\]

Q3: How do you like your profession?

Teachers’ answers to this open-ended question varied between those who affirmed liking their profession and those who dislike it. The aim behind making this question open-ended and putting it in this particular linguistic form was beyond getting a ‘yes’
or ‘no’ answer and beyond knowing how much they like teaching, and we did not take it for granted that they do. Our aim was to incite teachers to express their feelings towards teaching since believers in DI view the profession as a highly humanistic endeavour in which feelings play a major role (Chen, op.cit). However, our choice seemed to influence eight teachers (40%) to skip answering the question. While five of them made no comments, the three remaining commented about finding it ambiguous or double barrelled. Ten of the teachers (50%) said they like their profession and expressed it in different ways. Some said they love it; others said they enjoy it while one teacher said that it was one of the things s/he has always aspired for, and another said s/he respects his/her profession. The two remaining respondents (10%) said they like their profession very little. The results extracted from this question show that the majority of the teachers, who answered this question and who are the half of our respondents, like their profession. Therefore, we dare say that they are inclined to strive for good teaching which is, according to Tomlinson (2001), equivalent to DI.

From the results of Section I, we can deduce that our teachers have high degrees, enough experience and mostly positive feelings toward their profession. Those facts mean that their awareness about the students’ differences and their striving to meet those differences cannot be influenced negatively by their characteristics (degree, experience and feelings), if they are not influenced positively.

Section II: Learners’ Differences

Q4: There are more similarities than differences between my students.

a) Agree
b) Disagree
c) Neutral

Table 4

<table>
<thead>
<tr>
<th>Teachers’ Opinions about their Students’ Similarities and Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Options</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Agree</td>
</tr>
<tr>
<td>Disagree</td>
</tr>
<tr>
<td>Neutral</td>
</tr>
<tr>
<td><strong>N</strong></td>
</tr>
</tbody>
</table>

Table 4 shows that more than the half (55%) of the respondents disagree with the fact that students have more similarities than differences. Most of them think that
students’ differences are dominant. However, a relatively large portion (35%) thinks that students are generally similar; whereas, two teachers (10%) remained neutral about comparing students. The teachers’ responses prove that they are aware of their students’ individuality despite the general treats that all individual learners share. This belief is one that differentiating teachers have, for they base instruction not only on students’ differences but also on their commonalities (Tomlinson & Imbeau, op.cit, p. 28).

**Q5: My students may differ in terms of the following:**

a) Background experience  
b) Prior knowledge  
c) Language proficiency  
d) Interests  
e) Cognitive readiness  
f) Modes of learning  
g) Speed of learning  
h) Need for support  
i) Confidence as a learner  
j) Motivation  
k) Other ways: please, specify

In Q5 we have asked our respondents to choose more than one option if they feel the need to do so, and the result was that, except for the sequence (a-b-c-d-e-f-g-h-i-j) that was chosen by four teachers, no two other teachers chose the same sequence of answers. Therefore, we put the answers to this question in Table 5 and Figure 1.
Table 5  
Students’ Areas of Differences

<table>
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</thead>
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<tr>
<td>b</td>
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<td>d</td>
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<tr>
<td>e</td>
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<td>65</td>
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<tr>
<td>f</td>
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<td>g</td>
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<td>i</td>
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</tr>
<tr>
<td>j</td>
<td>14</td>
<td>70</td>
</tr>
<tr>
<td>k</td>
<td>01</td>
<td>05</td>
</tr>
</tbody>
</table>

Figure 1. Students’ Areas of Differences

Table 5 shows that almost all of the teachers (90%) opted for language proficiency as a major difference between their students. A high percentage of them also chose confidence (70%), motivation (70%), interests (65%) and cognitive readiness (65%) as flagrant differences. Moreover, while prior knowledge, background experience and the speed of learning scored high enough to be considered as noticeable differences (60%, 50% and 50%, respectively), modes of learning and need for support scored low (40% and 35%, respectively). Additionally, one teacher added learning styles as a difference which is the same as learning modes; thus we can say that option (f) got 45% which remains a relatively low score.

We deduce that our teachers, generally, recognize all the options mentioned above as differences between their learners, but at different degrees of importance (Figure 1). However, in differentiated classrooms, teachers know that their students differ in terms of all of those and much more, and the importance given to one difference at the expense of the others is not static, but it is rather the result of classroom circumstances and students’ instant needs (Tomlinson, 2001; Tomlinson & Imbeau, op.cit). Consequently, a differentiating teacher would have ticked all the options while in the case of this study only 20% of the respondents did that.

Q6: My students’ differences make of my teaching a more complex task.
a) Yes
b) No
Table 6

Teachers’ Attitudes toward their Students’ Differences

<table>
<thead>
<tr>
<th>Options</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>No</td>
<td>08</td>
<td>40</td>
</tr>
<tr>
<td>N</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

As presented in Table 6, while 60% of the respondents think that their students’ differences complicate their teaching, only 40% think that they do not. These results demonstrate that, unlike differentiating teachers, the respondents generally perceive students’ variation from a negative angle. They see in it a source of problems and not an opportunity toward responsiveness and better teaching. Differentiating teachers see themselves as learners and apply what they preach, i.e., they accept the challenge that learners’ differences bring the same way they induce learners to accept and learn from the challenges they put them through (Tomlinson, 2001, pp. 13,17).

Q7: If “No”, please explain

Teachers who have answered Q6 by a ‘No’ mostly explained that they perceive no problems in students’ variation since their students are all similar. Some others, however, said that students’ differences push them to make the necessary effort and to give more in order to fulfil the students’ needs. Another teacher said that students’ variation makes the teaching experience more enjoyable and that complexity is faced only when teachers fail to recognize the students’ differences. Therefore, we deduce that although few, some of the teachers have the attitude of differentiating teachers.

Q8: My students’ interests influence their engagement with the content of my class.

a) Yes
b) No

Table 7

Teachers’ Attitudes toward their Students’ Interests

<table>
<thead>
<tr>
<th>Options</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
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<td>70</td>
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<tr>
<td>No</td>
<td>03</td>
<td>15</td>
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<td>03</td>
<td>15</td>
</tr>
<tr>
<td>N</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>
From Table 7, it seems that most of the teachers (70%) view students’ interests as an influencing element of engagement with the content of the class. Nevertheless, 15% of them do not think that interest has anything to do with students’ engagement. A portion of 15% did not answer the question, for the probable reason that there is no clear cut answer to this question in their opinion. It depends on the content of the class and the degree to which engagement is needed. In a differentiated classroom, a ‘no’ answer is not an option for this question, for interest is a major area in which students may differ, and it is a strong motive for engagement (Tomlinson, 2001, p. 53).

**Q9: My students’ learning profiles are:**

- a) The ways individual learners learn best.
- b) Individual differences in cognitive organization and functioning.
- c) The brain based predispositions we all have for learning.

<table>
<thead>
<tr>
<th>Options</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>04</td>
<td>20</td>
</tr>
<tr>
<td>b</td>
<td>08</td>
<td>40</td>
</tr>
<tr>
<td>c</td>
<td>02</td>
<td>10</td>
</tr>
<tr>
<td>ab</td>
<td>02</td>
<td>10</td>
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<tr>
<td>abc</td>
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<td>05</td>
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<tr>
<td>No answer</td>
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<td>15</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

Results in Table 8 show that 40% of the respondents chose to define learning profiles as individual differences in cognitive organization and functioning while 20% opted for the ways individual learners learn best as a definition, and 10% opted for defining them as the brain based predispositions we all have for learning. A 10% percentage chose to define learning profiles as both individual differences in cognitive organization and the ways individual learners learn best, and only one teacher (5%) perceived them to be synonymous to the three options (a, b and c). Additionally, 15% of our respondents did not answer Q9 for the probable reason that none of the options fulfilled their own definition of learning profiles. An ‘other’ option would have clarified this point. Figure 2 shows that option ‘b’ is favoured among teachers while ‘a’
and ‘c’ come successively next. However, a differentiating teacher would have recognized the three options ‘a’, ‘b’ and ‘c’ to be equally valid definitions. The three of them may seem synonymous, but they derive from different disciplines and views that influence both teaching and learning, namely humanism, cognitivism and brain research (Tomlinson, 2001, pp. 60-62). This means that only one teacher sees learning profiles as DI does and thus recognizes the influence of different views and fields.

**Q10: My students’ readiness level is:**

a) Static and related only to their intellectual abilities.

b) Transitory and susceptible to development.

c) The point where they are at their developmental process.

<table>
<thead>
<tr>
<th>Table 9</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teachers’ Perception of Students’ Readiness Level</strong></td>
</tr>
<tr>
<td><strong>Options</strong></td>
</tr>
<tr>
<td>a</td>
</tr>
<tr>
<td>b</td>
</tr>
<tr>
<td>c</td>
</tr>
<tr>
<td>bc</td>
</tr>
<tr>
<td>No answer</td>
</tr>
<tr>
<td><strong>N</strong></td>
</tr>
</tbody>
</table>

In Table 9, it is apparent that more than the half (60%) of the respondents think of students’ readiness levels as transitory and susceptible to development, and a portion of 20% have the erroneous perception that readiness levels are static and related only to students’ intellectual abilities. One teacher (5%) defined readiness as the point where students are at their developmental process while only one other (5%) did that along with perceiving it as transitory, like a differentiating teacher would do (Fox & Hoffman, op.cit, p. 22). According to the results displayed in Table 9 and in Figure 3, we can see that the majority of the teachers understand that students’ readiness at any point is a transitory stage. Some of them, however, perhaps confuse it with cognitive ability by describing it to be static and related to intellectual abilities, as it is usually the case for non-differentiating teachers. It is also important to note that 10% of them did not give an answer to this question for they may have another idea about readiness, and here also an ‘other’ option would have clarified things.
Q11: It is important to know the names of all my students.

a) Agree  
b) Disagree  
c) Neutral

Table 10  
*Teachers' Attitudes toward Knowing their Students' Names*

<table>
<thead>
<tr>
<th>Options</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>13</td>
<td>65</td>
</tr>
<tr>
<td>Disagree</td>
<td>02</td>
<td>10</td>
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<tr>
<td>Neutral</td>
<td>05</td>
<td>25</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

As shown in Table 10, the majority of the respondents (65%) agreed on the fact that it is important to know the names of their students, and only 10% of them judged it not important while the rest chose to remain neutral. Differentiating teachers, however, believe that a students’ name is what makes him/her not only different but unique and knowing it gives value to this uniqueness; therefore, it is of major importance to know all the students’ names (Fox & Hoffman, op.cit, p. 7).

Q12: It is important to know one personal thing about each of my students.

a) Agree  
b) Disagree  
c) Neutral

Table 11  
*Teachers’ Attitudes toward Knowing one of the Students’ Personal Facts*

<table>
<thead>
<tr>
<th>Options</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>09</td>
<td>45</td>
</tr>
<tr>
<td>Disagree</td>
<td>07</td>
<td>35</td>
</tr>
<tr>
<td>Neutral</td>
<td>04</td>
<td>20</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

In Table 11, less than the half of the teachers (45%) think that it is important to know one personal thing about their students. Furthermore, approximately the same number of teachers (35%) thinks that personal facts are not differences worth knowing, and 20% of them chose to remain neutral about judging such importance. However, DI
advocates give high importance to such variation, treat it with vigilance and describe it as a key component to success because it makes students feel their importance and again their uniqueness. This belief is one of the points that DI critics hold against it, for it is a formidable task to know personal things about students, considering the crowdedness of most classrooms (Fox & Hoffman, ibid).

Section II reveals that the respondents are aware of the existence of differences between their students. However, few of them recognize the true nature of these differences and give them equal importance as a differentiating teacher would do. In addition to that, most of them perceive their differences as being a complication source. Concerning students’ distinctive characteristics, the participants seem to be more or less aware of the nature and impact of students’ interests, levels of readiness and learning profiles despite the fact that they do not define them as DI does. Furthermore, it is apparent that most of them sense the importance of the students’ uniqueness and individuality.

Section III: Differentiated Instruction

**Q13: By Differentiated Instruction I understand:**

a) An innovation in teaching.
b) Extra help for struggling students.
c) Extra work for those who finish first.
d) Making learning easy for each learner.
e) A personalized learning plan for each student in every lesson.
f) A way of teaching that a teacher may adopt or reject.

In Q13 the respondents were asked to choose more than one option if they feel the need, and the result was that they gave very different sequences of answers. As with Q5, our aim is to find out what the majority of our teachers consider differentiation to be. Consequently, the answers to this question were put in Table 12 and Figure 4.
The results in Table 12 and Figure 4 indicate that most of the teachers (65%) think that DI is supposed to make learning easy for each learner while 40% of them defined it as a personalized learning plan for each student in every lesson. Another significant percentage of 35% thought of DI as an innovation in teaching whereas 35% of them thought of it as a way of teaching that a teacher may adopt or reject. Five teachers (25%) considered DI as extra help for struggling students, and a smaller number of them (15%) considered it as extra work for those who finish first. A differentiating teacher, however, would have chosen none of the options above. It is important to say, therefore, that a ‘None’ option would have been enlightening although we do not believe that the results would have been much different.

We can deduce from the results in Table 12 that the respondents have an erroneous conception of DI, for the mentioned-above options are exactly what differentiation is not for Tomlinson (2001). She declares that the philosophy of responding to students’ differences has existed and been adopted by teachers since the Chinese philosopher Confucius, but DI strategies are new; therefore, she claims that DI is not an innovation. DI is not just extra help or extra work, nor it is supposed to make learning easy. It offers different help and different work for different students, and it is supposed to make learning slightly beyond the level of each learner for it to be moderately challenging but possible. Tomlinson (2001) also claims that DI is not a personalised plan for each learner, but it is rather planning differently for groups of learners; it emphasizes commonalities as it does for differences. Finally, she claims that good teachers inevitably differentiate, for they accept and want the best for their different students, so they cannot reject DI (Fox & Hoffman, op.cit; Tomlinson, 2001; Wormeli, op.cit).
Q14: I assess my students’ prior knowledge before starting a new lesson.

a) Never
b) Rarely
c) Always

Table 13

<table>
<thead>
<tr>
<th>Options</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>02</td>
<td>10</td>
</tr>
<tr>
<td>Rarely</td>
<td>06</td>
<td>30</td>
</tr>
<tr>
<td>Always</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>N</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

As we can see in Table 13, more than half of the teachers (60%) responded to Q14 by affirming that they always assess their students’ prior knowledge before starting any new lesson. Moreover, 30% of the teachers also stated that they do the same but rarely, and only two (10%) confirmed that they never assess prior knowledge. Consequently, 90% of teachers check their students’ accumulated learning. However, it is important to note that differentiating teachers use the information obtained from assessing students’ prior knowledge not only to fill gaps in understanding for the whole class, as is the case with regular teachers, but rather to build new lessons for groups that are at different levels of readiness (Wormeli, op.cit, p. 39).

Q15: Inside my classroom,

a) I am the authority on all knowledge.
b) I ask for my students’ opinion and input.
c) Both

Table 14

<table>
<thead>
<tr>
<th>Options</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
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<tr>
<td>c</td>
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<tr>
<td>N</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 14 shows that nearly all teachers (90%) believe that input inside the classroom is provided by both the teacher and the students. Presenting the content of a lesson is done collaboratively by the two parties. However, choosing both options (being an
authority and asking for students’ contributions) means that the teachers are open to suggestions but save themselves the right to have the last say. While only two teachers (10%) claimed giving their learners more freedom to express their opinions, no teacher claimed being the overall authority. The explanation of the results may be that our teachers’ classrooms are typical modern classrooms where instruction is student-centred; therefore, it is only natural that freedom of opinion and contribution is granted to learners. However, in a differentiated classroom, things are slightly different: much more flexibility in decision making exists (Tomlinson, 1999, p. 16); hence teachers are less of an authority and more of learners themselves (Tomlinson, 2001, p. 5).

**Q16: I give interest inventories.**

a) Never  
b) Rarely  
c) Always

Table 15  

<table>
<thead>
<tr>
<th>Options</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
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<td>15</td>
</tr>
<tr>
<td>Rarely</td>
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<tr>
<td>Always</td>
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<td>20</td>
</tr>
<tr>
<td><strong>N</strong></td>
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<td>100</td>
</tr>
</tbody>
</table>

We have deduced from Q8 that teachers find that students’ interests highly influence their students’ engagement with the content of the lesson or the whole class. However, the results in Table 15 demonstrate that half of these teachers rarely or never (15%) give interest inventories while only 15% claimed that they always give such inventories. In a differentiated classroom, checking students’ interests is done on a regular basis, for instruction is built upon the results obtained from such routine. Furthermore, interest is one basic characteristic of students’ variation that cannot be overlooked and to which teaching must be responsive (Fox & Hoffman, op.cit, p. 30).

**Q17: I spend the class time:**

a) Delivering the same content to all of my students.  
b) Guiding my students through one activity at a time.  
c) Guiding my students through different activities at the same time.
Table 16

*How Class Time Is Spent*

<table>
<thead>
<tr>
<th>Options</th>
<th>n</th>
<th>%</th>
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</thead>
<tbody>
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<td>b</td>
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<tr>
<td>c</td>
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<td>05</td>
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<tr>
<td>ab</td>
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</tr>
<tr>
<td>N</td>
<td>20</td>
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</tr>
</tbody>
</table>

Table 16 shows that the respondents spend their class time delivering the same content to all of the students (60%), guiding them through one activity at a time (15%) or doing both starting with delivering the content then giving a classroom activity (20%). Figure 5 proves that teachers mostly deliver the same content to the whole class, for the option ‘a’ has been ticked 16 times. Second in order is guiding the students through one activity; the option ‘b’ has been ticked seven times. Only one teacher affirmed guiding the students through different activities at the same time. The teachers’ answers to this question show that there is almost no sign of DI in the regular classroom, for differentiation advocates claim that teachers should spend most (not all) of the class time guiding students through different activities as a response to their differences (Tomlinson & Imbeau, op.cit, p. 22).

**Q18: When I give my students an assignment (e.g., a project),**

a) I give verbal directions.

b) I give a sample of the expected outcome.

c) I only assign the work to be done.

d) Other: please, specify

Table 17

*The Way Teachers give Assignments*

<table>
<thead>
<tr>
<th>Options</th>
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<th>%</th>
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</thead>
<tbody>
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<td>b</td>
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<td>c</td>
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<tr>
<td>d</td>
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<td>N</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>
We can see from Table 17 that when they give an assignment to their students, half of the respondents give only verbal directions. We can also see that 20% of them only assign the work to be done without any direction or example, whereas only 10% do what a differentiating teacher would do, i.e., they give directions and a sample of the expected work. Table 17 also shows that although choosing ‘c’ is contradictory to both options ‘a’ and ‘b’, 10% of the teachers chose both ‘a’ and ‘c’ while 5% of them chose the three options. Therefore, 10% claimed giving directions and only assigning the work, and 5% claimed giving directions, giving examples and assigning the work without any comments or illustrations. Those teachers probably meant that they do not undertake such actions simultaneously but according to the assignment at hand. One teacher (5%) specified by saying that s/he gives verbal directions along with written directions. Figure 6 shows that the teachers mostly give verbal directions with an assignment. They also tend to only give the work and rarely give a sample of the expected work, something that differentiating teachers do frequently alongside with verbal and written directions (Fox & Hoffman, op.cit, p. 7).

Q19: I expect all my students to finish the same work in the same way (i.e., to follow the same steps and produce the same outcome).

<table>
<thead>
<tr>
<th>Options</th>
<th>n</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
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<td>05</td>
</tr>
<tr>
<td>No</td>
<td>19</td>
<td>95</td>
</tr>
</tbody>
</table>

Nearly all the respondents (95%) believe that it is impossible to expect students to follow the same steps in producing the same outcome, and only one teacher (5%) perceived this to be possible. The results shown in Table 18 correlate with what differentiating teachers believe. However, our teachers’ answer to this question (Q19) may only prove their common sense and not their adoption of DI. Differentiating teachers do not simply find such expectation impossible but also reinforce this belief by asking for different outcomes from different students right from the beginning (Tomlinson, 2001, pp. 85-86).
Q20: My students demonstrate learning through:

a) A cumulative test at the end of the semester.
b) Many tests throughout the semester.

Table 19

*Students’ Ways of Demonstrating Learning*

<table>
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<tr>
<th>Options</th>
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<tbody>
<tr>
<td>a</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>b</td>
<td>14</td>
<td>70</td>
</tr>
<tr>
<td>ab</td>
<td>03</td>
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</table>

While most of the teachers (70%) affirmed giving many tests throughout the semester, only 15% give one cumulative test at the end of the semester, and 15% give both. From Table 19 and Figure 7, it is apparent that the respondents test learning at various points in order to evaluate students’ progress more accurately. However, giving multiple assessments does not signify that it is used for other purposes than evaluation as it is the case in differentiated classrooms (Tomlinson, 1999, pp. 10). The following question (Q21) is meant to give us further information in this regard.

Q21: When I assess my students,

a) The assessment is a source of information about their needs.
b) I intend to evaluate my students’ work.
c) I intend to categorize my students.
d) Other: please, specify

Table 20

*Purposes of Assessment*

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<th>Options</th>
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<tbody>
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<tr>
<td>b</td>
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<td>N</td>
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</tbody>
</table>

*Figure 7. Students’ Ways of Demonstrating Learning*

*Figure 8. Purposes of Assessment*
Table 20 shows that 40% of the teachers use assessment to evaluate their students. An additional purpose to the one of evaluation may be to extract information about their needs (ab: 40%). Other teachers chose extracting information and added checking understanding (bd) or providing corrective feedback and categorizing students (bcd). One teacher specified that the purpose of assessment is to fulfil one of the requirements of teaching and learning (d). From Figure 8, we can see that most of the teachers have ticked the option ‘b’. The option ‘a’ comes next; however, using assessment as an informative source about students’ needs is not a purpose that stands alone, for 0% have chosen only ‘a’ (as we can see in Table 20).

We deduce, therefore, that some of the respondents (40%) assess with the purpose of discovering students’ needs as differentiating teachers do. While option ‘a’ is a goal in itself in DI, evaluation comes after it. Categorizing students, however, in the sense of judging and putting students into categories where they are meant to stay, such as low or high-level, is not an option for DI. DI believes in teaching up for success and minimizing the achievement gap between students. Teachers need to believe that ability dwells in every student, and growth and efforts are what matter (Tomlinson, 2001).

**Q22: In my classroom, students work:**

a) Individually.
b) In pairs.
c) In small groups.
d) As a whole class.

Table 21

*Students’ Ways of Work in the Classroom*

<table>
<thead>
<tr>
<th>Options</th>
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<td>15</td>
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<tr>
<td>N</td>
<td>20</td>
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</tbody>
</table>

*Figure 9. Students’ Ways of Work in the Classroom*
The results reported in Table 21 show that the teachers make their students work in different ways. While 15% of them prefer to make students work individually, an equal percentage of teachers vary their ways according to the purpose of the class and make learners work individually, in pairs or in small groups. Another 15% added working with the whole class to this combination. As it can be seen five pairs of teachers chose different options and different combinations while the combination ‘cd’ was chosen by only one teacher. Figure 9 shows that making students work alone is the option of choice for the respondents, for it has been chosen 15 times; however, they may also make them work in pairs or in small groups. The figure also shows that they work with the whole class the least frequently (chosen eight times).

From these results, we can see that only 15% of our teachers arrange their students the way a differentiated teacher would do. The DI combination is ‘a, b, c and d’; few of the respondents work with it. However, it is difficult to know whether, for them, grouping or not grouping students is done on the same bases of DI (Tomlinson, 1999, p. 13) or not. Q23 is meant to give us further details about the bases on which teachers group their students.

**Q23: I arrange my students’ groups:**

a) Based on their levels of readiness.
b) Based on their interests.
c) Based on their learning profiles.
d) Based on their choices.
e) Randomly.
f) Other: please, specify

This question gave the teachers the opportunity to choose different options at a time which resulted in different sequences of answers. The results were put in Table 22. Our aim is to discover on which basis the teachers group their students the most.
In Table 22 and Figure 10, we can see that 45% of our teachers group their students based on their choices while another 45% group them randomly. We can also see that 15% of the respondents use interests as a basis for grouping, 5% use levels of readiness and another 5% use learning profiles. Additionally, one teacher specified that s/he never groups students, for s/he always gives the lesson to the whole class. We can deduce, therefore, that most of the time the respondents group their students randomly while grouping is never random in a differentiated classroom; it always has a basis and a goal. Teachers also let students choose their own groups frequently which is something done by a differentiating teacher but only when it serves the learning objectives of the lesson (Tomlinson & Eidson, op.cit, p. 185). For example, if the objective is to be able to use a vocabulary set to communicate some arguments, then students’ choices of a partners with whom they feel comfortable is a good option.

**Q24: I change the arrangement of the groups:**

- a) Never; once chosen the groups remain the same.
- b) When requested.
- c) With every new project or work.
- d) Every session.

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<thead>
<tr>
<th>Options</th>
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<td>d</td>
<td>03</td>
<td>15</td>
</tr>
<tr>
<td>No answer</td>
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</table>

| N | 20 | 100 |
It is clear to see from Table 23 that the respondents change the arrangement of their students’ groups most frequently (50%) when this change is requested by the students. Some of the teachers (15%) never change the groups while some others (15%) do it every session. Only 10% of them change the arrangement of the groups with every new work or project. It is also important to notice that 10% of the respondents did not answer the question; among whom is the teacher who said never grouping students. The other teacher did not answer the question for the probable reason that none of the options was the way s/he changes the grouping arrangement. In a differentiated classroom, the teacher forms new groups with every new instructional purpose which can be associated to a new work or a new session because grouping is supposed to be flexible so that students get to work with a variety of classmates in different contexts (Fox & Hoffman, op.cit, p. 83). However, changing group arrangements with every new work is another formidable task of DI but whose learning gains beat its pains.

**Q25: All my students can learn the essentials of my class.**

a) Agree  
b) Disagree  
c) Neutral

Table 24  

*Teachers’ Attitudes toward Students’ Ability to Learn the Class Essentials*

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<tbody>
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<tr>
<td>c</td>
<td>06</td>
<td>30</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>20</td>
<td>100</td>
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</tbody>
</table>

Table 24 shows that 40% of the teachers disagree with the fact that all their students can learn the essentials or the basics of their classes while only 30% of them agree with this fact. A portion of 30% of them decided to remain neutral about their students’ ability in this regard. However, in differentiated classrooms, the teachers believe that all their students can learn the essential skills and concepts of their classes or disciplines if the lesson is tiered to meet the students’ differences, and if enough scaffolding is provided (Tomlinson & Eidson, op.cit, p.190).
Q26: I think that

a) All my students need the same amount of help.
b) Different students need different amounts of help.
c) Different students need different kinds of help.
d) Some of my students do not need help.

Table 25

*Teachers’ Attitudes toward Help Needed by Students*

<table>
<thead>
<tr>
<th>Options</th>
<th>N</th>
<th>%</th>
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<tbody>
<tr>
<td>a</td>
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<td>N</td>
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</tbody>
</table>

While 30% of the respondents think that different students need both different amounts and different kinds of help, 25% think they need to vary only the amounts while 25% think they need to vary the kinds of help. Table 25 shows that 10% of the respondents also chose option ‘b’ and ‘c’, but these 10% think also that some students do not need any help (option’d’). Figure 11 shows that while no one teacher thinks that all students are the same when it comes to the needed help, some also think that students who do not need any help exist. Nevertheless, most of them think they need to vary the amounts and the kinds of help like differentiating teachers do.

This section has exposed the facts that the teachers who answered this questionnaire have an erroneous idea about DI as a concept. However, having no clear idea about the concept does not prevent them from trying to attend to students’ differences by assessing prior knowledge and collaborating with students despite the fact that assessment and collaboration are not done with the aim of differentiation. This is emphasized by the fact that little instances of a differentiated classroom are seen in the respondents’ classrooms. Concerning the three remaining principles of DI which are assessment, flexible grouping and scaffolding, Section III shows that our teachers scarcely apply them, and when they do, it is not for the same reasons of DI.
Section IV: Further Suggestions

Q27: Please, add any suggestion(s) or comment(s) you may have.

Only five out of the 20 respondents added their comments to this questionnaire. These comments consisted mainly in stating the limitations and constraints (mainly time and resources) that may face them if they consider attending to students’ differences by implementing DI, despite the fact that they consider such attending highly important. One teacher said that those constraints are discouraging factors that need to be investigated more and solved. However, enough research has tackled the constraints and the objections to DI. Critics of the concept have elaborately weighed its cons. Schmoker (2010), for example, ardently speaks about how DI does not fit any real classroom where a large number of students has to be delivered a predetermined program within a limited time to meet standards. Advocates of DI, on the other side, have responded to these claims and demonstrated the pros of the concept (see section 1.1.5 of this dissertation). Our aim, therefore, has been to merely look for any sign of DI inside the Algerian EFL classrooms, for it does not seem sensible for us to attack what may or may not have been tried. A teacher added that DI cannot always be found in classes where content is rigid, like in a civilization class. Finally, two teachers out of the five who commented this questionnaire added that they would have liked to be given an explanation option in some questions without specifying which ones.

Conclusion

We can conclude from the results obtained through this questionnaire that the respondents are well aware of their students’ differences; however, they do little to respond to these differences. The few who have given explanation have mainly mentioned the constraints on time and resources as a reason why they do not implement DI. Therefore, we can deduce that those differences are almost (not completely) ignored, and hence DI is not implemented.

Now that we have answered the first question of this research about the way teachers cope with students’ differences through this questionnaire, the hypothesis that students’ differences may be ignored by teachers, and thus DI may be neglected is confirmed. In the fourth chapter, we report the experiment conducted to examine the effectiveness of implementing one of the DI strategies which is tiered activities. By choosing this strategy, we try to respond to one type of students’ differences which is cognitive readiness.
Chapter Four: The Effect of Tiered Activities on Students’ Written Production

Introduction

4.1. Research design
4.1.1. The One-Group Pretest-Posttest Pre-Experiment
4.1.2. Research Question and Hypotheses
4.1.3. Participants

4.2. Experimental Procedures
4.2.1. The Familiarity Test
4.2.1.1 Test Participants
4.2.1.2 Test Tasks
4.2.1.3 Analysis of the Results
4.2.2. The Pre-test
4.2.3. The Post-test
4.2.3.1 The First Tier
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4.3. Data Analysis
4.3.1. The pre-test
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4.3.3.2 Detailed Scoring
4.3.4. The pre-test vs. The Post-test
4.3.5. Hypotheses Testing
4.3.5.1 Holistic score
4.3.5.2 Linguistic Accuracy
4.3.5.3 Essay Organization
4.3.6. Discussion

4.4. The Research Limitations and Implications
4.4.1. Limitations
4.4.2. Future Research Suggestions
4.4.3. Pedagogical Recommendations

Conclusion
Introduction

In this chapter, we report the pre-experiment that supports our study. We start first by presenting its design to the reader. The aim behind applying such design in our case is to examine whether students’ written production is improved by the use of tiered activities or not. We then tackle the procedures we followed to conduct the pre-experiment. We finally analyse the data and discuss them to extract pedagogical recommendations and research suggestions.

4.1. Research design

4.1.1. The One-Group Pretest-Posttest Pre-Experiment

The design of our study is a one-group pretest-posttest design. This type of research design is called pre-experiment, and described by Abbott and Mckinney (op.cit, p. 255) as a simple experimental design that allows the researcher to measure the effects of manipulating an independent variable within one group by comparing the means of a pre-test and a post-test. This type of design is used when the time interval between the pre-test and the post-test is relatively short, for there is no treatment period.

As it is known, the design of any study is bound by the nature of the variables that underlie this study (Ellis, op.cit, p. 36). Our independent variable is the activities tiered by cognitive complexity. By definition, tiering an activity is to offer parallel versions of the same activity to students of different levels (Tomlinson, 2001). This activity can be one to which our students are used (writing an argumentative essay in our case), thus it needs no training or instructional period. Our intervention consists in creating different versions of our writing activity and employing them in the post-test. Our dependent variable which is the students’ written production is also a reason behind having no treatment period. When testing production, no interlanguage development is there to be observed. What is there to be observed is the difference between the instant products of performing different activities (Ellis, op.cit).

Because there is no time interval, the internal validity of the pre-experiment is not jeopardized by the history or the maturational effects of the treatment period (Kirk, 2012, p. 26). The history and maturational effects are respectively the result of the events that might happen and the change that might occur in the participants during the treatment period. Another consequence of giving no training is that no control group is needed. If history and maturation cause no threat, then there is no point in using a comparison group (Abbott & Mckinney, op.cit, p. 255).
Choosing the one-group pretest-posttest design is suitable for the purposes of this study. It allowed us to measure and compare the written production of each participant on two occasions: the pre-test and the post-test occasions. It also allowed us to gain time and save resources, namely the use of a control group, that were difficult to afford. Therefore, we used minimum resources to have the maximum of results, which is the essence of any experimental work (Kirk, op.cit).

4.1.2. Research Question and Hypotheses

The present pre-experiment was conducted to answer the second question of our study, which asked: “What effect does differentiating instruction using tiered activities have on students’ written production?” To answer this question, we hypothesized that using activities tiered by cognitive complexity would positively affect students’ written production. This implies that our null hypothesis is the following: 

\[ H_0: \text{Using activities tiered by cognitive complexity would not have any positive effect on students’ written production.} \]

The variables investigated through this study, therefore, are activities tiered by cognitive complexity as a DI strategy and students’ written production. The first mentioned variable is our independent variable and the second is the dependent one.

To tier activities by cognitive complexity, we drew on Robinson’s (2001) model and adapted two of its variables to be the components of cognitive complexity. The first variable is prior knowledge which is composed of topic familiarity and scaffolding. This variable is a resource-dispersing variable. The second variable is perspective taking which is a resource-directing variable. Robinson (ibid) hypothesizes that a combination of the two kinds of variables may increase linguistic accuracy. Therefore, in this study, we chose to manipulate those variables simultaneously and examine their combined effect. The two variables move in the same direction towards increasing or decreasing cognitive complexity, and investigating their separate effects on written production is not within the scope of this study.

Written production, as mentioned before, is the dependent variable in this study. It is composed of two sub-variables, which are linguistic accuracy and essay organization. Through this study, we examined the effects of tiered activities on the combination of the two variables as a first step, and then we examined those effects on each variable separately, as a second step. Therefore, two sub-hypotheses needed to be formulated. The first sub-hypothesis and its null hypothesis are the following:
\( H_1 \): Using activities tiered by cognitive complexity would positively affect students’ linguistic accuracy.

\( H_0 \): Using activities tiered by cognitive complexity would not have any positive effect on students’ linguistic accuracy.

The second sub-hypothesis and its null hypothesis are the following:

\( H^* \): Using activities tiered by cognitive complexity would positively affect the students’ essay organization.

\( H_0^* \): Using activities tiered by cognitive complexity would not have any positive effect on the students’ essay organization.

### 4.1.3. Participants

Our population of choice for this pre-experiment consisted of 194 third year students of English, preparing for a Licence degree (LMD system) in Language Sciences for the academic year of 2013/2014, at the University of Oum El Bouagui. We particularly targeted this population because we opted for working on the argumentative essay, and this latter is part of the second year, third year and first year master programs. We chose third year students to receive our pre-experiment, for they have received enough instruction in writing this type of essay, but still do not master it fully. Therefore, any change caused by our intervention can be observed.

The sample taken from our population was conveniently chosen because we had to work with a group that was already formed by the administration. However, the administrative assignment of students into groups is totally random; thus, we can describe our sample to be representative in terms of randomness. According to Abbott and Mckinney (op.cit, p. 119), the right sample size is a complex question to answer; it all depends on how significant we want our statistical results to be. There is no right percentage to extract from the total number of the population. We, therefore, chose a sample size of 44 participants, who form the fourth and last group of the third year English students. However, we had to exclude 10 students who were not present to take the pre-test, and then we had to exclude another 14 students who missed the post-test. This left us with only 20 participants.

### 4.2. Experimental Procedures

Since our aim is to compute the contrast in results between a one-size fits all activity (in the pre-test) and a tiered activity (in the post-test), our pre-experimental design
consisted only of a pre-test and a post-test taken by one group of students and of one week period separating the pre-test from the post test. The pre-experiment, therefore, took two weeks, and the pre-test took place during the first one. After a familiarity test (see below in section 4.4.1) was given, a session of 90 minutes was devoted to the pre-test in which participants were asked to write an argumentative essay of medium level. After that, a holistic scale was used (see Appendix 1) to score the students’ essays. According to their scores, the participants were divided into three levels: low, medium and high. The post-test took place during the second week in a 90 minutes session. This time, different students were given different essays that matched their three levels, and this was our experimental intervention. The post-text was then scored on the same scale of the pre-test, and results were reported.

Because our intervention consisted in designing parallel activities at different levels of cognitive complexity and matching them to students of different levels, we had first to determine what is complex for third year students in order to use it in creating the different materials (the argumentative essays). To do that, and since one of the dimensions we used to create complexity is topic familiarity, we tested students’ familiarity with a set of chosen topics before we could give the pre-test.

### 4.2.1. The Familiarity Test

Before starting the pre-experiment, which consists mainly of manipulating the cognitive complexity of tasks through the variation of prior knowledge (topic familiarity and scaffolding) and perspective taking, we had first to choose the essays topics and rank them by familiarity. Therefore, we used the help of a randomly chosen third year group of students (of the same level as the experimental group). We gave them a test (see Appendix 3) that measures topic familiarity. The tasks of the test were adapted from a study conducted by Combs (2008) and are meant to be used in the pre-test and the post-test of our study. It took the students fifteen minutes to complete the tasks.

#### 4.2.1.1 Test Participants

The participants in the test were 39 third year students of English at the University of Oum El Bouaghi. The students belonged to a randomly chosen group (not the same as the experimental group). Students who participated in the test were the ones present
the day of the test. With the help of the teacher of the Writing module, in whose session the test took place, we explained the questions of the tasks and the scale directions.

4.2.1.2 Test Tasks

As we have mentioned before, the two tasks used in the familiarity test were adapted from a study carried out by Combs (2008), in which he investigated the effects of topic familiarity and text enhancement on students’ acquisition of form in a reading text. The aim of the test was to measure the students’ familiarity with eight essay topics chosen from “501 Writing Prompts”, a book authored by the Expert Writers of the Learning Express Organization. We judged eight to be a suitable number since we first needed four (the half) topics to use in the pre-test and post-test. Second, we did not want to confuse and tire participants with too many topics. The eight chosen topics were the benefits of reading contemporary English literature, the relationship between money and happiness, modern slavery, human cloning, experiments on animals, obligatory military service, social networking sites and footballers’ salaries. When choosing these topics, we considered diversifying them in order to meet students’ different interests. We also considered gender by choosing more or less neutral topics according to our own perception of familiarity.

The first task asked the students to rate their degree of familiarity with the eight topics on a five-point Likert scale. The Likert scale associates the highest score (5) to the most familiar topic and the lowest score (1) to the least familiar topic (see Appendix 3). The aim behind this task was to examine the third year students’ perception of familiarity regarding the eight suggested topics.

In the second task, we asked students to name words that they associated with each one of the eight topics. Students were encouraged to write down as many words as they could think of when each topic was mentioned. Their familiarity with the topic was reflected by the number of words they could name as a first step. However and more importantly, it was reflected by how relevant these words are, i.e., whether we could really associate these words to the topic or not, and whether they could be used in producing arguments. Therefore, in this task, we judged the students’ familiarity with the topics based on the number of relevant and meaningful words found in their answers. The aim behind designing this task was to support the conclusions inferred from the first task, for one student may think s/he knows a lot about a topic yet be wrong in his/her judgement and fail to come up with relevant words. Furthermore, it is
important to note that full sentences or phrases, which can be summarised in just one word, have been counted as one word.

### 4.2.1.3 Analysis of the Results

For the first task, the results of students’ rankings of topic familiarity on a five-point Likert scale and the percentages of those rankings are reported in Table 26.

**Table 26**

*Results of Familiarity Ranking from the First Task*

<table>
<thead>
<tr>
<th>Topic</th>
<th>The five-point Likert scale</th>
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<td></td>
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</tr>
<tr>
<td>The benefits of reading contemporary English literature</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>12.82%</td>
</tr>
<tr>
<td>The relationship between money and happiness</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>33.33%</td>
</tr>
<tr>
<td>Modern slavery</td>
<td>2</td>
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<tr>
<td></td>
<td>5.13%</td>
</tr>
<tr>
<td>Human cloning</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2.56%</td>
</tr>
<tr>
<td>Experiments on animals</td>
<td>4</td>
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<tr>
<td></td>
<td>10.26%</td>
</tr>
<tr>
<td>Obligatory military service</td>
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<td></td>
<td>25.64%</td>
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<tr>
<td>Social networking sites</td>
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<tr>
<td></td>
<td>38.46%</td>
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<tr>
<td>Footballers’ salaries</td>
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</tr>
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<td>0%</td>
</tr>
</tbody>
</table>

It is clear from Table 26 that students’ familiarity with the topics is not evenly distributed; it differs significantly from one topic to the other. To facilitate the comparison between the different rankings, we first counted the familiarity means ($\bar{X}$) and the standard deviations (SD) (shown in Table 27) then we built a stacked bar (shown in Figure 12).
Table 27. 
Means (\(\bar{X}\)) and Standard Deviations (SD) of the Topics Familiarity

<table>
<thead>
<tr>
<th>Topic</th>
<th>Mean ((\bar{X}))</th>
<th>Standard deviation (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The benefits of reading contemporary English literature</td>
<td>2.35</td>
<td>1.86</td>
</tr>
<tr>
<td>The relationship between money and happiness</td>
<td>4</td>
<td>0.92</td>
</tr>
<tr>
<td>Modern slavery</td>
<td>2.46</td>
<td>1.33</td>
</tr>
<tr>
<td>Human cloning</td>
<td>3</td>
<td>0.97</td>
</tr>
<tr>
<td>Experiments on animals</td>
<td>3.18</td>
<td>1.07</td>
</tr>
<tr>
<td>Obligatory military service</td>
<td>3.43</td>
<td>1.67</td>
</tr>
<tr>
<td>Social networking sites</td>
<td>3.49</td>
<td>1.97</td>
</tr>
<tr>
<td>Footballers’ salaries</td>
<td>1.74</td>
<td>0.56</td>
</tr>
</tbody>
</table>

We note that familiarity means (\(\bar{X}\)) and the standard deviations (SD) were counted using the following equations:

\[
\bar{X} = \frac{1}{N} \sum_{i=1}^{n} n_i \cdot x_i
\]

\(x_i\) is the familiarity score ranging from 1 to 5 and \(n_i\) is the number of students who have associated a given score to a given topic.

\[
SD = \sqrt{\frac{1}{N} \sum_{n=1}^{n} n_i \cdot x_i^2 - \bar{X}^2}
\]

Figure 12. Stacked Bar Graph for Topic Familiarity Ranking
The results in Table 27 and the proportional size of the segments in Figure 12 indicate the students’ ranking of topic familiarity. According to Table 27, the most familiar topic is the one corresponding to the highest mean while the least familiar has the lowest mean. The topics standard deviation shows how spread are the students’ rankings of topics. The more the scores deviate from the mean the less the mean is representative of the scoring (we built the graph for more clarification when the mean is not representative).

The Table and the figure show that the most familiar topic according to students at this level is the one about the relationship between money and happiness, for it has the highest mean (4), and 33.33% of the students said that they know almost everything about the topic while 43.59% said that they know a lot about it. The mean of the Social networking sites topic is also high (3.49), but so is its SD (1.97). Therefore, we compare between the segments in Figure 12 and deduce that the topic of social networking sites is not familiar to all students, for although the percentage of the respondents who claimed knowing almost everything about it is relatively high (38.46%), the percentage of those saying they know little or nothing is also fairly high (17.95% and 10.26%).

Table 27 points that the topic about modern slavery, the one about human cloning, the one about experiments on animals and the one about obligatory military service are of medium familiarity, for they have the respective means of 2.46, 3, 3.18 and 3.43. Furthermore, from the table and the graph, we can deduce that the topic about the benefits of reading contemporary English literature and the one about footballers’ salaries are the least familiar topics. However, it is clear from their means and the stack ‘1’ that students are less familiar with footballers’ salaries, for it has the lowest mean (1.74) and the high percentage of 43.59% of students who do not know anything about the topic.

For the second task, and in order to facilitate reporting the data, we calculated the sum of relevant and meaningful words for each topic and reported it in Table 28.
Table 28

*Results of the Second Task*

<table>
<thead>
<tr>
<th>Topic</th>
<th>Sum of words</th>
</tr>
</thead>
<tbody>
<tr>
<td>The benefits of reading contemporary English literature</td>
<td>64</td>
</tr>
<tr>
<td>The relationship between money and happiness</td>
<td>83</td>
</tr>
<tr>
<td>Modern slavery</td>
<td>40</td>
</tr>
<tr>
<td>Human cloning</td>
<td>83</td>
</tr>
<tr>
<td>Experiments on animals</td>
<td>69</td>
</tr>
<tr>
<td>Obligatory military service</td>
<td>77</td>
</tr>
<tr>
<td>Social networking sites</td>
<td>80</td>
</tr>
<tr>
<td>Footballers’ salaries</td>
<td>51</td>
</tr>
</tbody>
</table>

From the results displayed in Table 28, we can see that the order of topics by familiarity differs slightly from the one obtained from the first task. The main difference between the two tasks is mostly significant in the ranking of human cloning and modern slavery. While the first task revealed that students are moderately familiar with human cloning, a considerable number of relevant words (like DNA, sheep Dolly and forbidden) were mentioned in this task. However, by comparing this topic to the money and happiness one (in which words like needs, comfort and health were mentioned), we still judged it to be of medium familiarity given the results of the first task. Students also reported knowing things about modern slavery, but it appeared that they thought of slavery in a metaphorical way instead of understanding it as real slavery, which means that they are not familiar with the topic. Thus, we only counted words like debts, forced work and kidnapped children and disregarded words like technology, Internet and machines.

We conclude from the results of the two tasks that the relationship between money and happiness is the most familiar topic for third year students, and that footballers’ salaries is the least familiar one. The rest of the topics are of more or less medium-level of familiarity. However we exclude modern slavery from this category. Furthermore, since the results of the two tasks are close, we chose to refer to the first task to choose the two topics of medium level we needed for the pre-test and the post-test, which are human cloning, and experiments on animals.
4.2.2. The Pre-test

Drawing on the results of the familiarity test, the activity designed for the pre-test was a writing task of medium level of complexity in which students were invited to write a five-paragraph argumentative essay about “Human Cloning” (see Appendix 4). The topic had been judged to be moderately familiar to students at this level (third year students). The essay question for the pre-test was adapted from the “501 Writing Prompts” book by the Expert Writers. The students’ written productions were evaluated primarily through measuring the linguistic accuracy dimension and the essays organization as a second component of written production. Following Tomlinson’s (1999) guidelines (explained in section 1.2.2.4 of the current study), the essay structure was selected as the essential skill on which the activity focuses. The essays are then scored on our adapted holistic scale.

4.2.3. The Post-test

Based on the scores of the pre-test, students were divided into three groups: high level, medium level and low level. Students who wrote excellent to good essays were assigned to the high-level group, students who wrote average essays were assigned to the moderate group, and those who wrote poor essays were put in the low-level group. A new task was assigned to them. This task is an argumentative essay writing task tiered by cognitive complexity into three tiers (see Appendix 5). The questions of the post-test essays were also adapted from “501 Writing Prompts”, and the two variables according to which we chose to manipulate complexity were topic familiarity and scaffolding (+/− prior knowledge) and additional perspectives (−/+ perspective-taking). The three tiers of the activity are explained in the following subsections.

4.2.3.1 The First Tier

This tier is the simplest one; it was given the most familiar topic, which was about “The relationship between money and happiness”. Students were asked to write a four-paragraph argumentative essay in which they state the arguments for and those against the fact that money can buy happiness. A four-paragraph essay is given because students are not asked for their opinion in a separate paragraph which counts for the second variable (− perspective taking). Scaffolding in this task took the form of an introductory text in which some arguments and counterarguments were exemplified.
4.2.3.2  The Second Tier

A topic of medium familiarity about “experimentation on animals” was chosen for this tier. Students were asked to write a five-paragraph argumentative essay in which they state the arguments for, the arguments against and their opinion about the topic (+ perspective taking). Scaffolding in this task took the form of a definition that introduced the topic in general.

4.2.3.3  The Third Tier

The topic of this tier is the least familiar, and it is about “footballers’ salaries”. Students were asked to write a five-paragraph argumentative essay in which they state the arguments for, the arguments against and their opinion about the topic. However, they are asked to take the defence of the stand they do not believe in in the opinion paragraph. Scaffolding is not provided in this task.

4.2.4.  The Scoring Scale

A multiple-trait scale (see Appendix 1) was used to score students’ writings in this study. The two traits composing the scale were linguistic accuracy and essay organization. The first trait was adapted from a study conducted by Polio (1997), and the second one was adapted from a rubric for persuasive writing from “501 Writing Prompts”. Each one of the two traits is composed of five different levels. Students’ essays that are at the lowest levels of the two traits score between 1 and 2 and show total absence of grammar, word choice, punctuation conventions and spelling mastery. At this level, essays also lack any instance of organization or logic in arguments. At the highest level, essays score between 9 and 10, and they show full mastery of grammar, word choice, punctuation and spelling. At this level, essay organization is flawless and arguments are well reasoned. Between the lowest and the highest levels, there are three other levels in which linguistic and organizational errors range from the least to the most frequent and severe.

4.3.  Data Analysis

This section presents the obtained results from both the pre-test and the post-test stages. Descriptive statistical procedures are used to report observations from both stages. After that, an inferential statistical test, namely the paired-sample one tailed t-test, is used to examine the research hypotheses, for we have two groups of data (the pre-test data and the post-test data) in a repeated measure design (Abbott & Mckinney,
op. cit, p. 271). Our intention is to find out whether the students’ written production has significantly improved in the post-test, where tiered activities were given, as compared with the pre-test, where one-size fits all activity was given. Since we have used the word improved, this means that our hypothesis takes only one direction from which comes the choice of one tailed t-test.

4.3.1. The pre-test

4.3.1.1 Holistic Scoring

In Table 29, we put results of scoring students’ written production in the pre-test.

Table 29

<table>
<thead>
<tr>
<th>Scores $x_i$</th>
<th>$n_i$</th>
<th>$f_i$</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>0.15</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>0.25</td>
</tr>
<tr>
<td>9</td>
<td>4</td>
<td>0.2</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>11.5</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>17</td>
<td>1</td>
<td>0.05</td>
</tr>
</tbody>
</table>

| N            | 20    | 1     |

To understand the results of the pre-test, we calculated the range (R), the mode ($M_o$), the mean ($\bar{X}$) and the standard deviation (SD) of the written production variable ($x_i$).

The range is the difference between the highest and the lowest score. It is given by the following formula: $R = x_{\text{max}} - x_{\text{min}} \Rightarrow R = 17 - 6 \Rightarrow R = 11$. By calculating the range, we can deduce that the pre-test scores range between 6 and 17, so there is a difference of 11 points between the highest and the lowest scores.

The mode is the modality that corresponds to the highest frequency $\text{Max} (f_i)$. From the following formula: $f(M_o) = \text{Max} (f_i)$: $\text{Max} (f_i) = 0.25 \Rightarrow M_o = 8$, we can deduce that the most frequent score for our participants is 8.

The mean represents the average score of the students in the pre-test. It is given by the following equation: $\bar{X} = \frac{1}{N} \sum_{i=1}^{n} n_i x_i \Rightarrow \bar{X} = 9.625$
The standard deviation tells us how spread are the scores in the pre-test, and it is given by the following equation: \( SD = \frac{1}{N} \sum_{n=1}^{n=i} ni.xi^2 - \bar{X}^2 \Rightarrow SD = 2.776 \)

We deduce from counting the standard deviation (SD = 2.776) and the mean (\( \bar{X} = 9.625 \)) that the participants’ scores deviate from the mean by 2.776 points, which indicates that most of them (more than 80%, following the distribution in Table 27) scored between 6.849 (\( \bar{X} - SD \)) and 12.401 (\( \bar{X} + SD \)).

### 4.3.1.2 Detailed Scoring

In Table 30, we reported the pre-test results we obtained from scoring students on both linguistic accuracy (\( x1_i \)) and essay organization (\( x2_i \)), the two are the components of our dependent variable.

<table>
<thead>
<tr>
<th>Table 30</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students’ Detailed Scoring in the pre-test</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scores</th>
<th>Linguistic accuracy (( x1_i ))</th>
<th>Essay organization (( x2_i ))</th>
</tr>
</thead>
<tbody>
<tr>
<td>n(_i)</td>
<td>( f_i )</td>
<td>n(_i)</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>0.4</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>0.25</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
<td>0.25</td>
</tr>
<tr>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>N</td>
<td>20</td>
<td>1</td>
</tr>
</tbody>
</table>

To have a better view of the results yielded by the pre-test, we calculated the ranges (R), the modes (\( M_{x} \)), the means (\( \bar{X} \)) and the standard deviations (SD) of the two variables: linguistic accuracy (\( x1_i \)) and essay organization (\( x2_i \)).

For linguistic accuracy (\( x1_i \)), the range is \( R = x_{1\text{max}} - x_{1\text{min}} \Rightarrow R = 8 - 3 \Rightarrow R = 5 \), whereas for essay organization (\( x2_i \)), the range is \( R = x_{2\text{max}} - x_{2\text{min}} \Rightarrow R = 9 - 3 \Rightarrow R = 6 \). Therefore, the difference between the highest and the lowest scores of linguistic accuracy is 5 while it is 6 for the essay organization.

The most frequent score in linguistic accuracy in the pre-test is 4. This has been deduced from calculating the mode which is given through this formula: \( f(M_{x1}) = \text{Max} (f_i) \): \( \text{Max} (f_i) = 0.4 \Rightarrow M_{x1} = 4 \). For the essay organization (\( x2_i \)), the most frequent score is also 4 given by the mode: \( f(M_{x2}) = \text{Max} (f_i) \): \( \text{Max} (f_i) = 0.3 \Rightarrow M_{x2} = 4 \).
The average of linguistic accuracy scoring in the pre-test is 4.85; it is found through the calculation of the mean: 
\[ \bar{X}_1 = \frac{1}{N} \sum_{i=1}^{n} n_i \times x_{1i} \Rightarrow \bar{X}_1 = 4.85. \]
For the essay organization (\(x_{2i}\)), the mean is 4.75, given by the equation 
\[ \bar{X}_2 = \frac{1}{N} \sum_{i=1}^{n} n_i \times x_{2i} \Rightarrow \bar{X}_2 = 4.75. \]

The students’ scores in the pre-test linguistic accuracy deviate from its mean by 1.18 while they deviate by 1.71 from the essay organization. This was found when we calculated the standard deviation for linguistic accuracy: 
\[ SD_1 = \sqrt{\frac{1}{N} \sum_{n=1}^{n} n_i \times x_{1i}^2 \times \bar{X}_1^2} \Rightarrow SD_1 = 1.18, \]
then for the essay organization: 
\[ SD_2 = \sqrt{\frac{1}{N} \sum_{n=1}^{n} n_i \times x_{2i}^2 \times \bar{X}_2^2} \Rightarrow SD_2 = 1.71. \]

The deviation and mean values show that between 90% and 95% (according to the distribution of the scores in table 28) of the students scored between 3.67 (\(\bar{X} - SD\)) and 6.03 (\(\bar{X} + SD\)) in linguistic accuracy. In essay organization, between 85% and 90% of the students scored between 3.04 (\(\bar{X} - SD\)) and 6.46 (\(\bar{X} + SD\)).

### 4.3.2. The Intervention

After scoring the pre-test, we divided the scores into three classes as it is shown in Table 31. Each class represents a level that we matched to one tiered activity, as it was explained in section 4.2.3 above.

<table>
<thead>
<tr>
<th>Scores</th>
<th>n_i</th>
<th>f_i</th>
</tr>
</thead>
<tbody>
<tr>
<td>[0, 9]</td>
<td>9</td>
<td>0.45</td>
</tr>
<tr>
<td>[9, 13]</td>
<td>8</td>
<td>0.4</td>
</tr>
<tr>
<td>[13, 20]</td>
<td>3</td>
<td>0.15</td>
</tr>
<tr>
<td>N</td>
<td>20</td>
<td>1</td>
</tr>
</tbody>
</table>

We divided the participants into three categories, based on the scoring scale we used in our study (see Appendix 1). Students who scored between 0 and 8 were judged to be of low-level and put in the first class to receive the first tier in the post-test. Those students showed no mastery to little mastery of linguistic accuracy and essay organization. In the second class, we put students who scored between 9 and 12. The participants in this class showed some mastery of linguistic accuracy and essay organization, and thus they were judged to be of medium level and received the second tier in the post-test. Finally, the students who scored between 13 and 20 were judged to
be of high-level and put in the third class, for they showed few errors in linguistic accuracy and essay organization to total mastery of both. The last group of students received the third tier of the pre-experiment activity in the post-test.

4.3.3. The post-test

4.3.3.1 Holistic Scoring

In Table 32, we put the post-test results we obtained from scoring students’ written production.

Table 32

<table>
<thead>
<tr>
<th>Scores $x_i$</th>
<th>$n_i$</th>
<th>$f_i$</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>7.5</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>0.2</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>9.5</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>11.5</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>12</td>
<td>3</td>
<td>0.15</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>17</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>$N$</td>
<td>20</td>
<td>1</td>
</tr>
</tbody>
</table>

To describe the results, we calculated the range ($R$), the mode ($M_o$), the mean ($\bar{X}$) and the standard deviations (SD) of the written production variable ($x_i$).

By calculating the range, $R = x_{\text{max}} - x_{\text{min}} \Rightarrow R = 17 - 7 \Rightarrow R = 10$, we can see that the post-test scores range between 7 and 17, thus the difference between the highest and the lowest score is of 10 points.

The mode is given by this formula: $f(M_o) = \text{Max}(f_i): \text{Max}(f_i) = 0.2 \Rightarrow M_{\text{ox}} = 8$ tells us that the participants in this post-test most frequently scored 8 points.

The average score of the students in the post-test is the following: $\bar{X} = \frac{1}{N} \sum_{i=1}^{n} n_i \cdot x_i \Rightarrow \bar{X} = 10.475$.

The standard deviation, which tells us about the spread of the scores, is given as it follows: $SD_1 = \sqrt{\frac{1}{N} \sum_{i=1}^{n} n_i \cdot xi^2 - \bar{X}^2} \Rightarrow SD_1 = 2.668$. 


We infer, therefore, that the students’ scores deviate from the mean by 2.668 points, and this fact tells us that most of them (between 75% and 80%, following the distribution in Table 30) scored between 7.807 (X–SD) and 13.143 (X+SD).

### 4.3.3.2 Detailed Scoring

Table 33 contains the detailed results from the post-test of both linguistic accuracy and essay organization.

**Table 33**

<table>
<thead>
<tr>
<th>Scores</th>
<th>( n_i )</th>
<th>( f_i )</th>
<th>( n_i )</th>
<th>( f_i )</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>3.5</td>
<td>1</td>
<td>0.05</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>0.4</td>
<td>5</td>
<td>0.25</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>0.15</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>5.5</td>
<td>1</td>
<td>0.05</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>0.2</td>
<td>7</td>
<td>0.35</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>0.1</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>0.05</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>9</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>N</td>
<td>20</td>
<td>1</td>
<td>20</td>
<td>1</td>
</tr>
</tbody>
</table>

We calculated the range (R), the mode (\( M_o \)), the mean (\( \bar{X} \)) and the standard deviation (SD) of the two variables: linguistic accuracy (\( x_{1i} \)) and essay organization (\( x_{2i} \)) to understand the results yielded by the post-test.

For linguistic accuracy (\( x_{1i} \)), the range is \( R = x_{1\text{max}} - x_{1\text{min}} \Rightarrow R = 8 - 3.5 \Rightarrow R = 4.5 \), which means that the difference between the participants’ highest and lowest score is 4.5. For the essay organization (\( x_{2i} \)), the difference is 6 points, for the range is \( R = x_{2\text{max}} - x_{2\text{min}} \Rightarrow R = 9 - 3 \Rightarrow R = 6 \).

For linguistic accuracy (\( x_{1i} \)), the most frequent score is 4 given by \( f(M_{ox1}) = Max(f_i) \): \( Max(f_i) = 0.4 \Rightarrow M_{ox1} = 4 \). For the essay organization (\( x_{2i} \)), it is 6 deduced from the formula: \( f(M_{ox2}) = Max(f_i) \): \( Max(f_i) = 0.35 \Rightarrow M_{ox2} = 6 \).

The students’ average score in linguistic accuracy is of 5.1 points. Is calculated through the following equation: \( \bar{X}_1 = \frac{1}{N} \Sigma_{i=1}^{n} n_i \cdot x_{1i} \Rightarrow \bar{X}_1 = 5.1 \). For the essay organization (\( x_{2i} \)), the mean is \( \bar{X}_2 = \frac{1}{N} \Sigma_{i=1}^{n} n_i \cdot x_{2i} \Rightarrow \bar{X}_2 = 5.375 \).
Students’ scores in linguistic accuracy deviate from the mean by 1.283 while in essay organization they deviate by 1.563. The two deviations are respectively calculated as it follows

\[ SD_1 = \sqrt{\frac{1}{N} \sum_{i=1}^{n} n_i.x_1i^2 - \bar{X}_1^2} \Rightarrow SD_1 = 1.283 \] and \n\[ SD_2 = \sqrt{\frac{1}{N} \sum_{i=1}^{n} n_i.x_2i^2 - \bar{X}_2^2} \Rightarrow SD_2 = 1.563. \]

From the calculated means and standard deviations, we can deduce that between 80% and 90% (following to the distribution of the scores in table 31) of the students scored between 3.817 (\(\bar{X} - SD\)) and 6.383 (\(\bar{X} + SD\)) in linguistic accuracy. In essay organization, between 75% and 80% of the students scored between 3.812 (\(\bar{X} - SD\)) and 6.938 (\(\bar{X} + SD\)).

### 4.3.4. The Pre-test vs. the Post-test

Table 34 shows the calculated measures of both the pre-test and the post-test. By comparing the pre-test and the post-test holistic scores, we can see that the average score of the post-test is higher than the one of the pre-test by \(d = 10.475 - 9.625 = 0.85\). Furthermore, the scores range decreased in the post-test by one point (from 11 to 10), and while the highest score did not change, the lowest did (from 6 to 7). The most frequent score, however, did not change; it remained 8. Another point that shows the change in the dispersion between the scores is the comparison between the two standard deviation values. We deduce from it that the scores in the post-test are less spread, which means that students’ results became closer to the mean.

By comparing the detailed scoring in both the pre-test and the post-test, we can see (as it is displayed in Table 34) that the average score of the students’ linguistic accuracy in the post-test did not really increase, for \(d = 5.1 - 4.85 = 0.25\) while the average score of the essay organization slightly did \(d = 5.375 - 4.75 = 0.625\). The most frequent score did not change for linguistic accuracy while it increased by two points for the essay organization. Additionally, the comparison of the dispersion measures shows that the range of the linguistic accuracy decreased in the post-test while it did not for the essay organization variable. Furthermore, the scores of linguistic accuracy deviate more from the mean in the post-test while they deviate less for essay organization.
Table 34

The Pre-test vs. the Post-test

<table>
<thead>
<tr>
<th>Measure</th>
<th>Holistic score</th>
<th>Linguistic accuracy</th>
<th>Essay organization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-test</td>
<td>Post-test</td>
<td>Pre-test</td>
</tr>
<tr>
<td>Range (R)</td>
<td>11</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Mode ($M_o$)</td>
<td>8</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Mean ($\bar{X}$)</td>
<td>9.625</td>
<td>10.475</td>
<td>4.85</td>
</tr>
<tr>
<td>Standard deviation (SD)</td>
<td>2.776</td>
<td>2.668</td>
<td>1.18</td>
</tr>
</tbody>
</table>

Through comparing the students’ holistic and detailed results in both the pre-test and the post-test, we see that a slight change has occurred. However, we have to resort to inferential statistics if we want to know whether this change is statistically significant, i.e., whether it proves our hypothesis or not.

4.3.5. Hypotheses Testing

A hypothesis test is meant to statistically evaluate a given hypothesis. It helps the researcher decide whether any change perceived in the results of the post-test as compared to the pre-test is statistically meaningful enough to support the research hypothesis.

A conventional set of steps is used to test a hypothesis. First, the null hypothesis ($H_0$) has to be determined. The null hypothesis is a statement that assumes that no change will occur between the experimental mean and the comparison mean (between the mean of the pre-test and the one of the post-test in the case of our study). Second, the alternative or the research hypothesis ($H_1$) has to be restated in order to refute the null hypothesis. Third, the significance level ($\alpha$) has to be denoted. It is usually given the value of $\alpha = 0.05$ and defined as the probability value (5%) that the difference in the means is due to chance and not to the experimental intervention. The significance level ($\alpha$) has a corresponding t-value for each sample size in a table called the t-distribution table. Fourth, the T-statistic value is computed then accordingly compared with the one-tailed t-value read in the t-distribution table. T-statistic value can be calculated using the following equation:

$$ t = \frac{|\bar{d}| \cdot \sqrt{n-1}}{SD} $$

Where $\bar{d}$ is the mean of the differences between the students' pre-test scores and post-test scores, SD is the standard deviation of those differences, n is the sample size and
n−1 is called the degree of freedom (df). Last, a statistical decision is made about the acceptance or rejection of the null hypothesis. It is done by comparing the calculated T-statistic with the t-table. If T-statistic exceeds t-table, then $H_0$ is rejected and we can say that there is a significant difference between the means of the post-test and the pre-test scores, and this difference is due to the independent variable. Otherwise, the research hypothesis is the one that is rejected (Abbott & Mckinney, op.cit, pp. 340-341).

As mentioned before, the conventional statistical test used in the case of repeated measures design where each subject is measured two times (pre-test vs. Post-test) is the paired sample t-test. A one-tailed paired-sample t-test is conducted in our case to compare the scores of the tiered activities to those of a one-size fits all activity. We conducted the t-test at three occasions (for the holistic scores, for linguistic accuracy and for essay organization) in order to test our second main hypothesis and its two sub-hypotheses.

**4.3.5.1 Holistic Score**

$H_0$: Using activities tiered by cognitive complexity would not have any positive effect on students’ written production.

$H_1$: Using activities tiered by cognitive complexity would positively affect students’ written production.
Table 35

The Holistic Score Difference and Square Difference

<table>
<thead>
<tr>
<th>Pre-test</th>
<th>Post-test</th>
<th>d</th>
<th>d^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13</td>
<td>11</td>
<td>-2</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>11.5</td>
<td>12</td>
<td>0.5</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
<td>9.5</td>
<td>1.5</td>
</tr>
<tr>
<td>6</td>
<td>8</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>7.5</td>
<td>-0.5</td>
</tr>
<tr>
<td>8</td>
<td>17</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>12</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>7</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>8</td>
<td>11.5</td>
<td>3.5</td>
</tr>
<tr>
<td>12</td>
<td>6</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>11</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>14</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>9</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>11</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>17</td>
<td>9</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>9</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>7</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>8</td>
<td>8</td>
<td>0</td>
</tr>
</tbody>
</table>

\[ \Sigma d = 17 \quad \Sigma d^2 = 45 \]

The significance level \( \alpha = 0.05 \).

The mean of the differences between the students’ pre-test scores and post-test scores:

\[ \bar{d} = \frac{1}{N} \sum_{i=1}^{n} d_i \Rightarrow \bar{d} = 0.85 \]

The standard deviation of the differences between the students’ pre-test scores and post-test scores:

\[ SD = \sqrt{\frac{1}{N} \sum d^2 - \bar{d}^2} \Rightarrow SD = 1.236 \]

T-statistic is, therefore:

\[ t = \frac{\bar{d} \sqrt{n-1}}{SD} \Rightarrow t = 2.9978 \]

After calculating T-statistic, we compare it to the one-tailed t-table value corresponding to the degree of freedom: \( df = n - 1 = 19 \) in our case. T-table = 1.7291; therefore T-statistic exceeds t-table which means that we reject \( H_0 \) and accept \( H_1 \). These results suggest that using tiered activities does improve student’s written production.
4.3.5.2 Linguistic Accuracy

$H_0$: Using activities tiered by cognitive complexity would not have any positive effect on students’ linguistic accuracy.

$H_1$: Using activities tiered by cognitive complexity would positively affect students’ linguistic accuracy.

Table 36

<table>
<thead>
<tr>
<th>The Score Difference and Square Difference of Linguistic Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
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<tr>
<td>6</td>
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<tr>
<td>7</td>
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<tr>
<td>8</td>
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<tr>
<td>9</td>
</tr>
<tr>
<td>10</td>
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<tr>
<td>11</td>
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<tr>
<td>12</td>
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<tr>
<td>13</td>
</tr>
<tr>
<td>14</td>
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<tr>
<td>15</td>
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<tr>
<td>16</td>
</tr>
<tr>
<td>17</td>
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<tr>
<td>18</td>
</tr>
<tr>
<td>19</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

The significance level $\alpha = 0.05$.

The mean of the differences between the students’ pre-test scores and post-test scores:

$$\bar{d} = \frac{1}{N} \sum_{i=1}^{n} n_i \cdot d \Rightarrow \bar{d} = 0.25$$

The standard deviation of the differences between the students’ pre-test scores and post-test scores:

$$SD = \sqrt{\frac{1}{N} \Sigma d^2 - \bar{d}^2} \Rightarrow SD = 0.642$$

T-statistic is, therefore:


\[ t = \frac{|d| \sqrt{n-1}}{sd} \Rightarrow t = 1.6967 \]

After calculating T-statistic, we compare it to the one-tailed t-table corresponding to the degree of freedom: \( df = n - 1 = 19 \) in our case. T-table = 1.7291; therefore T-statistic does not exceed t-table which means that we accept \( H_0 \) and reject \( H_1 \). These results suggest that using tiered activities does not have any effect on student’s linguistic accuracy.

4.3.5.3 Essay Organization

\( H_0: \) Using activities tiered by cognitive complexity would not have any positive effect on the students’ essay organization.

\( H_1: \) Using activities tiered by cognitive complexity would positively affect the students’ essay organization.

Table 37

The Score Difference and Square Difference of Essay Organization

<table>
<thead>
<tr>
<th>Pre-test</th>
<th>Post-test</th>
<th>( d )</th>
<th>( d^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7</td>
<td>6</td>
<td>-1</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>4</td>
<td>-1</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>5.5</td>
<td>1.5</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>6</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>3</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>3</td>
<td>5</td>
<td>2</td>
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<tr>
<td>13</td>
<td>5</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>8</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>5</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>6</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

\( \Sigma d = 12.5 \quad \Sigma d^2 = 27.25 \)

The significance level \( \alpha = 0.05 \).
The mean of the differences between the students’ pre-test scores and post-test scores:
\[
\bar{d} = \frac{1}{n} \sum_{i=1}^{n} d_i \Rightarrow \bar{d} = 0.625
\]

The standard deviation of the differences between the students’ pre-test scores and post-test scores:
\[
SD = \sqrt{\frac{1}{N} \sum d^2 - \bar{d}^2} \Rightarrow SD = 1.3625
\]

T-statistic is, therefore:
\[
t = \frac{\bar{d} \sqrt{n-1}}{SD} \Rightarrow t = 2.7635
\]

After calculating T-statistic, we compare it to the one-tailed t-table value corresponding to the degree of freedom: df = n - 1 = 19 in our case. T-table = 1.7291, and this means that T-statistic exceeds t-table which means that we reject \( H_0 \) and accept \( H_1 \). These results suggest that using tiered activities does improve student’s essay organization.

4.3.6. Discussion

We hypothesised that using activities tiered by cognitive complexity would have positive effects on students’ written production as composed of two other variables which are linguistic accuracy and essay organization, in the case of our study. The results presented in the data analysis section (section 4.3) show that while there is a significant positive difference between the students’ scores in the pre-test and post-test when written production as a whole and essay organization as a separate variable are measured, there is no significant difference in scores when measuring linguistic accuracy alone. Therefore, our second research hypothesis was partly confirmed for essay organization alone.

When students were asked to complete activities tiered by cognitive complexity, they mainly constructed essays that were more organized than the ones they constructed when completing a one-size fits all activity. According to Tomlinson (1999, p. 83), the aim behind tiering is for all students to learn or demonstrate learning of one essential concept or skill at different paces and levels of complexity. A one-size fits all activity, arguably, focuses on the same concept or skill; however, it does not benefit all students. Students whose level matches the difficulty of the activity do it and learn from doing it. Those with a superior level do it but are not challenged enough to benefit from it, and the rest are left behind. In the case of our study, the focus was on essay organization as
the essential skill, and the increase (although small) in the mean score shows that students produced better essays. In terms of organization, students wrote more reasoned arguments, for low-level ones were given some ideas to build on (scaffolding) in the introduction to the question, besides being familiar with the topic, and the rest were more or less challenged to produce their best.

In terms of linguistic accuracy, students’ essays were not significantly better. According to Foster and Skehan (2001), increasing the complexity of the task induces the learner to focus on the meaning first then form (as cited in Ellis, op.cit). Building on this assumption, Robinson’s (2001) model predicts that when meaning is provided, through familiarity, scaffolding and simple perspective, in the case of the current study, the learner’s memory is free to focus on form. This means that the learner concentrates more on linguistic accuracy. However, this hypothesis was thwarted in our case as it was in Levkina and Gilabert (2012). Their study disproved that increasing the cognitive task complexity via combining resource-dispersing and resource-directing dimensions has any effect, whether positive or negative, on linguistic accuracy. Therefore, our study results go in line with the ones of Levkina and Gilabert (ibid) which is the only study we found that combined the two types of resource dimensions.

Finally, we can say that while manipulating the cognitive complexity to create tiered activities that match students’ different levels produces positive effects on students’ written production as a whole, it does not necessarily have the same effects on the written production separate components. The effects vary, for the current study proved that tiering activities by topic familiarity, scaffolding and perspective taking activates students’ ideas to produce better arguments, but does not induce them to use more accurate language. Considering the limitations of this study will allow us to see the extent to which these results can be generalized to the whole population or attributed to some flaws in the study.

4.4. The Research Limitations and Implications

4.4.1. Limitations

Though any decision regarding the design and the procedures of this study was thoroughly considered and justified, a number of limitations can be attributed to the current study. These limitations must be acknowledged.

First, the students’ written production was measured at two occasions only (the pre-test and the post-test) which allowed us to compare tiered activities to a one-size fits all
activity, but a double pre-test design (Kirk, op.cit, pp. 27-28), in which two pre-tests are given, would have made the comparison clearer. However, it was difficult, for two sessions were all that we could afford; we interrupted the Writing module program, so we were limited by time and participants’ lack of enthusiasm. To attempt to solve this problem, the teacher of the module promised extra marks for attendance and performance. The promised rewards did not have much effect, however, for more than half of the group (24 students) dropped out of the experiment. This left us with a small number of participants (20) which can limit the generalizability of the results.

Second, it is difficult to generalize the findings to other activities than essay writing. Therefore, manipulating complexity through topic familiarity, scaffolding and perspective taking may not result in the same findings for other activities. They may in fact prove Robinson’s (2001) and Foster and Skehan’s (2001) hypotheses (as cited in Levkina and Gilabert, op.cit).

Third, although judged by Hyland (2003) to be easy to use by a novice scorer, reliable and accounting for learners’ differences, the scoring scale used in this study is highly subjective and impressionist, for it reflects the scorer’s own perception of good writing. Therefore, the scores may change if another scorer were to use it.

Fourth, other variables that may intervene in the research findings were not accounted for. The main variable that comes into our mind is interest. A given essay topic may be common, but students’ lack of interest may affect their willingness to write about it and hence affect their written production.

Finally, comparing the results of students across levels was not a part of our original intent, for we anticipated the time limitation and sample size especially for the high-level students. However, this research would have benefited from knowing which level was more affected by the manipulation of task complexity.

4.4.2. Future Research Suggestions

Drawing on the results and limitations of this study, we have some suggestions for future research. These suggestions are related to the research design, the research variables, the duration of the experiment, the instrument of measuring writing and the research subjects.

First, a repeated measure design where participants are assigned different tasks at various occasions of the experiment (Creswell, 2009. p. 159) should allow the researcher to compare the effects of different kinds of tiered activities, i.e., a variety of
writing activities that are tiered by different variables of cognitive complexity. Therefore, we should be able to examine which one among topic familiarity, scaffolding or perspective taking has the most salient effect on written production.

Second, other components of written production should be considered. As reported before, tiering activities by cognitive complexity mostly activated students’ ideas and allowed them to produce more elaborate and better-organized essays. Therefore, lexical complexity, lexical variety and fluency should be examined.

Third, the effects of tiering activities on other EFL concepts and skills should be investigated. The research should extend to reach other areas of writing, as it should do to reach listening, speaking and reading. Furthermore, research at the university level should also focus on areas where instruction is mainly content-based like in the Civilization branch or in modules like linguistics or TEFL (Teaching English as a Foreign Language).

Fourth, the time of the experiment should be extended to examine the long-term effect that implementing tiered activities has on learning. Therefore, writing proficiency as a dependent variable may be considered.

Fifth, a more objective instrument of measuring writing should be tried. The results may differ and be more consistent across scorers if a more detailed rubric or an objective and quantitative measure is used.

Finally, the research should be extended to compare students’ results across levels. This should allow the researcher to examine whether all levels benefit equally from tiered activities, as DI claims, or not. It should allow us to measure the gap in achievement before and after using tiered activities.

4.4.3. Pedagogical Recommendations

The current study has proved that tiering the activity of essay writing through manipulating topic familiarity, scaffolding and perspective taking has affected students’ written production positively. Henceforth, we think that responding to students’ different levels in writing by tiering activities is recommended, for it offers many opportunities.

First, adopting tiered activities implies that teachers should assess prior knowledge and cognitive level first. This offers them the ability to predict learners’ performance and production before assigning any activity, which has some implications on pedagogical decisions. When teachers possess a clear map about where each student is
as compared to a given point of knowledge, it becomes easier to plan and decide what to do next to get them all to that point of knowledge.

Second, using this strategy also informs testing, for teachers will be more informed about what fits different levels of students and allow them to demonstrate learning without extra burdens. Therefore, teachers may vary topics and questions accordingly while keeping the eye on the essentials of the class for more equity and fairness. In our case for example, the lesson essential was essay organization, as it has been mentioned right from the beginning of this dissertation (in the general introduction).

Third, writing is not the only module that can benefit from the findings of this research. The process of learning can be differentiated in all modules by engaging students in tiered activities. For example, all learners do not have to engage into reading and discussing the same complex text in order to extract one common concept, which constitutes the essential of a given lesson.

Finally, it is important to note that teachers do offer a range of opportunities for different students to demonstrate learning (especially in the writing session) by proposing different topics and kinds of questions. However, this may be done randomly or, at best cases, intuitively while in a differentiated classroom, it should be planned for via assessment.

Conclusion

In this chapter, we went through the details of our pre-experiment, which has the simple design of one group pre-test post-test. The aim behind such design was to confirm the second hypothesis of our research, which said that using activities tiered by cognitive complexity would positively affect students’ written production. The hypothesis, however, was partially confirmed, for the results we obtained from the pre-test and the post-test proved that only essay organization significantly improved with tiered activities. We ended the chapter by discussing the results, acknowledging the limitations of the study and giving some suggestions and recommendations.
GENERAL CONCLUSION

Differentiated instruction is believed to be the right solution for classrooms where teachers struggle with a large number of different students. It can revolutionize teaching (Tomlinson & Imbeau, op.cit) and change the way teachers look at and deal with students’ differences. In this study, we attempted to examine the Algerian EFL teachers’ readiness for such approach to teaching. This was done through the means of a questionnaire destined for teachers to investigate their awareness and perception of their students’ differences. From the teachers’ responses, we deduced that students’ diversity is perceived but rarely attended to. Hence, few instances of DI can be seen in our classrooms. Differentiation is a complex process to grasp, let alone to implement. This is why DI experts suggest for teachers to take one step at a time. They must implement and get comfortable with one strategy before cumulating others (Hess, 1999). Thus, we chose tiering activities as the one strategy to experiment.

This research set out to examine the effects of using tiered activities as one of the strategies of DI on students’ written production. The results obtained from carrying out the one-group pre-test post-test pre-experiment proved that tiering activities by cognitive complexity positively influences the students’ written production. As it is suggested by Tomlinson (2001), using this strategy has the potential to push the learners slightly beyond their comfort zone where learning can take place by providing them with the right amount of challenge that matches their cognitive readiness. Tiered activities can also help the learners focus on and process the essential skills or concepts of a lesson. Students have shown improvement in Essay organization, as the essential skill in the case of this study. However, manipulating the cognitive complexity of activities using topic familiarity, scaffolding and perspective taking has shown no significant positive effects on students’ linguistic accuracy.

The Algerian classroom may not be ready yet for the whole plethora of DI strategies but it may benefit from responding to students’ cognitive levels of readiness to promote L2 performance and learning. Teachers may find themselves, after that, broadening their horizon and focusing on other types of students’ differences to end up trying other DI strategies. Differentiation is a multifaceted concept; one can only begin to understand it, and may take a full teaching career to fully implement it. However, it is worth the try, for it is equivalent to good teaching, and for good learning to happen, the best hope is in good teaching. Neither good material nor genius approach can substitute
a good teacher. Finally, we have to say that DI is more needed by teachers than it is needed by learners, for some learning may happen without any teaching, but no teaching can be claimed to have taken place if no learning happened.
BIBLIOGRAPHY


APPENDICES

Appendix 1: Holistic Scale

Appendix 2: Teachers’ Questionnaire

Appendix 3: Topic Familiarity Test

Appendix 4: The Pre-test: The One-Size Fits All Activity

Appendix 5: The post-test: the Tiered Activities
### Appendix 1

**Holistic Scale:** adapted from Polio (1997) and Learning Express Organization (2003).

<table>
<thead>
<tr>
<th>Scores</th>
<th><strong>Linguistic accuracy</strong></th>
<th><strong>Organization</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>9-10</td>
<td>Mastery of Grammar</td>
<td>Mastery of argumentative essay organization</td>
</tr>
<tr>
<td></td>
<td>Mastery of word choice</td>
<td>Establishes a logical organization and well-reasoned rational sequence of arguments</td>
</tr>
<tr>
<td></td>
<td>No spelling errors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No errors in punctuation conventions</td>
<td></td>
</tr>
<tr>
<td>7-8</td>
<td>Few errors in Grammar</td>
<td>Good argumentative essay organization</td>
</tr>
<tr>
<td></td>
<td>Good choice of words</td>
<td>Establishes a good enough organization and reasoned rational sequence of arguments</td>
</tr>
<tr>
<td></td>
<td>Few spelling errors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Few errors in punctuation conventions</td>
<td></td>
</tr>
<tr>
<td>5-6</td>
<td>Some grammatical errors</td>
<td>Few errors in the essay organization</td>
</tr>
<tr>
<td></td>
<td>Occasional inadequate word choice</td>
<td>Exhibits a logical sequence of ideas with occasional straying from the topic</td>
</tr>
<tr>
<td></td>
<td>Some spelling errors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Some errors in punctuation conventions</td>
<td></td>
</tr>
<tr>
<td>3-4</td>
<td>Frequent errors in Grammar</td>
<td>Shows many weaknesses in essay organization</td>
</tr>
<tr>
<td></td>
<td>Inadequate word choice</td>
<td>Exhibits no logical sequence of ideas and frequent straying from the topic</td>
</tr>
<tr>
<td></td>
<td>Frequent spelling errors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frequent errors in punctuation conventions</td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>No mastery of Grammar</td>
<td>Shows complete essay disorganization</td>
</tr>
<tr>
<td></td>
<td>Totally inappropriate word choice</td>
<td>Exhibits illogical and non-sequenced ideas and total straying from the topic</td>
</tr>
<tr>
<td></td>
<td>Total absence of control over spelling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total absence of control over punctuation conventions</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 2

Teachers’ Questionnaire

Dear Teacher,

It would be generous of you to help us by answering the following questionnaire. It is part of our research study and aims at examining the teachers’ awareness of students’ differences at the university level and how responsive they are to these differences. The data collected will help us make future recommendations about the implementation of Differentiated Instruction in the Algerian EFL classroom.

To answer the questions, please put a tick in the appropriate box (you may tick more than one box when suitable) and give a complete answer when necessary.

Your personal opinion and frank answers will be a valuable contribution to our work. We are much obliged for your help; thank you very much.

Miss Belghoul Hassina
Department of Languages
Faculty of Letters and Languages
University of O. E. B
Section I: General Information

1) What degree do you hold? ................................................................................................................................................

2) How long have you been teaching English at the university? ................................................................................................................................................

3) How do you like your profession? ................................................................................................................................................

Section II: Learners' Differences

4) There are more similarities than differences between my students.
   a) Agree □ b) Disagree □ c) Neutral □

5) My students may differ in terms of the following:
   a) Background experience □ b) Prior knowledge □
   c) Language proficiency □ d) Interests □
   e) Cognitive readiness □ f) Modes of learning □
   g) Speed of learning □ h) Need for support □
   i) Confidence as a learner □ j) Motivation □
   k) Other ways: please, specify................................................................................................................................................

6) My students’ differences make of my teaching a more complex task.
   a) Yes □ b) No □

7) If “No”, please explain................................................................................................................................................

8) My students’ interests influence their engagement with the content of my class.
   a) Yes □ b) No □

9) My students’ learning profiles are:
   a) The ways individual learners learn best. □
   b) Individual differences in cognitive organization and functioning. □
   c) The brain based predispositions we all have for learning. □
10) My students’ readiness level is:
   a) Static and related only to their intellectual abilities.  
   b) Transitory and susceptible to development.  
   c) The point where they are at their developmental process.

11) It is important to know the names of all my students.
   a) Agree  b) Disagree  c) Neutral

12) It is important to know one personal thing about each of my students.
   a) Agree  b) Disagree  c) Neutral

Section III: Differentiated Instruction
13) By Differentiated Instruction I understand:
   a) An innovation in teaching.  
   b) Extra help for struggling students.  
   c) Extra work for those who finish first.  
   d) Making learning easy for each learner.  
   e) A personalized learning plan for each student in every lesson.  
   f) A way of teaching that a teacher may adopt or reject.

14) I assess my students’ prior knowledge before starting a new lesson.
   a) Never  b) Rarely  c) Always

15) Inside my classroom,
   a) I am the authority on all knowledge.  
   b) I ask for my students’ opinion and input.  
   c) both

16) I give interest inventories.
   a) Never  b) Rarely  c) Always

17) I spend the class time:
   a) Delivering the same content to all of my students.  
   b) Guiding my students through one activity at a time.  
   c) Guiding my students through different activities at the same time.
18) When I give my students an assignment (e.g., a project),
   a) I give verbal directions. ☐
   b) I give a sample of the expected outcome. ☐
   c) I only assign the work to be done. ☐
   d) Other: please, specify........................................................................................................

19) I expect all my students to finish the same work in the same way (i.e., to follow the
    same steps and produce the same outcome).
   a) Yes ☐ b) No ☐

20) My students demonstrate learning through:
   a) A cumulative test at the end of the semester. ☐
   b) Many tests throughout the semester. ☐

21) When I assess my students,
   a) The assessment is a source of information about their needs. ☐
   b) I intend to evaluate my students’ work. ☐
   c) I intend to categorize my students. ☐
   d) Other: please, specify........................................................................................................

22) In my classroom students work:
   a) Individually. ☐ b) In pairs. ☐
   c) In small groups. ☐ d) As a whole class. ☐

23) I arrange my students’ groups:
   a) Based on their levels of readiness. ☐ b) Based on their interests. ☐
   c) Based on their learning profiles. ☐ d) Based on their choices. ☐
   e) Randomly. ☐
   f) Other: please, specify........................................................................................................

24) I change the arrangement of the groups:
   a) Never; once chosen the groups remain the same. ☐
   b) When requested. ☐
   c) With every new project or work. ☐
   d) Every session. ☐
25) All my students can learn the essentials of my class.
   
   a) Agree ☐  b) Disagree ☐  c) Neutral ☐

26) I think that
   
   a) All my students need the same amount of help. ☐
   b) Different students need different amounts of help. ☐
   c) Different students need different kinds of help. ☐
   d) Some of my students do not need help. ☐

Section IV: Further Suggestions

27) Please, add any suggestion(s) or comment(s) you may have.

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Appendix 3

The Topic Familiarity Test

First task:
How much do you know about the topic?

Directions:
- A number 5 means that you know almost everything about the topic.
- A number 4 means you know a lot about the topic.
- A number 3 means that you know something about the topic.
- A number 2 means that you know a little about this topic.
- A number 1 means that you do not know anything about the topic.

1) The benefits of reading contemporary English literature
2) The relationship between money and happiness
3) Modern slavery
4) Human cloning
5) Experiments on animals
6) Obligatory military service
7) Social networking sites
8) Footballers’ salaries

Second task:
For each topic write words that come to your mind and that you associate to the topic.

1) The benefits of reading contemporary English literature:
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2) The relationship between money and happiness:
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3) Modern slavery:
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4) Human cloning:
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5) Experiments on animals:
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6) Obligatory military service:
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7) Social networking sites:
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8) Footballers’ salaries:
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Appendix 4

The Pre-test: The One-Size Fits All Activity

First Name: ................................................
Last Name: ................................................

The Medical Dictionary defines ‘Human Cloning’ as “the at-present hypothetical, but ethically charged production of a de novo human from the DNA of one person without the genetic contribution from a second human”. The definition suggests that the topic is not only theoretical but also highly debatable. Since the sheep Dolly has been cloned, many have been pondering the pros and the cons of cloning humans. Some people think that this is a violation of the natural order of things, and all research in the area should be banned. Others think that this is a natural progression of science and human evolution and that research about human cloning should be encouraged.

Write a five-paragraph argumentative essay in which you state the arguments for, the arguments against and your opinion about human cloning.

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Appendix 5

The Post-test: the Tiered Activities

First Name: ................................................
Last Name: ................................................

**First Topic:** The Relationship between Money and Happiness

Benjamin Franklin said: “Money never made a man happy yet, nor will it. There is nothing in its nature to produce happiness”, but Albert Camus wrote: “It is a kind of spiritual snobbery that makes people think they can be happy without money.” Some people take Franklin’s stand and think that money has nothing to do with being happy. They support their opinion by arguing that happiness is a little bit more than a simple formula based on income. Happiness is found in simple things like family, friendship and peace of mind, things that money cannot buy. However, some other people share Camus’ opinion. They think that money can relieve a lot of stress which certainly leads to some happiness. Money can buy you a healthier and easier life.

Write a four-paragraph argumentative essay in which you state the arguments for and those against the fact that money can buy happiness. (You do not have to state your opinion)
Second Topic: Experimentation on Animals

The Encyclopaedia Britannica defines Experimentation on Animals as an "Operation on a living animal for experimental rather than healing purposes; more broadly, all experimentation on live animals". It is to be understood as all kinds of experiments including, medical research, cosmetics, toxicology testing, and psychological research involving animal subjects. It is estimated that, around the world, the number of animals used annually in experimentation ranges from the tens of millions to more than 100 million. Many people feel that it is wrong and should be stopped immediately because animals do feel pain, and there are other alternatives. However, other people think that it is necessary for the advancement of medical and biological knowledge.

Write a five-paragraph argumentative essay in which you state the arguments for, the arguments against and your opinion about experimentation on animals.
Third Topic: Footballers’ Salaries

Today’s top professional footballers often have salaries and bonuses in the tens of millions of Euros. Do you think it is fair that people like doctors, teachers, fire-fighters and nurses, who dedicate their lives to others, are paid so little while footballers have such high wages for the mere service of entertainment?

Write a five-paragraph argumentative essay in which you state the arguments for, the arguments against and your opinion about the topic. In the opinion paragraph, however, you are asked to take the defence of the stand you do not believe in.
**Résumé**

Dans les classes algériennes de langues étrangères où les étudiants sont presque toujours trop nombreux, il est rare de voir l’instruction s’adapter aux différents besoins de tous ces étudiants. Un observateur de ces classes là peut ne jamais être témoin d’aucun moment de différenciation pédagogique. Cette étude est composée de deux parties.

Elle a premièrement essayé d’examiner à quel point les enseignants sont conscients des différences qui existent entre leurs étudiants et les moyens qu’ils utilisent pour gérer ces différences là. Un questionnaire pour les enseignants titulaires du Département d'Anglais à l'Université de Oum El-Bouagui a été utilisé pour arriver à cet objectif. Le questionnaire visait aussi à examiner la connaissance et les perceptions des enseignants vis-à-vis la pédagogie différenciée. Vingt enseignants nous ont répondu. Les résultats du questionnaire montrent que malgré que les enseignants soient conscients des différences qui existent entre les étudiants, ils adaptent l’instruction rarement à ces différences, ainsi il semble qu’ils n’appliquent pas la pédagogie différenciée.

Cette étude a deuxièmement essayé d’examiner les effets de l’implémentation de l’une des stratégies de la différenciation sur la production écrite des étudiants. Cette stratégie se présente sous forme d’activités à plusieurs niveaux. Vingt étudiants d’Anglais en troisième année ont participé à notre expérimentation. Ces étudiants ont reçu une activité indifférenciée dans le pré-test. Il s’agit là d’un essai argumentatif de niveau moyen. Les scores de ce pré-test ont été mesurés sur une échelle globale et nous ont permis de diviser les étudiants en trois niveau en fonction de leur niveau de préparation cognitive. Chaque niveau a reçu un essai qui le correspond dans le post-test. Ces essais forment les activités différenciées qui ont été structurées par complexité cognitive à travers la manipulation du degré de familiarité avec les sujets, du support donné aux étudiants et du point de vue dans un essai. Les résultats obtenus montrent que seule l’organisation d’essai est améliorée grâce aux activités différenciées alors que la précision linguistique n’est pas améliorée. Par conséquent, on peut affirmer que la production écrite est positivement affectée par l’utilisation d’activités différenciées.
ملخص

في الفصول المزدحمة لتدريس الإنجليزية كلمة أجنبية في الجزائر نادراً ما يستجيب الأستاذ لجميع احتياجات الطلبة المختلفة وبالتالي فإن من يراقب هذه الفصول لا يمكنه أن يلاحظ أي أثر للتدريس التمبيزي. هذه الدراسة ذات طابع نظرية في الشق الأول حاولنا أن ندرس الوعي لدى المعلمين وطرق تعلمهم مع الاختلافات بين الطلاب. في الشق الثاني حاولنا أن ندرس الأثر المترتب عن تنفيذ واحدة من استراتيجيات التدريس التمبيزي على إنتاج الطلبة الكتابي وتتمثل هذه الإستراتيجية في الأنشطة المتدرجة. لدعم الهدف الأول قمنا بتوزيع استبيان لأساتذة قسم اللغة الإنجليزية في جامعة أم البواقي. استجاب عشرون أستاذًا للإستبيان الذي يهدف أيضاً إلى التحقيق في معرف الأساتذة وتصوراتهم عن التدريس التمبيزي. أجرينا تجربة لتحقيق هدف الدراسة الثاني حيث قمنا باختيار الناتج الكتابي لفوج واحد متكون من عشرين طالباً في السنة الثالثة في قسم اللغة الإنجليزية في الجامعة نفسها، هؤلاء الطلاب هم المشتركون لدينا في التجربة. في مرحلة الاختبار الأول قمنا جميع الطلاب بنفس المستوى الغير متدرج. وبناءً على نتائجهم، تم تقسيمهم وفقاً لاستعداداتهم المعرفية إلى ثلاثة مستويات. تلقى كل مستوى نشاطاً متفاوتًا لاستعداداته في آخر اختبار. هذه الأنشطة هي أنشطة تدريسية متابعة للمستويات وقد تم تدريجها وفقاً لنسب التعليم المعرفية فيها. وفقاً للنتائج المستخرجة من الاستبيان تبين أنه على الرغم من وعي الأساتذة بشأن اختلافات الطلاب فإنهم نادراً ما يكيفون تدريسهم حسب هذه الاختلافات وبالتالي فإنهم لا يقومون بتنفيذ التدريس التمبيزي. علاوة على ذلك، فإن النتائج التي تم الحصول عليها من التجربة تظهر أن إنتاج الطلبة الكتابي يتأثر بشكل إيجابي باستخدام الأنشطة المتدرجة.