

**THE EFFECTS OF DIFFERENTIATED INSTRUCTION ON TURKISH  
STUDENTS' L2 ACHIEVEMENT, AND STUDENT AND TEACHER  
PERCEPTIONS**

**Ahmet Cihat YAVUZ**

**JUNE 2018**

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STUDENTS' L2 ACHIEVEMENT, AND STUDENT AND TEACHER  
PERCEPTIONS**

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Assist. Prof. Enisa MEDE

Director

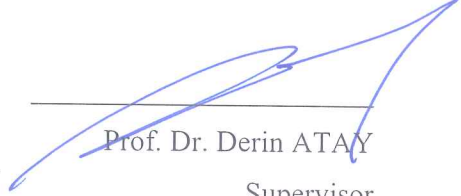
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Assist. Prof. Hatime ÇİFTÇİ

Coordinator

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Arts.



Prof. Dr. Derin ATAY

Supervisor

**Examining Committee Members**

Assist. Prof. Enisa MEDE

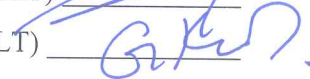
Prof. Dr. Derin ATAY

Assist. Prof. Gökçe KURT TİFTİK

(BAU, ELT)

(BAU, ELT)

(MU, ELT)



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Name, Last Name: Ahmet Cihat YAVUZ

Signature: 

## ABSTRACT

### THE EFFECTS OF DIFFERENTIATED INSTRUCTION ON TURKISH STUDENTS' L2 ACHIEVEMENT, AND STUDENT AND TEACHER PERCEPTIONS

Yavuz, Ahmet Cihat

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This study investigated the impact of differentiated instruction on 9th grade students' overall L2, L2 reading, writing, vocabulary, and grammar achievement. It also explored the perceptions of the students and the teacher. Two intact classes were selected as control (N=14) and experimental group (N=8). The control group was exposed to traditional instruction, while the experimental group received differentiated instruction guided by the principles of constructivism, multiple intelligence theory, and the DI framework of Tomlinson (1999). Quantitative data instruments included achievement test and Vocabulary Knowledge Scale, and the results revealed a significant difference between pre- and post-tests in both groups. It was also found that the difference rate was higher in the experimental group. Qualitative data instruments consisted of student reflective essays, and the results included perceptions of DI as distinctive, entertaining, engaging, instructive, and interest-related; and, teacher reflective journals the results of which revealed time constraints, needs for student awareness and training about DI.

Keywords: Differentiated Instruction, Differentiated L2 Instruction, Traditional L2 Instruction

## ÖZ

### FARKLILAŞTIRILMIŞ ÖĞRETİMİN TÜRK ÖĞRENCİLERİNİN İKİNCİ DİL BAŞARISINA, VE ÖĞRENCİ VE ÖĞRETMEN ALGISINA ETKİLERİNİN İNCELENMESİ

Yavuz, Ahmet Cihat

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Bu çalışma, farklılaştırılmış öğretimin 9. sınıf öğrencilerinin İngilizce genel, okuma, yazma, kelime ve dil bilgisi başarılarına etkisini araştırmıştır. Çalışma ayrıca öğrencilerin ve öğretmenin algılarını da araştırmıştır. İki sınıf kontrol ve deney grubu olarak seçilmiştir. Kontrol grubu geleneksel öğretime maruz kalırken, deney grubu olup yapılandırmacılık, çoklu zeka kuramı ve Tomlinson (1999)'ın farklılaştırılmış öğretim çerçevesinin prensipleriyle oluşturulan farklılaştırılmış öğretim almıştır. Nicel veri, başarı testi ve Kelime Bilgisi Ölçeği'nden elde edilmiştir, ve sonuçları hem iki grupta da ön test ve son test arasında, anlamlı bir fark olduğunu gösterdi. Sonuçlar ayrıca, deney grubundaki artışın daha yüksek olduğunu gösterdi. Öğrenci yansıtıcı kağıtlarından elde edilen nitel veri sonuçları, farklılaştırılmış öğretimin farklı, eğlenceli, meşgul edici, öğretici ve ilgi alanlarıyla ilişkili olduğunu gösterirken; öğretmen yansıtıcı günlüklerinden elde edilen sonuçlar ise farklılaştırılmış öğretimde zaman problemi, öğrencileri tanımanın ve bu konuda eğitim ihtiyacı olduğunu gösterdi.

Anahtar kelimeler: Farklılaştırılmış Öğretim, Farklılaştırılmış İkinci Dil Öğretimi, Geleneksel İkinci Dil Öğretimi



ICAF

To my wife

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## TABLE OF CONTENTS

ETHICAL CONDUCT .....	iii
ABSTRACT .....	iv
ÖZ .....	v
DEDICATION .....	vi
ACKNOWLEDGEMENTS .....	vii
TABLE OF CONTENTS .....	viii
LIST OF TABLES .....	xii
LIST OF FIGURES .....	xiii
Chapter 1: Introduction .....	1
1.1 Theoretical Framework .....	1
1.2 Statement of the Problem .....	2
1.3 Purpose of the Study.....	3
1.4 Research Questions .....	3
1.5 Significance of the Study .....	3
1.6 Definitions .....	4
Chapter 2: Literature Review .....	6
2.1 Theoretical Frame of Differentiated Instruction.....	6
2.1.1 Progressivism and Constructivism.....	6
2.1.2 The Theory of Multiple Intelligence.....	9
2.1.3 21 <sup>st</sup> Century and Differentiated Instruction.....	10
2.2. Definition of Differentiated Instruction.....	12
2.3. Implementation of Differentiated Instruction.....	12
2.3.1 Elements to Differentiate. ....	13
2.3.1.1 Content .....	13
2.3.1.2 Process .....	13
2.3.1.3 Product .....	14
2.3.2 Aspects to Consider for Differentiated Instruction.....	15
2.3.2.1 Readiness .....	16
2.3.2.2 Interest.....	17
2.3.2.3. Learning Profile .....	17

2.3.3 Differentiated Instruction Strategies.....	19
2.3.3.1 Tiered Activities.....	19
2.3.3.2 Stations.....	20
2.3.3.3. Choices.....	20
2.3.3.4. Flexible Grouping.....	21
2.4. Studies on Differentiated Instruction.....	23
2.4.1 Differentiated Instruction and Student Perceptions.....	23
2.4.2 Differentiated Instruction and Teacher Perceptions.....	25
2.4.3 Differentiated Instruction and Student Achievement.....	26
2.5 Conclusion.....	30
Chapter 3: Methodology.....	31
3.1 Research Design.....	31
3.2 Setting and Target Population.....	34
3.3 Procedures.....	40
3.3.1 Sources of Data.....	40
3.3.2 Data Collection Instruments.....	40
3.3.2.1 Achievement Test.....	41
3.3.2.2 Vocabulary Knowledge Scale.....	42
3.3.2.3 Reflective Essays.....	43
3.3.2.4 Reflective Journals.....	43
3.3.3 Data Collection Procedures.....	43
3.3.3.1 Types of Sampling.....	44
3.3.3.2 The Agreement of Raters.....	44
3.3.4 Implementation.....	47
3.3.4.1 Week 1.....	47
3.3.4.2 Week 2.....	49
3.3.4.3 Week 3.....	49
3.3.4.4 Week 4.....	51
3.3.4.5 Week 5.....	53
3.3.4.6 Week 6.....	55
3.3.4.7 Week 7.....	56

3.3.4.8 Week 8. ....	56
3.3.4.9 Week 9. ....	56
3.3.4.10 Week 10. ....	56
3.3.5 Data Analysis Procedures .....	57
3.3.6 Reliability and Validity.....	59
3.4 Limitations.....	59
Chapter 4 Findings .....	61
4.1 Overview .....	61
4.2 Quantitative Data Analysis.....	61
4.2.1 Findings about Overall Achievement .....	61
4.2.2 Findings about Reading Achievement.....	64
4.2.3 Findings about Writing Achievement.....	66
4.2.4 Findings about Vocabulary Achievement.....	69
4.2.4.1 VKS Analysis. ....	69
4.2.5 Findings about Grammar Achievement.....	71
4.2.6. Findings about Overall Individual Achievement.....	74
4.3 Qualitative Data Analysis.....	76
4.3.1 Student Reflective Essays.....	76
4.3.1.1 The Distinctive Nature of the DI.....	77
4.3.1.2 The Entertaining and Engaging Nature of the DI .....	77
4.3.1.3 Informative and Instructive Aspect of the DI .....	78
4.3.1.4 Collaborative Tasks with the DI .....	79
4.3.1.5 Interest-based Lesson Materials.....	79
4.3.1.6 Tiered Tasks with the DI.....	80
4.3.1.7 Computer-assisted Instruction.....	81
4.3.2 Teacher Journals .....	81
4.3.2.1 Time Constraints .....	82
4.3.2.2 Getting to Know Students .....	82
4.3.2.3 Knowing How to Differentiate .....	83
4.3.2.4 Restrictions by Institutional Requirements .....	83
Chapter 5: Discussion and Conclusions.....	85

5.1 Discussion of Findings for Research Questions.....	85
5.1.1 Discussion of the Findings of RQ1a: Will there be a difference between DI group and control group regarding overall L2 achievement?.....	85
5.1.2 Discussion of the Findings of RQ1b: Will there be a difference between DI group and control group regarding L2 reading achievement?.....	86
5.1.3 Discussion of the Findings of RQ1c: Will there be a difference between DI group and control group regarding L2 writing achievement? .....	88
5.1.4 Discussion of the Findings of RQ1d: Will there be a difference between DI group and control group regarding L2 vocabulary achievement?.....	89
5.1.5 Discussion of the Findings of RQ1e: Will there be a difference between DI group and control group regarding L2 grammar achievement? .....	89
5.1.6 Discussion of the Findings of RQ2: What are the students' individual achievement after DI? .....	90
5.1.7 Discussion of the Findings of RQ3: What are the students' perceptions about DI?.....	91
5.1.8 Discussion of the Findings of RQ3: What are the teacher's perceptions about DI?.....	92
5.2 Conclusions .....	93
5.3 Recommendations .....	94
REFERENCES.....	96
APPENDICES .....	105
A. The Perceptual Learning Style Preference Questionnaire .....	105
B. Holland Career Inventory.....	110
C. Achievement Test.....	112
D. Rubric for Writing.....	116
E. Vocabulary Knowledge Scale .....	117
F. Reflective Essays .....	118
G. Curriculum Vitae.....	119

## LIST OF TABLES

### TABLES

Table 1 Research Design of the Study .....	34
Table 2 Information about Participants .....	36
Table 3 Timetable of Data Collection Procedure.....	44
Table 4 Correlation Analysis (Experimental Group).....	45
Table 5 Mann-Whitney U Test for Raters' Scores (Experimental Group) .....	45
Table 6 Correlation Analysis (Control Group) .....	46
Table 7 Mann-Whitney U Test for Raters' Scores (Control Group) .....	47
Table 8 Overall Measurement Difference .....	61
Table 9 Comparison of Overall Achievement with Friedman Test.....	62
Table 10 Overall Results with Wilcoxon Test.....	63
Table 11 Reading Measurement Difference .....	64
Table 12 Comparison of Reading Achievement with Friedman Test.....	65
Table 13 Reading Results with Wilcoxon Test .....	66
Table 14 Writing Measurement Difference .....	67
Table 15 Comparison of Writing Achievement with Friedman Test.....	67
Table 16 Writing Results with Wilcoxon Test.....	68
Table 17 Vocabulary Measurement Difference .....	69
Table 18 VKS Measurement Difference .....	69
Table 19 Comparison of Vocabulary Achievement with Friedman Test .....	70
Table 20 Vocabulary Results with Wilcoxon Test .....	71
Table 21 Grammar Measurement Difference .....	72
Table 22 Comparison of Grammar Achievement with Friedman Test .....	72
Table 23 Grammar Results with Wilcoxon Test .....	73
Table 24 Overall Individual Achievement .....	74

## LIST OF FIGURES

### FIGURES

Figure 1. A Concept Map for Differentiated Instruction .....	22
Figure 2. Visual Model of the Research Design in the Study.....	33
Figure 3. The Vocabulary Knowledge Scale .....	42
Figure 4. Meaning of Scores in Vocabulary Knowledge Scale .	43



## **Chapter 1**

### **Introduction**

This chapter introduces an overview of the study which aims at experimenting and analyzing differentiated L2 instruction at a private high school. The chapter spotlights the significance of differentiated instruction (hereinafter DI) by comparing with traditional instruction, which is widely adopted by most L2 instructors, and giving an overview of the theoretical framework of DI. The chapter later presents a problem statement and the purpose of the study, as well as the research questions of the study. Key terms are concisely defined at the end of the section.

#### **1.1 Theoretical Framework**

DI has received increasing attention for the last few decades. Bearne (1996), naming it also *differentiation*, defines it as an approach in which teachers make changes in curriculum, methods, materials, and learning outcomes for the sake of addressing varied abilities, needs, interests and learning styles of individual learners, thus maximizing the opportunities to learn for each learner in the classroom. Having a great amount of contribution to this concept and being a leading expert in this field, Tomlinson (1999) describes DI as the modification of teaching in terms of learners' level of readiness, interest, and learning profile by underlying the fact that it is not possible to define DI in a single way. She (ibid.), however, adds that there are some main features of DI that are recurrent in differentiated classrooms, which are reinforcing learners and their learning in every possible way, having them feel respected and believing in their achievement. To put it simply, DI is a student-centered approach that acknowledges students with their differences and assumes the possibility of addressing these diversities.

When it comes to the question, "What and how to differentiate in the classroom," Blaz (2006) puts that since DI is not a method but a way of thinking about teaching and learning, the ways of differentiating instruction abound. She

(ibid.), however, points out that in a differentiated classroom, firstly, students should be given autonomy in what and how they learn, also how they show their learning; secondly, new content should be associated with learners' interests; and thirdly, students should be guided to see their strengths and weaknesses and foster independent learning.

In this regard, Tomlinson (2001) predicates that instruction can be differentiated in conjunction with learners' readiness, profile, and interest through modifying the content, process, or product. Teachers can modify one or more of these three components. Given the former three aspects of learners, Tomlinson (2014) suggests that readiness refers to learners' level of skill and prior knowledge, while interest is about their passion and curiosity for a topic or skill, and profile stands for the preferred ways of learning. In view of the adjustable three elements, *content* signifies the aimed knowledge, skills or understanding (Tomlinson & Imbeau, 2010), while *process* stands for the strategies or methods to reach the aimed content, and *product* refers to the evidence of students learning.

## **1.2 Statement of the Problem**

The rationale behind opting for this topic lies in the experience the researcher had during his last 9 years of teaching different age groups. The experience showed that traditional instruction was unfair because it assumed that all learners in a classroom were at the same level of readiness and had the same needs, interests, and profiles. The researcher, thus, wished to intervene the conventional way of teaching through the strategies of DI.

DI has become a buzzword in the educational world and in the relevant literature. Despite being widely articulated, little research or contribution was made apart from regurgitating the necessity of DI to respond to varieties in classrooms. The same is true for the literature in which DI was investigated in terms of teacher awareness, teacher belief, and the impact on students' attitude and motivation.

Furthermore, with regard to the research on DI, very few studies were conducted in the field of EFL, which makes this study worthwhile. In accordance with the necessity for an interventional study, the present study aims not only to examine the impact of DI on students' achievement in L2 but also to look into their perceptions, and the perceptions of the teacher who carried out DI.



### **1.3 Purpose of the Study**

In the light of what has been said thus far, the purpose of this study is to find if DI has an impact on students' overall L2, and L2 reading, writing, vocabulary and grammar achievement in a private high school, as compared with the results of students having taken traditional instruction. As a secondary purpose, the study attempts to explore students' perceptions about DI and the perceptions of the teacher about the planning and implementation of DI. It is believed that this study will provide an insight into the effect of DI in foreign language learning.

### **1.4 Research Questions**

The present study addresses the following research questions:

- 1) Will there be a difference between DI group and control group regarding Turkish students'
  - a. Overall L2 achievement?
  - b. L2 reading achievement?
  - c. L2 writing achievement?
  - d. L2 vocabulary achievement?
  - e. L2 grammar achievement?
- 2) What are the students' individual achievement after DI?
- 3) What are the students' perceptions about DI?
- 4) What are the teacher's perceptions about DI?

### **1.5 Significance of the Study**

Among all the difficulties L2 teachers confront today, addressing varieties of learners is perhaps the most challenging one. No matter what age and where we teach, we are destined to have classrooms filled with students that have varied abilities and needs. The general reaction of L2 teachers to this situation is gloss over the fact and keep teaching to the whole class with the same material and in the same way, which I will name "traditional L2 instruction" throughout this research.

Traditional L2 instruction assumes whole-group instruction (Kasteloot, 2011) in which students are expected to learn in the same way and are expected to reach the same outcomes despite their differences in readiness, learning profile, interests, and needs. To become more specific in the light of researcher's experience and observation, widely adopted traditional L2 instruction anticipates that a single

curriculum designed regardless of learner varieties suffices to meet the L2 needs of every student. It, therefore, propels the L2 instructors to stick to the ready-made curriculum including but not limited to content, outcomes and materials. Because of this one-size-fits-all L2 delivery, learners cannot learn English, and the failure is attributed to schools and systems due to their incapability to cater to this need.

Although many changes and so-called improvements have been made to provide solution for the lack of achievement for decades, little progress has been made in the EFL, which is mainly because of the traditional L2 instruction. Despite being aware of the source of the problem, there has been no serious attempt to question the one-size-fits-all approach and generate alternatives to overcome this issue in the country. This scenario has led conscious L2 teachers to ask themselves about what they can do in mixed-ability classrooms. They observe that students come with various backgrounds, motivation, abilities, as well as diverse preferred learning styles, interests, and needs. Although they are aware of this situation, they are mostly unconfident about how to attend to it (Tobin & McInnes, 2008). They need to find a way to deal with the diversity in their classrooms (Visser, 1998); in other words, they need to differentiate instruction by catering to the diversity and creating a fair, and conducive learning environment for learners.

Despite the huge support for the strategies of DI in the literature, there is not plenty of research that measures whether DI leads to a difference in student achievement. Therefore, research is required to investigate if DI makes a difference in student achievement.

This study is important because it is based on empirical evidence rather than theoretical underpinnings or assumptions. To put it another way, the study incorporates strategies of DI through tailoring the default curriculum resources assigned to the participants at the beginning of the school year. The findings of this study will be a beacon for prospective research that aims to further investigate the impact of DI in various contexts.

## 1.6 Definitions

**Differentiation:** A lesson design process in which the teacher modifies content, process, and product in response to student needs, interests, profiles, and styles differences in readiness, interest, and learning needs (Bearne, 1996). It is interchangeably used for differentiated instruction.

**Differentiated Instruction:** An approach to instruction which assumes students' learning styles, and levels of readiness before the design of a lesson (Tomlinson, 1999).

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

**Traditional L2 Instruction:** A type of instruction which assumes the whole group L2 teaching in which students are anticipated to learn in the same way and reach the same outcomes.



## Chapter 2

### Literature Review

The literature review is sectioned with a balanced focus on both theoretical basis and empirical data about the topic. The first section dives into the history of DI through an exploration of underpinning philosophies and approaches. The second section details a recommended structure and elements of DI. The last section is allocated to the existing studies related to the research questions that attempt to explore students' and teacher's perceptions about DI and seek a difference in achievement.

#### **2.1 Theoretical Frame of Differentiated Instruction**

The following sections attend to underlying philosophies and theoretical frame of DI with an emphasis on how focus was diverted from whole-class to individual.

**2.1.1 Progressivism and constructivism.** Although DI is a recently developed term, there were some known attempts to attend to individual differences in the mid-1900s when learners from different ages received education in multi-age classrooms. This situation left teachers accountable for providing individualized education. To illustrate this, Washburne (1953) published an article which drew attention to multi-age classrooms where, for instance, students aged 7-10 studied in the same classroom, and the necessity for addressing individual needs in these classrooms by giving example of a teacher named Preston Search who lived in Colorado, the USA in 1889. He highlighted that Search made it possible for each of his students to learn at their own pace in each school subject by individualizing the instruction and providing fair opportunities for each student, and thereby impeding any failures or grade repetitions. He (ibid.) added that Search became an inspiration throughout his career, and in 1902 he decided to publish a book named *The Ideal School: Or, Looking Forward* following a long successful career. In the book, Search proposed that educators of the time had to change their mindset, and endeavor to change the system to provide equal opportunities to all students, and schools must become aware of individual differences and stop focusing on the fictional average learner.

It was not until 1912 that individual differences started to become more recognizable in the classroom with the advent of intelligence and achievement tests. Later, in 1918 William Heard Kilpatrick, a progressive educator, and colleague of John Dewey, developed the Project Method and diverted attention from individualized instruction to social development of the child, and teaching them how to think rather than what to think, which laid the foundation of project-based learning. His ideas later expanded on progressive education or *progressivism*, which had gained momentum in the late 19<sup>th</sup> century (Paone, 2017).

One of the strong and most influential voices of progressivism movement was that of John Dewey (1938). He argued that static, authoritarian, and formal school environments did not suffice to prepare students for life. He also proposed that education must inquire into the child's abilities, and interests. Dewey viewed education as a social process and learners as active social individuals that learn by doing and working cooperatively. He argued that learning is a process of making inferences about the right and wrong based on individual experiences which should inform education (Dewey, 1938, as cited in Ariss, 2017). Dewey later carried on criticizing traditional schools in that it relies on static content, and uninvestigated method. He further argued that traditional education considers children as an object of control and fails to respond to significant differences among children, which alienates rather than engages learners (Kaplan, 2013). On the other hand, progressive education does not take learning as fixed and static, rather it is a continual movement in which individual abilities and interests are respected, and proper learning conditions are established in the way that helps students understand and contribute to the life in the classroom and outside the classroom.

The evolution from average learner to individual learner did not end with the advent of progressivism. The concept of *constructivism*, which was originally developed by the Swiss psychologist Piaget (1950, as cited in Pass, 2004), and later improved by Bruner (1961), contributed to and expanded on individual needs, interests and experiences in education (Steffe & Gale, 1995). The overarching principle of constructivism is that every learner makes his or her own reality, which suggests that education is more than an issue of teaching facts to students but helping them reach their own construction of facts. It assumes active learner engagement in learning environment and encourages learners to construct new knowledge on the previous knowledge with little support. In other words, it expects

learners to reach knowledge by creating their own learning experiences rather than passively receiving information (Huitt, 2003).

Piaget (1950, as cited in Steffe & Gale, 1995) held the belief that children undergo stages, build relationships, and make meanings through interacting with the physical world. He proposed that they develop mentally at stages, while the progress may vary depending on the individual. Piaget also suggested that learners hardly understand, and use acquired knowledge unless they are based on previous experiences. These propositions demonstrate that teachers must be aware of students' readiness and needs in the classroom so that they could design instruction based on learners' cognitive development.

Another perspective to constructivism and education was later developed by Russian psychologist Vygotsky (1978, as cited in Saundersova, 2015) who believed in the fact that children construct meaning and grow intellectually through interaction with adults in their zone of proximal development. He also asserted that little learning takes place when learners keep working on already-mastered skills or understandings. Similarly, when assigned tasks require level of mastery that is far ahead of learners' current level, it also results in failure and frustration. In sum, according to Vygotsky, learners must be challenged in the way that they develop mastery through a series of activities that increase in difficulty stage by stage. By the same token, he suggested that lesson procedures should include presentation, activities, tasks that are just above the mastery level of learners in the hope of challenging and making them feel their progress. Vygotsky further proclaimed that learners' culture play a substantial role in learning. To put it another way, teachers should take students' culture into account because culture has an influence on learning.

The concept of constructivism was furthered by American psychologist Bruner (1996, as cited in Matsumoto, 2017), who is considered as one of the founding fathers of constructivism. He contended that instruction needs to be related to the learners' experiences and contexts that allows them to go beyond the given information, generate new ideas and make decisions. He extended the propositions of Piaget and Vygotsky by asserting that there is not a single way of teaching or learning. As is jointly claimed by the constructivist philosophers, Bruner also suggested that learners build their own understanding based on their current and past experience. He thus concluded that learners should be given plenty

of opportunities where they could construct new knowledge or skills (Matsumoto, 2017).

**2.1.2 The theory of multiple intelligence.** When schools continued to deliver education as guided by the principles of progressivism and constructivism, at the turn of the twenty-first century *the theory of multiple intelligence* (hereinafter MI) was postulated by Howard Gardner (1983), an American cognitive psychologist. The basis of MI theory lies in the belief that humans have a variety of abilities and talents, which cannot be explained by the traditional definition of intelligence (Gardner, 1993). Through his investigation into human potential, Gardner identified seven distinct intelligences, viz. visual-spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, linguistic, and logical-mathematical, on which he later added two more intelligences, namely naturalistic and existential intelligences (Gardner, 1999). He suggests that no two humans can have the same intellectual profile, which informs learning that learners have different potent intelligences and can learn better and develop at a more meaningful and faster pace provided that teachers take their individual dominant intelligences into account and design lessons accordingly. The theory, thus, rejects the notion that all students learn in the same way and at the same pace (Gardner, 2008, as cited in Paone, 2017).

Regarding the relation of MI with DI, they converge on a critical viewpoint that assumes learner diversity in terms of dominating intelligence and varied instruction in conjunction with learners' different intelligences. To put it another way, with respect to the fundamentals of both MI and DI, learners must be accepted as unique individuals with various strengths and weaknesses in terms of potent intelligences, and lesson instruction needs to be compatible with the variety so that each learner can develop understanding in a more advanced way. Therefore, both constructs deny one-size-fits-all mode of teaching and cherish multiple types of intelligences in the classroom. When a lesson is in line with a learner's strong intelligence, the student surely can learn better. Even in the case of challenging information to learn, students can overcome this through their most powerful intelligence.

In this regard, Heacox (2002) asserts that MI can be effectively used in classrooms, for instance, when students are given the autonomy of choosing how to

learn, when teacher decides to group students in accordance with their strong intelligence, or when the teacher design lessons in accordance with MI. To illustrate, in a classroom with visual learners, illustrations, pictures, videos could be integrated into instruction. Similarly, spoken or audio materials might be incorporated for visual learners, or role plays, and simulations could be considered effective for kinesthetic learners.

It is salient to note that being aware of MI profile of learners is not only the matter of teacher who can make proper choice while designing lessons but also of student who opts for appropriate ways of learning when having the autonomy of deciding on the way of learning. The following part continues to make connection between existing educational dispositions and DI.

**2.1.3 21<sup>st</sup> century and differentiated instruction.** A review of the evolution of dominating educational approaches indicated that there has been a gradually diverted focus from whole class to the individual since the late 19<sup>th</sup> century. When it comes to today's global society, the picture is no different. Despite a handful of placement tests used for the sake of being fair to learner differences, classrooms are full of students with mixed abilities, interests, and learning profiles. This situation makes DI inevitable for teachers who may still have to fine tune their instruction as informed by learner varieties.

Having said that this century started with rapid evolution and diffusion of educational technologies as supported by the Internet, which eased teacher's job in providing differentiation for their learners. To illustrate this, teachers can differentiate presentation by preparing videos and tasks, and asking learners to watch it before the lesson and come to class ready. In other words, they can apply flipped learning technique thanks to the technology. Additionally, teachers can assign readiness and interests related books that serve to fulfill curricular outcomes in a language program. Besides, auditory, or visual learners can reach appropriate videos on the Internet to understand a topic or develop a skill. Furthermore, teachers can easily vary the repertoire of homework by including technology-based assignments, which obviously not only caters to the needs of many students but also address many learners' interest areas.

This century has also come with a set of skills that prepare children for the global and technological world (Bellanca & Brandt, 2010). The most essential and



broadly investigated skills are critical thinking, collaboration, creativity, communication, and problem solving (Zhao, 2009), which are considered vital for every individual to survive in the global society, are extensively called as *21<sup>st</sup> century skills*. A great amount of research has been dedicated to expanding on the term of *21<sup>st</sup> century skills* (Zhao, 2009; Rotherham & Willingham, 2010; Larson & Miller, 2011; Saavedra & Opfer, 2012).

Regarding these skills and DI, it is obvious that they go hand-in-hand. A combination both empowers students to get them to know themselves. In line with this, McCarthy (2017) proposes some ideas that both eases DI and fosters 21<sup>st</sup> century skills. He categorizes his ideas under the DI elements:

- Readiness: Asking learners to reflect on what they know and to what extent they progressed.
- Interests: Learning about learners' preferences through interviews, offering opportunities for problem solving by means of creative thinking in collaborative groups or through individual pursuits.
- Learning preferences: Encouraging students to understand different ways of knowing, conducting preference surveys.
- Processing: Developing tools for communication, critical thinking, and creativity to help learners make required connections about input
- Learner environment: Developing shared vision, and common understanding.

As it is discussed above, it is indisputable that there have been several influences which have shaped the phenomenon (DI). Moreover, there is also no point in talking about the necessity of DI whenever we live and wherever we teach. All the aforementioned educational trends meet at the point that they accept and support individual varieties, which, in fact, complements DI. The overlap of these theoretical frameworks refers to a dynamic and learner-centered approach that supports differentiated content, process, and outcome (Tomlinson, 2001; Blaz, 2006) as opposed to the traditional instruction in which learners are considered equal in terms of intelligence, learning style, needs and interests. Based on the theoretical background of DI, the next section explores the definition of DI and what DI consists of.

## **2.2. Definition of Differentiated Instruction**

Hypothesizing learner variety with respect to ability, profile, interest and learning style, DI claims that students learn best when teachers address variety by differentiating their instruction in conjunction with the diversity in the classroom. Not having a single definition, DI has been defined and interpreted differently by educators. Namely, Tomlinson (2000) based her definition on "... the efforts of teachers to respond to variance among learners in the classroom" (p. 1). Heacox (2002) proposes that DI is about modifying the level, pace, or kind of instruction congruent with learners' needs, abilities, learning styles and interests. Blaz (2006) similarly states that DI refers to the multiple avenues to attend to students' differences in terms of learning styles, interests, needs and prior knowledge. Linn-Cohen and Hertzog (2007) also calls DI as a term to describe curricular and instructional changes Correspondingly, King-Shaver (2008) defined it as a conscious teaching offering multiple paths toward defined aims. Campbell (2008) also puts that DI in a classroom denotes teachers' purposeful efforts to reach every student in mixed-ability classrooms by means of a diversity of strategies. Looking into the purpose of DI, Levy (2008) argues that the focus of DI is to ensure all students reach shared curricular goals through differentiated tools. All of these and many other existing definitions and descriptions in the current literature, despite approaching the term from different perspectives, conveys a common idea that is the reality of variety and the need to respond to this variety in the classroom.

## **2.3. Implementation of Differentiated Instruction**

Regarding the question of how to execute DI in the classroom, it is considered imperative to get to know the learning group very well and build a relationship with them (McCarthy, 2014). Upon establishing rapport and becoming knowledgeable about the learners' profile, academic level, interests, strengths, and weaknesses based on pre-assessments (Reese, 2011; Chien, 2012), this question can be taken into consideration. In this regard, it is suggested that DI can be implemented in such curricular elements as content, process, and product (Tomlinson, 1999; Theisen, 2002; Blaz, 2006; Levy, 2008; Powers, 2008). In the following section, these elements will be looked at in more detail.

**2.3.1 Elements to differentiate.** As is stated above, DI is not constrained to a single element; on the contrary, it embodies possible modifications on the content of learning, the process of learning, and product of learning (Tomlinson (1999); Blaz (2006). The descriptions of these elements will be discussed below.

**2.3.1.1 Content.** Tomlinson (2014) points out that content stands for either what learners are supposed to know and understand such as facts, concepts, principles, or what skills they are supposed to be equipped with, which is conventionally encompassed by course program, textbooks, and other predetermined sources. Beside encompassing concepts, principles, and skills to be taught, Willis and Mann (2000) state that content also refers to the methods teachers exploit to help learners reach unit goals. Bearing the extent of the content in mind, differentiating the content can be achieved through providing learners with different sorts of course materials (Tomlinson, 2005), not in a degraded but diversified way. It thus matters to know that there is a wide array of strategies to tailor or diversify the content in DI. For instance, coming up with a variety of texts such as articles, poems, storybooks could be a strategy of differentiating the content (i.e. a concept, a skill) aimed to be covered.

Tomlinson (1999) further claims that differentiating the content implies different learning experiences mapped in concert with learners' varieties in readiness, interests and, profiles, which most likely shapes a learning environment in which all learners have access to the input (aimed concept or skill) with a higher motivation and confidence. Theisen (2009) points out that the content can be differentiated by bringing the essential and significant parts into the focus and by varying them to accommodate learners' needs. This can be carried out by giving some students extra time to make sense of the unit, by applying to direct instruction (could be in mother tongue), by providing them more concrete materials such as visuals, examples, explanations, prompts, demonstrations.

**2.3.1.2 Process.** The second curricular component to differentiate is the process which accounts for the way learners understand the key concept or develop the target skill (Tomlinson, 2001; Theisen, 2002; McCarthy, 2014). Tiered activities whereby learners concentrate on a shared target (i.e. a concept or a skill) at different difficulty levels (Mahon, 2016). Differentiating process connotes a

variety of activities and unit sources prepared to help learners make sense of the major points in the lesson (Tomlinson, 1999). Richardson (2011) adds that to carry out DI of the process, it is vital to restructure the pre-selected materials in concert with the learners' level of readiness and learning styles. To give an example, if the target is reading about climate change, a more challenging text and more abstract discussion questions could be more appropriate for strong learners, whereas cognitively less demanding text and tasks could be opted for weaker students.

Theisen (2002) suggests that process stands for the ways learners make their own sense of the target content, which is, in fact, the *how* of instruction. She (ibid.) further expresses that differentiating the process can be achieved through multiple strategies such as grouping learners by their profile, interest, ability, modifying the complexity of tasks by assigning more abstract tasks to strong learners and thus involving them with critical thinking.

Tomlinson (2014) in this regard argues that process is a critical opportunity for teachers to help students fulfill the curricular needs to an utmost degree by varying it in response to students' individual diversities. Therefore, it is of great importance not to let students repeat what is given by a source, namely textbook, author or teacher but to process it in accordance with their individual pace, and way. This can take the shape of a number of activities and strategies, including but not limited to first-language instruction, peer learning, use of videos or performances, flexible grouping, and working stations. Beecher and Sweeny (2008) in this respect suggest that process can be differentiated by means of flexible grouping, more complex and abstract tasks, and through a multitude of methods.

**2.3.1.3 Product.** The other curricular element to differentiate is the *product* of teaching. Product refers to the selection of activities teachers plan to assess students' learning (Tomlinson, 1999). In other words, it refers to the *how* learners demonstrate their understanding of the content. Tomlinson (2014) additionally puts that a well-designed product allows not only diverse means of expression, performance, exhibition but also alternates procedures and difficulty level. There is many a way of differentiating the product (Oliver, 2016). One of them is the application of the theory of MI in which teachers can allow learners to opt for different choices of demonstrating learning as complied with their strong

intelligence. In this respect, academic criteria should be set and emphasized so that learners can understand what they are supposed to show at the end (McCarthy, 2014). For instance, in accordance with the multiple intelligences in the classroom learners could be asked to prepare or perform role-plays, presentations, songs, posters, brochures, essays, and stories.

Another method of differentiating product is the use of rubrics thanks to which teachers can set comprehensible and clear indicators. Given the foreign language context, there are plenty of ways of showing achievement. For example, learners can be given the chance of choosing among writing a composition, preparing a chart, a poster, or a graphic organizer; similarly, slow learners may be given the freedom of applying to bilingual dictionary or textbooks, and they could be given more time and a simplified version of assessment tool (Alberta Teachers' Association, 2010).

Regarding the ways of exhibiting understanding, Bloom's taxonomy can also be utilized (Theisen, 2002) in that the difficulty can be linked to the learners' stage of learning. To exemplify, while some learners can be asked to prepare a presentation with an aim to offer practical solutions to prevent global warming; others can simply be asked to show understanding about what global warming is and some of its reasons in a way.

Overall, as is also addressed in differentiating the content and the process, planning the product of learning also depends heavily on the learner differences in terms of intelligence, readiness, and preferred learning styles. Hence, evidencing learning varies on a wide scale. Yet, the main issue is that teachers should be aware of the uniqueness of their learners and should somehow trigger creativity and reflection by giving them the liberty of choosing among assorted forms of demonstrating understanding (Kelly, 2013). The next section is therefore concerned with the arguments that are to be taken into consideration to differentiate instruction.

**2.3.2 Aspects to consider for differentiated instruction.** As emphatically expressed in the previous sections, DI approaches learning from the perspective of learners instead of complying with the framework of a textbook or a specific curriculum that is designed based on a teacher-centered structure. When the primary concern is learner, it is thus a key principle to design instruction in

conjunction with students' characteristics which namely are readiness, interest, and learning profile (Tomlinson, 2001; Gregory & Chapman, 2002; Blaz, 2006). To do this, teachers need to commit themselves to build rapport with their learners for the sake of acquainting themselves with learners' special interests, academic levels, abilities, and profiles. Upon diligent work on learner characteristics, teachers will be able to design appropriate instruction for their learners (Reese, 2011). It is also evidenced by the research that students make progress when tasks correlate with their level of understanding or performing (readiness); when they spark curiosity and desire (interest); and when they assume work and effort in a preferred manner (learning profile) (Tomlinson, 2001). Reese (2001) argues that taking learner characteristics into account empowers relationship and partnership with the teacher, thereby leading to a collaborative environment where learners feel safe and acknowledged; and get encouraged to grow their critical thinking skills and creativity. She (ibid.) adds that students benefit from having choices and tasks that support various ways of learning. A detailed description of these areas is given below.

**2.3.2.1 Readiness.** Readiness, student's entry point to a specific concept, topic, or skill (Tomlinson, 2014), signifies what a student knows, understands, or can do in concern with what the teacher plans to teach (Hawethorne & Meade, 2007). In other words, it represents the level of comprehension the student has of sets of skill or concepts. The purpose of DI in response to readiness is to make the task a little too difficult (ideal difficulty level) so that one can observe students' growth in relation to the unit goals. The other objective is to provide necessary support students need to succeed. Therefore, DI in relation to readiness does not mean making tasks less challenging by lowering the standards, rather it is an act of developing learners at a specific concept or skill through scaffolding and providing ideally challenging tasks.

Teachers need to exploit a variety of activities to reshape instruction. In other saying, teachers need to pay attention to the readiness and tailor the instruction accordingly, for if planned concepts or skills are below learners' level, students get easily bored and DI becomes ineffective. Likewise, if the planned lesson aims are above their level, it causes frustration and DI again ends up ineffective (Mahon, 2016).

To illustrate how to implement DI by readiness, the following activities are recommended for the group of students with relatively less-developed readiness: giving explicit instruction or practice, staging instructions in a more concrete and structured way, and adjusting pace individually. With a group of advanced students, the following can be recommendable: skipping previously mastered concepts, skills, offering more complex, abstract, open-ended tasks, planning procedure at a quicker or slower pace if necessary, allowing for in-depth exploration and analysis of an understanding (Tomlinson, 2014).

**2.3.2.2 Interest.** In addition to considering readiness as a significant point of DI, taking learner interests into account is the other pivotal part of DI. Learners get motivated, learn better, and become successful when their interests are respected and are taken into consideration (Tomlinson, Brighton, Hertberg, Callahan, Moon, Brimijoin, Conover & Reynolds, 2003). Regarding the core of interest-focused DI, it is of vital importance to design tasks and instruction that ignite learners' motivation and interests (Tomlinson et al., 2003). DI by interest ensures that learners are offered learning opportunities and materials that are related to their experiences and a source of enthusiasm.

Theisen (2002) also suggests that to address learners' diverse interests, teachers need to align curricular units with their passion, encourage exploration, ignite motivation, and give them the autonomy of choosing tasks. To exemplify from Tomlinson (2014), a student could be eager to learn about fractions due to her interest in music, and the teacher can show the relation between fraction and music.

The role of the teacher is not only to investigate their learners' interests through inventories, sharing in group discussions or some other ways, but also to relate the unit goals to the varied interests of learners and give them the freedom of picking their own tasks after which learners put motivated effort and thought on the task. Hawethorne and Meade (2007) also consider interest as a great motivator and predicate that when teachers make a link between the input and learners' affinities, they can hook the learner.

**2.3.2.3. Learning profile.** Apart from readiness and interest, the other significant trait of learners to be paid particular attention to is their learning profile. Learning profile stands for how learners learn the best (Dahlman, Hoffman &

Brauhn, 2008). Dahlman et al. (2008) claim that learners' profile is influenced both by their preferred learning styles and their backgrounds. They (ibid.) further suggest that learning style comprises such factors as multiple intelligences, grouping preferences (individual, pairs, groups etc.), learning environment (spacious, quiet area etc.) preferences and so on. In alignment with this, Theisen (2002) also expresses that learning profile is affected by several variables such as desire to work individually, going for hands-on tasks over complex analytical activities, learning more effectively through rhymes over visuals.

As its names suggests, every learner has a unique and their own learning styles. Therefore, a single type of instruction (whole-class instruction) makes little sense and effect for most learners in the classroom. Dunn and Dunn (1979) shed light on the unfairness of the traditional instruction in the classroom with their following comment:

Not only do people of all ages and intellectual capacities learn in ways that differ dramatically, but certain students achieve *only* through selected methods--- methods that frequently fail to produce academic results for others. This is common knowledge among many experienced, sensitive instructors who nevertheless continue to teach the identical lesson to an entire class at the same time and in the same way, eventually requiring a demonstration of mastery at the same hour (p. 238).

Dunn and Dunn (1979) vividly illustrates the necessity of DI in the classroom aligned with learners' preferred learning styles. The theory further argues that DI in concert with learning styles should also take place in the expected outcome (product), which likely results in improvement in academic scores and performances. To reach knowledge about learners' learning styles, tests and surveys could be administered to the school before the beginning of school year and be shared with academic staff who considers the results for lesson planning.

Gardner (1993, as cited in Dahlman et al., 2008) asserts that individuals have and can cultivate each of the eight intelligences to some degree, yet one intelligence is generally the strongest and is the preferred one. Therefore, it matters to be conscious about these eight intelligences, viz. verbal-linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, naturalistic, interpersonal, and intrapersonal (Gardner, 1993), which assist teachers in designing more meaningful lessons for their learners.



Teachers are inclined to focus on *what* learners are supposed to learn, but disregard varied learning styles, in other words *how* they learn better. When individual learning styles are addressed, teaching becomes more efficient and students flourish. To illustrate, teachers should not require or expect from all the students to do a single task such as writing a story. Instead, as long as it is relevant to the target of the lesson, learners with strong kinesthetic intelligence may prefer to perform a play, or the ones with strong musical intelligence may compose a song.

**2.3.3 Differentiated instruction strategies.** It is possible for a teacher to differentiate instruction through several strategies. As it was highlighted in the previous sections, instruction can be differentiated based on learners' readiness, interest, or learning profile by adapting the content, process, or product (Tomlinson, 2001). To implement DI, there are some key strategies, namely compacting, learning stations, independent projects, interest groups, tiered activities, flexible grouping, varying questions, learning contracts, classroom routines, choices (Tomlinson, 2001; Dahlman et al., 2008; Reese, 2011). A closer look is taken at tiered activities, stations, choices, and flexible grouping below, which are both relatively common strategies and the most suitable ones for this study.

**2.3.3.1 Tiered activities.** In this strategy teachers design a task/activity at varied degrees of difficulty to assure that all students make sense of ideas to some degree that builds on their prior knowledge and maintains growth (Tomlinson, 2001). Tiered activities are designed in accordance with learners' readiness levels and abilities (Reese, 2011), which makes them appropriately challenging. It should be noted that this strategy does not necessarily assume offering different concepts and skills, rather it suggests instructing for equal goals but through varying complexity paths. For instance, the learners who have trouble in understanding the concept, could be given more concrete and less complex tasks and assignments so that they can grasp at least the basics of the concept. By the same token, if some learners seem to have already grasped the concept at an advanced level, they could be challenged with more open-ended, complex and in-depth assignments in order to maximize learning and growth.

**2.3.3.2 Stations.** This is also another common strategy. In this strategy, teachers set up a few stations in each of which there are specific tasks or activities with instructions about how to do the work (Wu, 2013). Each station mostly aims to take learners to the next level regarding a topic, or skill, yet the main issue in this strategy is to assign students to the correct stations. It does not assume all students need to go to all stations and complete the tasks at the same time. Moreover, some groups may visit more than one station and take more time to finish assigned tasks (Bernard, 2014). There are some recommended principles for a well-conducted station strategy (Gregory & Chapman, 2002; Heacox, 2009):

- Station activities should have a curricular goal
- Activities should consider and be based on learner readiness, interest, and profile
- Instructions and procedures should be clear, scaffolded and explanatory
- Activities should require and encourage pair or group work
- Teachers need to monitor and assist learning
- Duration should be sufficient
- Learners need to feel autonomous and pay attention to the timing

**2.3.3.3 Choices.** As the name suggests, this strategy connotes with learner autonomy. Being one of the most effective strategies, the use of choices assumes giving learners options about lesson materials, tasks, activities, and assessment tools. As a consequence of involving in lesson procedure to some degree, learners end up feeling empowered, motivated and naturally engaged (Dahlman et al., 2008). Giving learners choices is usually planned in accordance with multiple intelligences (learner style), interests, background experience and so on.

Choices strategy allows learners to combine an understanding or ability with what they already know. When students are somehow forced to undertake a process, they do not perform in natural way through contributing from their own with enthusiasm. Therefore, we should give them freedom and let them guide their own learning, which results in self-success and meaningful learning. To illustrate this strategy, teacher offers learners a menu in which learners can pick among a variety of activities, such as preparing a diagram, writing a poem, writing a song and performing, drawing a picture.

**2.3.3.4. Flexible grouping.** The other common strategy of DI is flexible grouping which is organized according to learner readiness, interests or learning style rather than simply haphazardly. While grouping, it is pivotal to set the grouping criteria in advance in order to prevent careless grouping during teaching, which, in fact, is what makes it a DI strategy rather than a classroom management instrument. With regard to this strategy, Tomlinson et al. (2003) state:

In effectively differentiated classrooms, then, teachers would flexibly group students sometimes based on readiness needs, sometimes on interests, sometimes on approach to learning, sometimes heterogeneously, sometimes homogeneously, sometimes by teacher choice, sometimes by student choice, sometimes randomly. That variety of grouping enhances both teaching and learning (Tomlinson et al. 2003; as cited in Wu, 2013, p. 128)

Dahlman et al. (2008) correspondingly contend that in differentiated classroom, learners are observed to change groups during a unit, which in fact is a natural situation in DI-based classrooms, for students are to be grouped with a purpose in mind such as their abilities, interests, readiness, learning styles and so forth. A true flexible grouping needs to accommodate a wide range of student traits as concerned with their abilities, readiness, interests, styles, profiles etc. Therefore, it would not be true to assign students in the same group all the time, which is against the nature of DI. To hinder this, teachers should take the differentiated area into consideration and assign students to the groups accordingly. The purpose of flexible grouping should be to provide learners with opportunities to interact with different peers in a meaningful and productive way.

In a nutshell, the review that has been compiled together so far indicates that a teacher can differentiate content, process, and product based on students' readiness, interests, and learning profiles through a range of strategies (Tomlinson, 1999). This view of DI is illustrated in Figure 1. On the whole, it can be said that in a classroom where DI principles are executed, not every student is engaging with the same tasks in exactly the same way at exactly the same time. However, DI is not a bunch of strategies that involves learners in a variety of ways, but rather an ideology that asserts that learners are assigned to our classes with their diversity in the hope of being realized and dealt with. DI is, thus, a logical way for teachers to offer proper instruction delivered around tiered, reshaped or modified content,

process, or revised outcomes in order just to comply with the differences of students and assist them to live up to their potential.

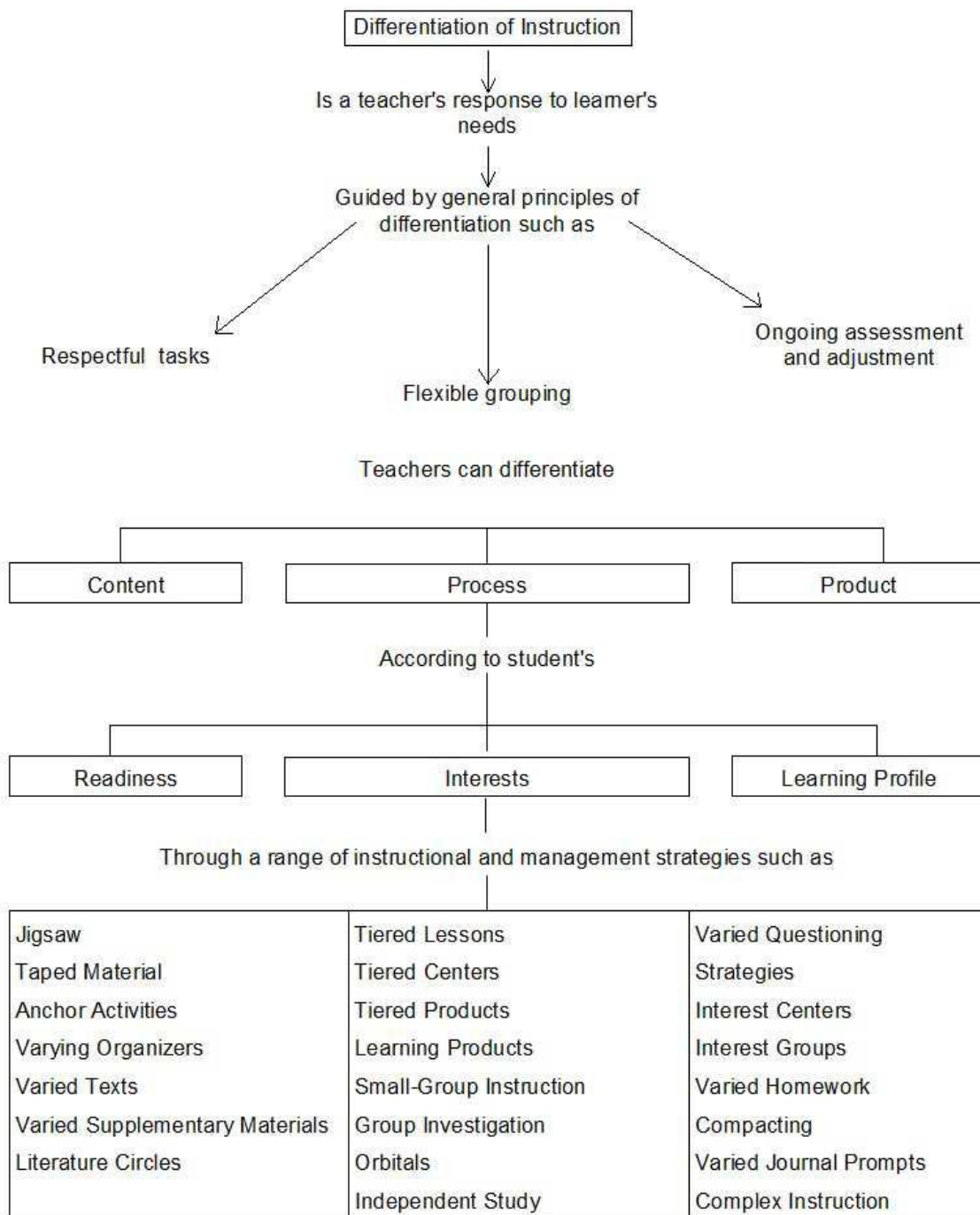


Figure 1. A concept map for differentiated instruction (Tomlinson, 1999, p.15)

It is thus concluded that DI noticeably opposes one-size-fits-all mindset (Lewis, Rivera & Roby, 2012), for DI means that instruction is shaped to match students' readiness, interest, and learning style, which is likely to be accomplished as long as the teacher exploits a variety of strategies to help each student cater to

the learning outcomes of syllabus. Therefore, it is of paramount importance for teachers to prepare and design ahead of time and taken on a facilitator's role when students enter the classroom.

## **2.4. Studies on Differentiated Instruction**

There has been an exponential growth in the research dedicated to DI-related studies for the past few decades. While most the studies looked at the perceptions of learners and teachers about DI, a good amount of the research also examined the impact of DI strategies on student achievement. This section aims to reflect previous studies related to the previously mentioned areas.

**2.4.1 Differentiated instruction and student perceptions.** The following section summarizes some studies in concern with the impact of DI on student perceptions.

Affholder (2003), aiming to investigate the implementation of DI strategies on students' perceptions, carried out a qualitative case study using DI strategies in inclusive elementary classes in Kansas with the participation of 26 teachers and 12 administrators and one board member. Data gained by means of interviews and questionnaires indicated that students gained more responsibility and self-confidence as well as the teachers. Data also demonstrated that such instructional strategies as flexible grouping, routines, on-going assessment are highly recommended to satisfy the needs of students in inclusive classrooms.

Baumgartner, Lipowski and Rush (2003) who firstly targeted to measure student achievement in reading, also aimed to explore the perceptions of students toward reading. An analysis of data collected from student surveys revealed that students' perceptions about reading displayed a difference after DI strategies.

Danzi, Reul and Smith (2008) implemented an action research project with the participation of 21 third grade, 23 fifth grade and 28 eighth grade students, which intended to carry out DI methods in the hope of increasing learner motivation, decrease boredom and frustration which they name as the key observed problems in mixed-ability classrooms. Three specific DI strategies were selected for the research which namely are tiered assignments, authentic assessment, and free-time activities each of which was suited to learner needs and interests. Data were obtained from parent survey, student survey and observation checklist within

3 months. The main finding of the parent survey is that learners spoke positively about the school, whereas the finding from student survey was contrasting with parent survey. Over half of the participant students (n=44) stated that they were bored in the classroom. The observation checklist seemed to agree with the original beliefs of the researchers; in other words, the researchers were able to track 14 targeted behaviors that are talking during instruction and work time, and inability to select free-time activities on their own.

Powers (2008) also investigated a DI strategy, namely independent study, to see its impact on learner motivation and achievement among randomly selected 10 female and 10 male gifted students in a middle school based in Virginia. The study was carried out through intervention and presentation. Data of the study were gleaned from student reflections, surveys, and interviews. The major finding of the study revealed that participants' motivation was enhanced after implementing DI and all the learners would like to participate in another similar study in the future.

Chien (2012) who also measured student achievement, found that DI strategies, namely tiered tasks, choices, varied assessment tools, modifying curricular materials brought about joy, delight, increases motivation and sense of learning and autonomy among elementary school EFL learners in Taiwan.

In Turkish context, Karadağ and Yaşar (2010) conducted a mixed-type study to determine the impact of DI strategies on learner attitude among fifth grade learners in Turkey. Data were collected from Turkish Course Attitude Scale and semi-structured interviews. Qualitative data were processed through NVivo 8 program, whereas quantitative data were processed through SPSS. The result showed that DI had a positive impact on the students' attitudes toward Turkish course.

Liao (2015) explored the perceptions of 300 sophomores at a Taiwanese university after the use of DI strategies in L2 classes. Data of the study were collected from both quantitative and qualitative instruments. In other words, at the first phase a five-construct, 23-item differentiated speaking assessment learner-perception questionnaire (DSALQ) was administered. Secondly, GLOQ (Group learning orientation questionnaire) was conducted in order to measure learner perception about differentiated speaking assessment tasks. The key findings revealed that learner perception and satisfaction with the differentiated speaking tasks is positive. Additionally, the reflections of the participants uncovered that

differentiated assessment can provide opportunities with the learners having diverse profiles and readiness levels.

**2.4.2 Differentiated instruction and teacher perceptions.** In addition to student perceptions, the perceptions of teachers were also examined. The following section displays some research related to teacher opinions.

In his descriptive article on DI in foreign language classroom, Theisen (2002) reports that teachers think that DI takes too much time and so much to do in the classroom. He also points out that colleagues and parents might intervene by asking why different things are carried out in the classroom and thinking this as unfair.

Robinson, Maldonado and Whaley (2014) investigated the challenges of teachers implementing DI in their classrooms, as measured by open-ended survey and interviews conducted with 9 participants ranging from elementary to high school in the USA. The key findings of the study included lack of professional development, lack of enough knowledge about how to carry out DI, and time constraints.

Similarly, Stewart (2016) researched the difficulties in differentiating reading instruction in a case study conducted at an elementary school in Florida, the USA. Ten classroom teachers and reading coaches took part in this qualitative case study. The analysis of obtained data from the interviews indicated that the primary challenges of the teachers is the lack of time to plan and prepare efficiently for DI. It further revealed that the participants they needed more time because they needed to gather a variety of resources and plan multiple ways of introducing students to the new knowledge.

Oliver (2016) focused attention on exploring teachers' perceptions about DI in L2 setting. Data of the study were based on focus group and one-on-one interviews joined by 11 foreign language teachers from elementary to high school in Iceland. The most recurring factors as challenges of DI are the range of student abilities, meeting the needs of learners, size of classrooms, lack of enough time, and lack of knowledge about how to plan and implement DI in the classroom.

Siam and Al-Natour (2016) conducted a similar study with 194 Jordanian teachers teaching students with learning disabilities. Adopting a mixed method design, the study collected data from a questionnaire with 75 items, and interviews.

Data analysis indicated that the teachers faced many challenges such as the required time, the ability of teachers to divide learners according to their needs and abilities, and the daily workload of teachers including paperwork and administrative responsibilities.

Lunsford (2017) researched the perceptions of social studies teachers about implementing DI in classrooms with mixed levels of skill, in Atlanta, Georgia. Data were collected from structured interviews of 10 teachers. The analysis of data showed that teachers needed professional training about how to get to know students better and how to implement DI, as well as time to observe colleagues carrying out DI.

Inquiries into teachers' perspectives towards DI is not limited to classroom teaching or L2 teaching. Njagi (2014) looked into 20 math teachers' attitudes towards DI through questionnaires in Kenya. The findings of the study are similar to the ones of the aforementioned studies, which means that the participants considered the need for more time and professional development as the major obstacles to differentiate instructions.

**2.4.3 Differentiated instruction and student achievement.** Apart from the aforementioned studies respective of student and teacher perceptions of DI, studies examining the impact of DI on student achievement also abound in literature.

Baumgartner et al. (2003), in their proposed program with the purpose of improving learners' reading abilities in primary (25 second grade, 27 third grade) and middle school (25 seventh grade) learners in Illinois, found that DI strategies, viz. flexible grouping, giving learners choices, increased self-selected reading time, and access to different reading sources led to an improvement in students' reading levels. Numerically, the average of second graders increased by .96 while it increased by 3.24 among third graders, and 5.32 among seventh graders. They also found that learners' mastery of phonemic and decoding abilities, and attitudes toward reading skill improved.

Cusumano and Mueller (2007) examined the effect of DI on students' overall test scores in a low-achieving elementary school. Data showed that the participants achieved better than previous years after the implementation of a school-wide DI model. The result showed such an increment that the school's



status shifted from low-ranking school to California Distinguished Schools Award winner.

Similarly, Koeze (2007) carried out a detailed doctoral study in which she investigated the impact of DI on learners' reading, writing, and language arts achievement of 160 fourth and fifth graders in Michigan, the USA. In the study, she used the framework of learning style by Dunn, Griggs, Olsen, Beasley and Gorman (1995) and carried out the strategies of choice, and interest. Data were collected directly from tests, and the findings of the research suggested that DI strategies of choice and interest played a vital role in reading, writing, and language arts achievement. However, no significant difference was found compared with non-differentiated classroom in all areas.

In a school-wide program conducted and examined by Beecher and Sweeny (2008) during an eight-year period in an elementary school in the USA to reduce the achievement gap among culturally diverse school context through DI strategies. The study proved that DI strategies led to a reduction in the achievement gap between the rich and the poor across diverse ethnic groups. The success was made possible through a thorough analysis of strengths and weaknesses in all fields and taking learners' interests, choices into account. As a consequence of this longitudinal study, the school revisited her mission statement, strategic plan and action plan. As well as, the teachers reshaped the curricula of reading, writing, math and social studies plan in alignment with the results, not to mention their needs in terms of training, coaching and planning were addressed. In terms of the achievement scores, Data showed for the last eight years Asia students improved by over 60%, while the African-American up to over 20% and Hispanic learners by over 5%.

Schlag (2009) in her quasi-experimental study aimed to measure the effect of flexible grouping technique on learners' reading achievement at 5th grade in a single group research design. There was a control and experimental group for the study. In the experimental group, students were grouped according to their readiness level. The dependent variable, which is reading achievement scores was measured by the Standardized Test of Achievement in Reading (STAR) test undertaken every two weeks during the eight-weeks-long study. After each two week, they were re-grouped based on the results and got instruction at their level. The researcher found that flexible grouping technique had a significant impact on

reading achievement. In other words, a significant relationship between flexible grouping strategy and reading achievement was present in the study ( $t(129) = 3.82$ ,  $p < .05$ .)

Welsh (2010) explored the impact of DI strategies on struggling students at fifth grade through a qualitative case study with the purpose of addressing their difficulties, which was measured by student observation, pre-and post-tests and interviews. The study exploited several DI strategies, viz. guided reading, small and whole group instruction, computer-aided programs. The key findings displayed that catering for students' weaknesses through DI methods helped students improve reading proficiency.

Furthermore, Gualbertus and Made (2013) conducted an experimental study to examine the impact of DI on 120 Indonesian high school learners' writing abilities, as measured by two-way ANOVA and Tukey test. The results of the study suggested that DI made significant difference on the writing skills of the high school students. In other words, the analysis showed that Q value of 6.0 was found higher than critical Q table value of 2.80,  $\alpha = .05$ ., which means that there is a significant difference between writing competency of experimental group and that of conventional group.

As far as L2 context is concerned, there is very limited research dedicated to measuring the impact of DI in the field ELT. To name some of them, Chien (2012) conducted an action research in an elementary school in Taiwan, which aimed to see the effect of modifying pre-assigned resources, offering learners choices, assigning them various activities, and varying the assessment tools complied with learners' proficiency levels. The findings of the study revealed that with DI students can learn at their own pace and in a more effective way. Similarly, Alavina and Farhady (2012) conducted a study to measure the effect of DI after addressing learners' multiple intelligences and varied learning styles on vocabulary achievement of 80 intermediate Iranian learners. They found that differentiating instruction in response to learners' intelligences and learning styles yields better results in terms of vocabulary achievement. To put it in numbers, mean score of the experimental group increased from 81.5 in the pre-test to 89.3 in the post-test.

In addition to aforementioned studies, Aliakbari and Haghghi (2014) investigated the usefulness of DI in fostering reading comprehension in a separated gender elementary school with the participation of 47 students in Iran through the

use of grouping, tiered activities and tiered instruction strategies in all the areas of teaching, viz. content, process, and product. The control group was delivered traditional instruction, while the intervention group received DI. Data obtained from ANOVA indicated that the experimental group outperformed the control group. Specifically, while the mean score of the pre-test was 42.33, it increased to 46.23 in the post-test. The researchers thus claim that there needs to be increasing attempts at revisiting the existing curricula in terms of whether they cater to learner needs and interests; moreover, L2 teachers need to be motivated to carry out DI to manage diversities in the classrooms.

Siddiqui and Alghamdi (2017) applied DI strategies, namely tiered activities and flexible grouping at the L2 remedial hours of a university's preparatory program in Saudi Arabia with the participation of 17 students and four teachers charged with covering remedial hours. The researchers exactly modified the regular instruction and materials for 10 weeks. Quantitative data were gathered from pretest and posttest. The difference between the results of two tests displayed that DI made a difference on learning and proved significant ( $t=-10.746$ ,  $p> 0.05$ ). The researchers underline the fact that even though all students can benefit from DI strategies, they intentionally decided on low-achieving students who have difficulties in catching up with the curriculum and the program.

For the same reason, Paredes (2017) experimented quite many DI strategies like double entry journal, reading charts, project menus to gauge their impact on students' EFL vocabulary, reading, and grammar achievement. These strategies were prepared in compliance with 43 university students' interests and needs. It was found out that the experimented strategies made difference on the stated areas of L2 students.

The review of the literature also indicated that there exists a multitude of quantitative and qualitative research (Luster, 2008; Burr, 2010; Etienne, 2011; Kasteloot, 2011; Scott, 2012; Kelly, 2013; Maxey, 2013) dedicated to utilizing DI strategies and measuring its effect on learners' math achievement the majority of which not only resulted in an increase in the math achievement score but also gave rise to difference with respect to motivation for and attitude toward math.

## **2.5 Conclusion**

The review of the literature shows that the number of studies on L2 field is scarce and empirical evidence of its effectiveness is limited. This study is, thus, of vital importance in the fact that it both seeks the impact of various DI strategies on high school L2 learners in Turkey where very little research has been conducted so far and tries to use mixed-method approach in collecting and analyzing quantitative data to measure achievement and qualitative data to explore both learners' and teacher's perceptions.



## Chapter 3

### Methodology

This chapter seeks to tackle with the methodology of the study by explaining the research design, setting, participants, implementation along with data collection instruments, procedures and limitations of the study which aimed at determining the effect of DI on learner achievement and perceptions, as well as teacher perceptions.

In conjunction with the stated goals, the following research questions can be formulated in the study:

- 1) Will there be a difference between DI group and control group regarding Turkish students'
  - a. Overall L2 achievement?
  - b. L2 reading achievement?
  - c. L2 writing achievement?
  - d. L2 vocabulary achievement?
  - e. L2 grammar achievement?
- 2) What are the students' individual achievement after DI?
- 3) What are the students' perceptions about DI?
- 4) What are the teacher's perceptions about DI?

#### 3.1 Research Design

Paradigm is best defined as a set of beliefs, assumptions and values that assist researchers in the selection of methods and grounding their studies in order to describe findings appropriately (Guba & Lincoln, 1994; Johnson & Onwuegbuzie, 2004). In view of traditional approach to research, pure quantitative method that assumes analysis of numerical data, or qualitative method that seeks to interpret data through the viewpoints, perceptions and attitudes of the participants is widely accepted by researchers. However, considering contemporary research studies, the use of mixed type method so as to make use of the benefits of both quantitative and qualitative studies is also adopted.

Using mixed-type research methodology it is usually aimed to produce a solid study with an in-depth analysis of data not only through dealing with the

numerical findings but also exploring the observational, perceptual, and attitudinal set of data in order to solidify and triangulate the findings of the study. According to Rossman and Wilson (1991), a combination of both types enables the researcher to verify or consolidate research findings through triangulation. Therefore, researchers are recommended to combine both research designs with the objective of ascertaining the reliability of data and increasing the likelihood of generalizing the result to other similar research environments.

Judged by these ideas, this study espoused mixed type research method by employing both quantitative and qualitative methods to gauge the impact of DI on academic achievement and perceptions, which enabled the researcher to gain in-depth data with regard to the research questions. To be more specific, two intact 9th grade high school classes were selected due to convenience reasons. One of the classes (experimental group) was taught by the researcher using differentiated lesson procedure, while the other class (control group) maintained regular lesson procedure determined by the textbook in the leadership of another English teacher.

A mixed type method research design was adopted and used in this study as is demonstrated in Figure 2. Quantitative data were collected from achievement test conducted as pre-, post-, and delayed post-test, while qualitative data were gathered from the reflective essays of the participants and the reflective journals of the researcher. The Figure 2 vividly demonstrates a visual representation of the research design:

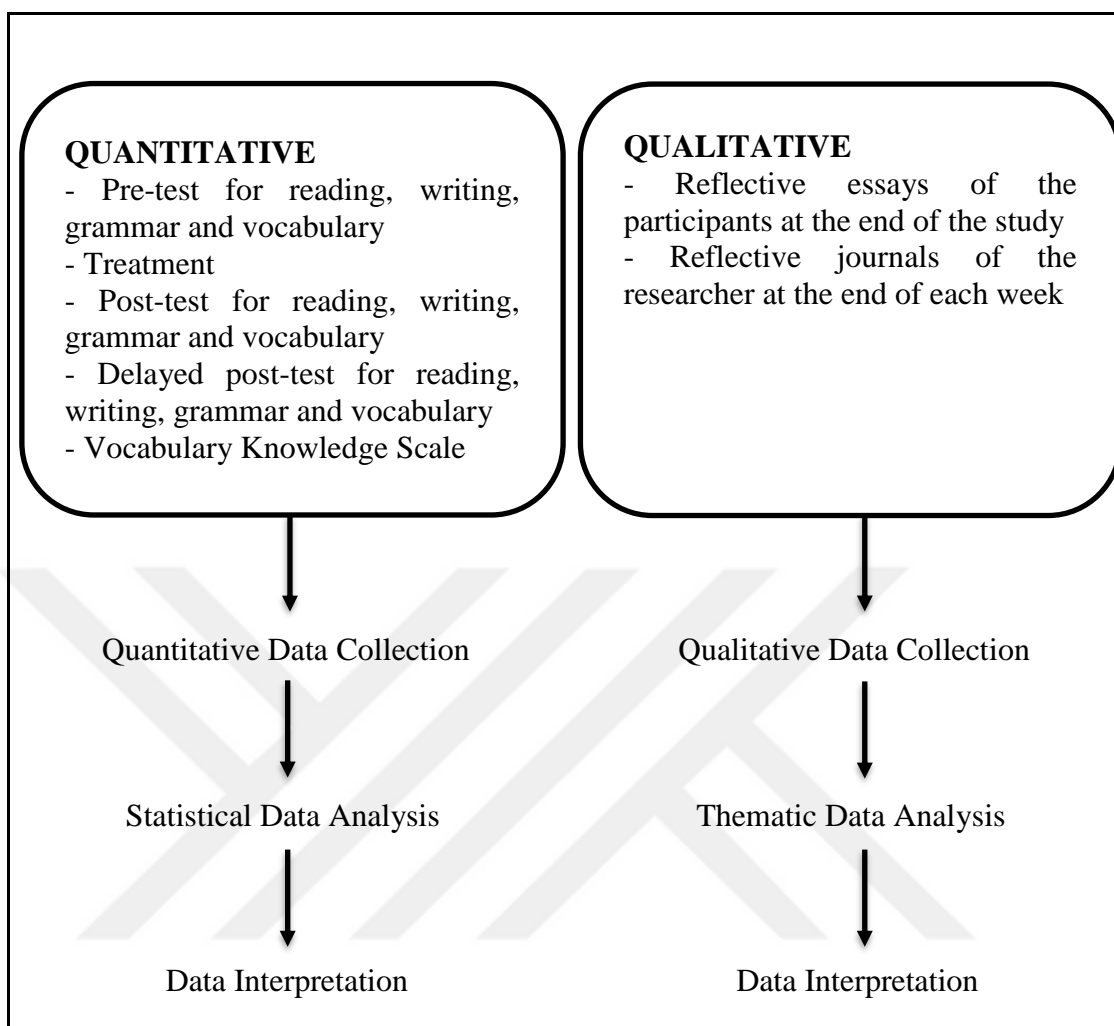


Figure 2. Visual model of the research design in the study.

As this study is based on an experimental research design, the experimental group underwent treatment, namely DI, for four weeks, whereas the control group was delivered traditional instruction as suggested by the teacher manual of the textbook regardless of learner varieties such as interests, learning styles, levels. To measure the impact of the treatment, both groups took an achievement test as pre-test before the coverage of the curricular units. Following a four-week treatment period for the experimental group, both groups took the same test as post-test. To see the retention of the knowledge both groups took delayed post-test after a four week of time. Then, to provide a better insight into the production skills of the students, both groups completed a Vocabulary Knowledge Scale (hereinafter VKS). To identify the perceptions of the students, the experimental group was asked to write a reflection about the treatment in the hope of uncovering how they felt during the period they experienced DI, and what they thought about it. In

addition to data collected from the participants, the researcher took down a reflective journal at the end of each treatment week with a primary focus on the challenges of preparing and implementing differentiated lesson plans and responses of the learners to the DI. The Table 1 summarizes the design of the research study:

Table 1

*Research Design of the Study*

	Control Group	Experimental Group	Researcher
Pre-test	X	X	
Treatment		X	
Post-test	X	X	
Delayed post-test	X	X	
Vocabulary Knowledge Scale	X	X	
Reflective Essays		X	
Reflective Journals			X

### 3.2 Setting and Target Population

The study was conducted at a private Anatolian high school based in İstanbul, Turkey. The school delivers education to 545 students aged 16-19. The maximum number of students in a classroom is 24. The vast majority of the population is Turkish despite having some foreign students from European and Middle Eastern countries. The school requires all the sections from 9th to 11th grade to take an English placement test at the beginning of school year, by which aiming to place students at the appropriate level ranging from A2 to C1 for the English Language Teaching program. After the placement test, each grade is divided into three CEFR levels according to the results.

The program intends to develop students' macro skills that are needed in university by offering them level-appropriate L2 education and helping them graduate with essential language communication skills. To this end, specific ELT textbooks which are chosen by a committee prior to the start of the school are



assigned to the levels, and the instructors are expected to cover the syllabuses of these textbooks without diverging from the curricular goals of the program. Moreover, the program instructors are supposed to follow the procedural flow of the textbooks with a least flexibility to adapt the textbook aligned with learner differences in terms of readiness, interest or learning styles.

Concerning the assessment and evaluation of the program, the examination is conducted over a common exam paper at the same time across the sister high schools under the umbrella of the same institution. It thus forces educational staff of one campus to move along congruously with the other campuses. Having a standardized English program in each high school, as well as KG, primary and middle school, the institution gives little autonomy to its teachers to modify the program for learners' sake, which suggests that DI concerning content, process and product is nearly impossible unless it is referred in the unit plans. Yet, consent was given for two 9th grade classes only for research purposes and for a limited period.

The participants of the study were two intact 9th grade classes with a total number of 22 students aged 15-17 studying at the elementary level in the English program. The students were placed at this level after a placement test administered at the start of the school year. The evaluation was made only upon the number of correct answers without including other criteria such as overall school achievement, TEOG (a nation-wide high school entrance test) score. The control group consisted of 14 students (8 males, 6 female), whereas the experimental group consisted of 8 male students. The instructor of the control group was a colleague of the researcher who had been teaching since 2015, while the instructor of the experimental group was the researcher who had been teaching since 2009. Each group had 8 hours of English per week. One lesson lasted 40 min in the setting. During the research, the experimental group received 6 hours of treatment per week. The Table 2 gives detailed information about the students in the experimental group based on student records, teacher observation and pre-assessment tests, namely The Perceptual Learning Style Preference Questionnaire (hereinafter the PLSPQ) developed by Reid (1984) (*Appendix A*), and Holland Career Inventory developed by Holland (1997) (*Appendix B*).

Table 2

*Information about Participants*

<b>Student</b>	<b>Personal Information</b>	<b>Classroom behavior, Learning Styles, and Interests.</b>
1	2002, Xinjiang (China) born	He has been in Turkey for two years. He is son to a Chinese man and woman. Despite his distinct looking, lifestyle and manners, he was accepted by his peers in a very short time. His English language abilities is above his peers' due to his previous undertaking of a robust language program in China. He has little difficulty communicating in Turkish. Pre-assessment test (the PLSPQ) before the treatment indicated that his major learning style is auditory learning, while the minor learning style is individual learning. He is interested in football, technology and comparing Chinese and Turkish cultures. Yet again, the other pre-assessment test (Holland Career Inventory) showed that he seeks a career in Computing Sciences, and social jobs where he solves problems of people, and works cooperatively.
2	2003, İstanbul born	He has some English language learning background thanks to his primary and middle school education in the current private school's branches. He loves reading crime novels and watching crime movies. After all, he appears to have been affected by what he reads and watches as observed by his condescending and patronizing behaviors toward his classmates. He differs from his peers in his lifestyle (clothing, preference of reading, watching, listening, and interests etc.) Having a positive attitude to language learning, he is a tactile and auditory learner, while his minor learning style preference is individual learning according to his responses in the PLSPQ. He is highly interested in cooking, photography and seeks a career in social fields in which he interacts with people and helps them to solve their problems, as interpreted from the result of Holland Career Inventory.

Table 2 (cont.d)

Student	Personal Information	Classroom behavior, Learning Styles, and Interests.
3	2003, İstanbul born	<p>He has been a student at the current institution for 4 years. He harbors positive feelings about English. Being highly cooperative and participating in the class, he helps his classmates understand activities and do tasks properly. He appears to be a leader student and enjoys competitive learning environment. He is into cooking, video games and doing watersports in his leisure time. According to the result of the PLSPQ, his dominant learning style is group and kinesthetic learning, whereas he does not prefer to learn individually. He is interested in photography and computer sciences. He hopes to make a career in conventional occupations in which he works under a system like accountant, clerk etc. Yet, he is also interested in jobs with high tension and risk such as politician, salesman, director, as interpreted from Holland Career Inventory.</p>
4	2003, İstanbul born	<p>He enrolled from a state school. He does not have a good command of English and seems to be progressing relatively slowly. He is cooperative, completes tasks and submits his assignments on time, though. He gets along with his classmates and is a model student in terms of manners, obeying rules, and establishing relationship. According to the PLSPQ, his preferred learning manners are auditory, kinesthetic and group learning. He does not approve learning individually. He tends to ask for clarification of the instruction and approval of his work quite often. In other words, he does not confide in what he understands and does. He is interested in media field and wishes to seek a career in enterprising fields as a manager or leader who takes critical decisions and works under tension and risk, as understood from Holland Career Inventory.</p>

Table 2 (cont.d)

Student	Personal Information	Classroom behavior, Learning Styles, and Interests.
5	2002, Lyon (France) born	<p>He moved from France to Turkey in 2017 to pursue his education at homeland. He is son to Turkish parents who lived in France for 20 years. He has little command of Turkish and he does not like English. He barely utters a word in the class and mostly prefers to work alone and shows understanding through writing on the board. The PLSPQ showed that his most powerful learning styles are auditory and individual learning, and his minor learning styles are group and visual learning. He seems to have trouble decoding any message in English and almost always needs prompts to produce in the target language. He has a neutral relationship with his friends and mostly prefers to hang out alone. He is interested in computing science. He wishes a career in realistic vocations such as engineer, agriculturist, athlete, as understood from Holland Career Inventory.</p>
6	2002, İstanbul born	<p>He is one of the weakest students in the classroom in terms of undergoing 9th grade curriculum and understanding abstract issues. He is not accepted by his friends because of his child-like behaviors. He frequently cannot keep up with the overall pace of the classroom, which causes disturbance in the classroom. He appears to be enjoying individual activities due to uncooperative attitude of his friends, as is also evidenced by the PLSPQ results in which he stated to prefer learning individually. It has so far been observed that he is good at transcribing isolated words and recognizing them in the script while he seems to have trouble in comprehending overall message of text and decoding audial texts. He is interested in history, theology. According to Holland Career Inventory, he prefers a career in social jobs such as teacher, psychologist, counselor, and the others who engage in being helpful to others.</p>

Table 2 (cont.d)

Student	Personal Information	Classroom behavior, Learning Styles, and Interests.
7	2003, İstanbul born	<p>He has joined the high school from a state school and is the other weak learner who has hardly showed any progress throughout the semester. He shares his desk with St-6 and is not accepted by the rest of the class. According to Holland Career Inventory, he is highly interested in artistic occupations such as cinema, music, and he wishes to be an actor in the future. Having been expelled from his previous school, he has a tendency toward bullying other students, and causing chaos and disturbance in the school. He is not good at other school subjects either and has not achieved the passing overall score in the first semester. The PLSPQ displayed that his preferred learning styles are group and visual learning, yet his negligible learning style is auditory learning. He never shows any sign of cooperation and participation in the classroom; however, he seems to be grasping the lesson when he is asked to do a task on the board with the help of St-6. He does not prefer to work alone on the tasks.</p>
8	2001, İstanbul born	<p>He is the oldest of the group and stands out in the class because of his big posture. He is a reported inclusive student due to low IQ and learning constraints. He gets along with his friends and responds to instruction only with individual support and downgraded tasks. He has some health problems due to which he had to skip a good number of hours at the school. It was observed that he likes working on computer, preparing slides, searching visuals, matching words, etc. He also seems to enjoy working with St-5. According to the survey results, he prefers working in kinesthetic, groups activities and dislikes individual activities. He seeks a career in enterprising occupations.</p>

As the researcher was also the practitioner in this study, some information about the researcher is as follows: The researcher has been teaching English as a foreign language since 2009 to various groups of learners between the ages of 7 and 19 in Turkey. The researcher's interest area of research is primarily DI, curriculum development, and teacher education. Considering DI as the most essential solution for the current teaching context, he seeks expertise in the field of DI by trying out various self-prepared lesson procedures in compliance with different DI strategies. The teacher researcher intended to contribute to this field with this study in which he used some pre-assessment surveys, experimented some DI strategies, and took some theoretical principles into account in the design of the DI lessons, which is given in depth in the following sections.

### **3.3 Procedures**

In this part of the study, the sources of data, data collection instruments, data collection procedures, reliability and validity of the study were presented.

**3.3.1 Sources of data.** The study incorporated multiple data collection phases to make sure that all the assembled data would be analyzed appropriately. With respect to the nature of the study, it relied heavily on the statistical analysis of the achievement test and VKS as a result of which, the impact of the treatment on student L2 achievement was determined. Finally, with an intent to reach the effect of the experiment on the perception of the participants and the researcher, qualitative information was gathered through reflective essays kept by the participants at the end of the study and reflective journals kept by the teacher researcher at the end of each treatment week.

**3.3.2 Data collection instruments.** In this study, multiple data collection instruments were used, namely achievement test (*Appendix C*) which was given by the institution, VKS (*Appendix E*) which was prepared based on the textbook target vocabulary, reflective essays (*Appendix F*), and reflective journals. Data collection and analysis lasted for ten weeks in total, while four weeks of treatment was carried out throughout the study. Prior to the administration of achievement test, the researcher conducted two pre-assessment tests, namely the PLSPQ and Holland Career Inventory in order to obtain relative data that would inform prospective DI-

based lessons together with the teacher researcher's observation. In other words, data from these two questionnaires and his observation helped the researcher prepare materials aligned with learners' learning styles, and career dispositions. After these tests, quantitative data were collected through the achievement test which were given as pre-, post-, and delayed post-tests that was composed of reading, writing, vocabulary and grammar sections, and VKS which measured the vocabulary knowledge of the participants. Besides, qualitative data were gathered through the reflective essays written by the experimental group participants who expressed their opinions about the treatment, and reflective journals kept by the researcher who expressed the perceptions while preparing DI lesson plans.

**3.3.2.1 Achievement test.** The achievement test which was prepared by the institution was applied three times as pre-, post-, and delayed post-test in the study. It comprised of reading, writing, vocabulary and grammar questions which were taken from the material pack of the class textbook. The test was the recommended end of unit test that had been prepared in compliance with the unit goals and the content of the textbook. Therefore, piloting was not considered to be necessary to measure its suitability to the level. The test was conducted to both groups prior to the treatment and lasted 60 min to complete. The same test was given to the participants as the post-test just after the treatment which lasted as long as four weeks. The same test was later taken by both groups five weeks after the post-test. In brief, the participants took the test before the treatment, right after the treatment and five weeks after the treatment.

The reading section of the test consisted of ten questions. Five of these questions measured reading for main idea, whereas three of them measured reading for specific information, and two of them tested reading for detailed information sub-skills. The section was worth 25 points in total, and evaluation was made over overall scores rather than specific sub-skills in this research.

Given writing section of the test, it only had one task that required students to use target structures and words in a meaningful context. The pieces of students were assessed by two raters against the criteria (*Appendix D*) given by the institution and suggested by Brown (2007). The section was worth 25 points.

Concerning vocabulary section, it was composed of 25 items each having 1 point of value. The type of vocabulary ranged from main verbs (15 items) to target nouns (10 items). In total, it was worth 25 points.

The grammar section included 18 question items. Seven items gauged the ability of using possessive *have* in the correct form, while five items asked for distinguishing possessive *have* and present *to be*. Last six items tested the ability of putting *can* in the correct form in a dialogue. The section was worth 25 points.

**3.3.2.2 Vocabulary knowledge scale.** The scale with 5-point self-report Likert design was taken directly from the original version developed by Wesche and Paribakht (1996) and was applied after the post-test in an attempt to triangulate data related to the vocabulary achievement score of the participants. This scale enabled the researcher to determine how well the participants were familiar with the target vocabulary items and to what extent they were able to use them in sentences. In other words, it was aimed to measure the participants' productive skills. The scale also indicated the partial knowledge of items. Marking of the categories was done based on Figure 3 and Figure 4.

- 1: I don't remember having seen this word before.
- 2: I have seen this word before but I don't know what it means.
- 3: I have seen this word before and I think it means \_\_\_\_\_ (synonym or translation).
- 4: I know this word. It means \_\_\_\_\_ (synonym or translation).
- 5: I can use this word in a sentence. e.g.: \_\_\_\_\_ (if you do this section, please also do section 4).

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*Figure 3.* The vocabulary knowledge scale (Wesche and Paribakht, 1996).

As displayed in the Figure 3, level 1 in the scale indicates that the participant has no knowledge of the given word, whereas level 2 shows that the participant recognizes the lexical item. Level 3 and 4 indicate that participant recognizes and can produce translation or synonym of the word. Finally, level 5 accounts for productive knowledge of the word, i.e. semantic, morphological, and syntactic knowledge about the word.



Score	Category
1	The word is not familiar at all.
2	The word is familiar, but its meaning is not known.
3	A synonym or translation of the target word is correct.
4	The target word is used with semantic appropriateness in a sentence.
5	The use of the target word is both grammatically and semantically correct in a sentence.

*Figure 4.* Meaning of scores in vocabulary knowledge scale (Wesche and Paribakht, 1996).

Concerning the scoring of the scale, score 2 was assigned to categories III, IV and V for inaccurate responses. For correct synonyms or meanings score 3 was given for categories III and IV. When words were used in the right context but with inaccurate grammar, score 4 was given. Score 5 was given only where the word was used grammatically and semantically correctly.

**3.3.2.3 Reflective essays.** Reflective essays illustrate one's perceptions, attitudes, understanding, thoughts and reactions upon some experience or on a subject matter. This study thus made use of reflective essays in order to reach the perceptions of the participants who experienced the treatment. The essays were written by all the students in the experimental group. The students reflected on the treatment they had been exposed to for a month. The essays of the participants provided data for the second research question.

**3.3.2.4 Reflective journals.** A reflective journal is an account of a work in progress, which helps researcher reflect on the experience (Creswell, 2012). In this study, this data instrument was utilized to explore the teacher's perceptions, and challenges during the planning and preparation for differentiated lesson plans, which provided data for the last research question.

**3.3.3 Data collection procedures.** To gain a clear insight into the impact of the research, this section outlines the procedural stages of the study including sampling, quantitative and qualitative data collection instruments. To have a clearer look at the procedure of the study the following Table 3 summarized the whole study.

Table 3

*Timetable of Data Collection Procedure*

Week	Data Collection
Week 1	Observation, Perceptual Learning Style Preference Questionnaire, Holland Career Inventory
Week 2	Pre-test
Week 3	Treatment, Reflective Journal
Week 4	Treatment, Reflective Journal
Week 5	Treatment, Reflective Journal
Week 6	Treatment, Reflective Journal
Week 7	Post-test
Week 8	Delayed post-test
Week 9	Vocabulary Knowledge Scale
Week 10	Reflective Essays

**3.3.3.1 Types of sampling.** Sampling facilitates researchers to conduct their studies on a small portion of the population instead of the entire group (Creswell & Plano Clark, 2007; Ary, Jacobs, Sorensen & Walker, 2013). Considering the major types of sampling, there are two main types: probability and nonprobability. The former assumes random sample selection, which means that all members have the equal chance of being selected in a population. On the other hand, the latter is preferred when sampling is conducted against some criteria. Nonprobability sampling comprises three main types, namely convenience, purposive and quota sampling (Creswell & Plano Clark, 2007).

So far as sampling is concerned, this study was based on convenience sampling due to the easy access to both control group to which a colleague of the researcher taught and experimental group to which the researcher himself taught under the roof of the same institution.

**3.3.3.2 The agreement of raters.** The quantitative data related to writing products of the control and experimental groups in pre-, post-, and delayed post-tests entailed a second rater for a reliable data analysis procedure. That being the case, the researcher requested a colleague of his, who holds a BA and MA degree in English Language Teaching, and has been teaching since 2009, to grade the writing pieces of both groups. The following tables proves the agreement of raters.

Table 4

*Correlation Analysis (Experimental Group)*

			Rater 1	Rater 2
pretest	Rater 1	Pearson Correlation	1	.98**
		Sig. (2-tailed)		.000
		N	8	8
	Rater 2	Pearson Correlation	.98**	1
		Sig. (2-tailed)	.000	
		N	8	8
posttest	Rater 1	Pearson Correlation	1	.96**
		Sig. (2-tailed)		.000
		N	8	8
	Rater 2	Pearson Correlation	.96**	1
		Sig. (2-tailed)	.000	
		N	8	8
delaytest	Rater 1	Pearson Correlation	1	.91**
		Sig. (2-tailed)		.002
		N	8	8
	Rater 2	Pearson Correlation	.91**	1
		Sig. (2-tailed)	.002	
		N	8	8

The Table 4 displays the correlation between pre-, post- and delayed post-test scores appreciated by two raters. According to the table, there is a high correlation between two raters in the pre-test ( $r=0.98$ ,  $p<0.01$ ), in the post test ( $r=0.97$ ,  $p<0.01$ ), and in the delayed post-test ( $r=0.91$ ,  $p<0.01$ ). Such being the case, a high agreement between the raters was in place.

Table 5

*Mann-Whitney U Test for Raters' Scores (Experimental Group)*

		<i>N</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>Min</i>	<i>Max</i>	<i>Mean Rank</i>	<i>z</i>	<i>sig.</i>
preskor	Rater1	8	8	6.48	6	2	22	8	-.428	.669
	Rater2	8	8.63	6.16	6	3	22	9		
postskor	Rater1	8	15.38	5.04	16	9	23	8.69	-.158	.874
	Rater2	8	15.13	4.82	16	8	22	8.31		
delayskor	Rater1	8	16.75	5.49	16.5	10	23	8.56	-.053	.958
	Rater2	8	16.38	5.65	17	6	23	8.44		

The Table 5 displays the correlation between the two raters who evaluated the scores of the pre-, post-, and delayed writing in the experimental group. According to the table, there is no significant difference between the raters in the pre-test ( $z=-.428, p>.05$ ), in the post-test ( $z=-.158, p>.05$ ), and in the delayed post-test ( $z=-.053, p>.05$ ). Such being the case, a high agreement between the raters was in place.

Table 6

*Correlation Analysis (Control Group)*

		Rater 1	Rater 2
pretest	Rater 1	Pearson Correlation	.96**
		Sig. (2-tailed)	.000
		N	14
	Rater 2	Pearson Correlation	.96**
		Sig. (2-tailed)	.000
		N	14
posttest	Rater 1	Pearson Correlation	.97**
		Sig. (2-tailed)	.000
		N	14
	Rater 2	Pearson Correlation	.97**
		Sig. (2-tailed)	.000
		N	14
delaytest	Rater 1	Pearson Correlation	.98**
		Sig. (2-tailed)	.000
		N	14
	Rater 2	Pearson Correlation	.98**
		Sig. (2-tailed)	.000
		N	14

The Table 6 displays the correlation between pre, post and delayed test scores appreciated by two raters. According to the table, there is a high correlation between two raters in the pre-test ( $r=0.96, p<0.01$ ), in the post test ( $r=0.98, p<0.01$ ), and in the delayed post-test ( $r=0.99, p<0.01$ ). Therefore, a high agreement between the raters was in place.

Table 7

*Mann-Whitney U Test for Raters' Scores (Control Group)*

		<i>N</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>Min</i>	<i>Max</i>	<i>Mean Rank</i>	<i>z</i>	<i>sig.</i>
preskor	Rater1	14	7.86	4.33	10	0	15	198.0	-.235	.814
	Rater2	14	8.71	4.98	10	0	20	208.0		
postskor	Rater1	14	10.21	4.59	10	0	18	200.5	-.116	.908
	Rater2	14	10.43	4.86	10	0	20	205.5		
delayskor	Rater1	14	12	6.64	10	0	22	201.5	-.071	.943
	Rater2	14	12	6.55	11	0	23	204.5		

The Table 7 displays the correlation between the two raters who evaluated the scores of the pre-, post-, and delayed writing in the control group. According to the table, there is no significant difference between the raters in the pre-test ( $z = -.235, p > .05$ ), in the post-test ( $z = -.116, p > .05$ ), and in the delayed post-test ( $z = -.071, p > .05$ ). Such being the case, a high agreement between the raters was in place.

**3.3.4 Implementation.** This study adopted an experimental research design as a result of which 14 students from the control group and 8 students from the experimental groups were involved in the study. The following section describes the procedure of the study on a weekly basis.

**3.3.4.1 Week 1.** In this week students in the DI group and the control group were informed about the study. The DI group was particularly informed about pre-assessment tools, unconventional teaching procedure, and achievement tests. The importance of the study was highlighted in the hope of ensuring maximum student participation. This week was also dedicated to purposeful observation, and pre-assessment tools by which the researcher intended to gain more information about the learning styles and career plans of the DI group. In spite of having some impressions about the learners based on the previous observation, as was also displayed in the target population section of this study, some approved tests would enrich the instruction and the study in general.

With this goal in mind, the researcher first decided to explore the group's learning styles. To this end, the PLSPQ was chosen as the most practical tool in terms of administration and interpretation. The test is a self-reporting questionnaire that attempts to measure major and minor learning styles. It consists of 30 items

that are randomly ordered and convey the key features of each style. These styles namely are; visual, auditory, kinesthetic, tactile, individual, and group. The test is based on a five-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). This test was administered before the treatment in the hope of becoming more familiar with the learning styles of the DI group and prepare lessons in conjunction with the result of this test. During the implementation, translation was provided to get accurate answers. The styles were classified as major, minor, and negligible. While major accounts for preferred learning styles, minor means learners can still do. When it comes to negligible style, it suggests that learners could have trouble learning this way (Reid, 1995).

The researcher provided translation for reliable responses from learners. The summarized results of the test were embedded in the Table 2 in the Section 3.2. that displayed the profile of the participants. The most vivid result of the study was that all the learners except for St-4 and St-6 did not prefer individual learning, while the dominant style of these two students were individual learning. This helped the researcher to group students according to their preferences. For instance, St-4 and St-6 were sometimes assigned individual tasks, while students preferring group learning (St-3, 7, 8) were generally presented group activities, as indicated in the following sections.

In addition to the PLSPQ, the researcher endeavored to know about learners' career dispositions, which also informed the instruction during the treatment weeks. To this end, Holland Career Inventory developed by psychologist John L. Holland in 1970s was selected to fulfil this need. Dr. Holland thought that people work best in working environments that are conducive to their preferences. The questionnaire aims to focus on respondents' vocational choice. The test consists of 48 tasks which the respondents are supposed to rate by how much they would enjoy doing on a scale of (1) dislike, (2) slightly dislike, (3) neither like nor dislike, (4) slightly enjoy, and (5) enjoy. Translation was also provided by the researcher during the conduct of the test.

There are six personality types in this test, and people generally fall into more than one category. The categories are:

- Realistic: practical, concrete, physical
- Investigative: intellectual, explorative, analytical
- Conventional: clerical, organizing

- Social: cooperative, teaching, helping
- Enterprising: leadership, status
- Artistic: original, media, independent

When it comes to the overall result of this test, students had a tendency to different work categories, namely social (3 students), enterprising (3 students), realistic (1 student) and artistic (1 student). The summary of the result was provided in the Table 1 given at the Section 3.2 (setting and target population) of the study. The result of this tool also informed the instruction in that the teacher researcher assigned proper tasks related to their career dispositions. For instance, students that are inclined to social jobs were given the opportunity to help others with academic and technical issues, and make presentation in front of the class. Students that are interested in photography, filming, cooking were given materials or tasks relevant to these fields, indicated in the following sections.

In the sections Week 3, 4, 5, 6 (treatment weeks) students were referred as St-1-8 without naming them, and the summaries of their readiness, interests, the PLSPQ, Holland Career Inventory, if relevant, were given in parenthesis. For instance, characteristics of St-1 might be described as in the following *St-1 (above the level, interested in technology, auditory learner, social jobs)*.

**3.3.4.2 Week 2.** In this week, the teacher researcher announced and administered the achievement test as pre-test to measure learners' level of English both in the control and DI groups. The test was administered to both groups at the second hour of a school day, and at the same time. The test was invigilated by the researcher in the DI group, and by the instructor in the control group. The test lasted 60 min in total.

**3.3.4.3 Week 3.** This week was the first week of the treatment for the DI group. The weekly outcomes were checked and shared by the teachers of both groups. To have a vivid picture of what happened in both groups in this week, instruction in the control group and the DI group is given respectively in the following paragraphs.

In the control group, it was aimed that the learners would be able to describe people using *have* in affirmative form for which the learners read for detailed information, listened for specific information in the context of clothing. To reach

these goals, a set of words regarding colors and clothes was presented. A series of speaking and writing activities concerning talking/writing about the clothes of given characters also took place during the instruction. For the relevant pages one can refer to the pages 24 and 25 of the textbook *New Inspiration 1 Student Book* (Garton-Sprenger & Prowse, 2011). The recommended homework in the activity pages of the textbook were given as the weekend assignment.

Having taken the same curricular goals into consideration, the researcher adapted the instruction in the DI group in the following ways.

Presentation of target language: The researcher teacher used the given reading text in the textbook to extract the target language (TL) and elicited the model sentence, meaning, form (affirmative, negative, and interrogative) and pronunciation of the TL which also took place in the control group only on the level of affirmative form. Therefore, DI did not take place in the presentation stage of this week, nor the upcoming weeks.

Practice/Production of the TL: The teacher handed St-1 (above the level) a worksheet on *have* quiz to check his command of the TL in terms of affirmative, negative, and interrogative form. St-2 (above the level), St-3, 4, 5 (on the level) were delivered a worksheet to complete the blanks with the correct form of *have*. St-6, 7, 8 (below the level) were asked to do the task in the textbook, which only measured basic understanding of the meaning and form of *have* in the positive sense. Following these tasks, the teacher asked the class to come together at different stations and check their responses in pairs during which the teacher visited each station to give feedback. After the feedback, the teacher paired St-1 (above the level, auditory learner) and St-2 (above the level, auditory learner) and handed them a conversational worksheet through which they exchanged their ideas on the given questions such as *what hobbies do you have*, *what do you have that most people do not have*, which was above the level of the book. Their purpose was to find their similarities to see to what extent they harbored common ideas in life, which both addressed their level, and preferred learning style. In the meantime, the rest of the class dealt with the reading passage in the textbook. The teacher provided each group with feedback.

In the later session of the week the teacher asked everyone excluding St-1 (above the level) and St-2 (above the level) to do a *Find Someone Who....* activity in the context of expressing possession through which they not only practiced the



TL in an information gap task but also repeated a previously covered lesson *Wh-* questions in a meaningful context. Meanwhile, St-1 and St-2 prepared a text related to the result of their exchange of information using conjunctions *and, but*.

In the last session of the week the teacher covered the page 25 altogether with some additional activities such as *describe and identify famous people using have/has in pairs* which was intended to align with the curricular goal *describing people*. Additionally, for the purpose of developing writing skills the researcher assigned everyone excluding St-1, 2 (above the level) and St-3 (on the level) to describe their family members, while the mentioned three students were to write a similar paragraph by making comparisons between two celebrities they admired.

DI did not only take place in the classroom but also was reflected in the homework assignments of the group. That is to say, since the class has some auditory (St-1-2-4-5) and group learners (St-3-7-8), they were asked to prepare 10 questions using possessive *have* in the context of clothing, and interview 1 person from the family or friends. At the end of the interview the students were supposed to either prepare a chart about the wardrobe of the interviewed person or a video showing the person's clothing style.

As evidently displayed in the previous section, the researcher applied tiered activities to address learners level of readiness. In other words, students with a relatively good command of English (St-1-2) were given tasks that are slightly above the level of the program to help them feel their progress as advised by Vygotsky (1978). Also, as deduced from the PLSPQ results, the students were mostly given group activities, and their learning styles were also taken into consideration in the homework assignments. Choice strategy was also utilized while presenting the homework to give learners the autonomy of choosing how to present their homework either with a chart or through shooting a video.

**3.3.4.4 Week 4.** In the second treatment week, the teacher researcher and his colleague revised the discussed outcomes of the week. The following paragraphs first describe the instruction in the control group and the DI group respectively.

As informed by the unit goals of the textbook, in the control group it was aimed that learners would be able to talk about abilities in the context of life skills using a set of vocabularies in the context of possessions and musical instruments. To achieve outcomes, the given context was utilized. Specifically, the teacher

started the lesson with a dialog between two friends who expressed their abilities. Out of this dialog the TL was elicited and stressed the meaning, form, and pronunciation of the target structure. The given activities and tasks in the textbook were used as controlled and freer practices. For the weekend homework, students were asked to do the activity pages of the textbook.

Concerning the DI group, the researcher differentiated the instruction by taking the same course objectives into account and in the following way.

Presentation: As conducted in the control group, the teacher researcher presented the TL with the same dialog and emphasized the TL in terms of meaning, form, and pronunciation by showing the model sentences in the affirmative, positive, and interrogative forms from the given dialog (*I can play the guitar, I cannot speak Spanish or German, can you play the saxophone?*) without spending too much time on it. In other words, DI was not implemented in the presentation stage but in the practice and production stages to support input.

Practice and production: In order to consolidate the meaning, form and pronunciation of the TL in meaningful situations St-1, 2 (above the level, auditory learner) and St-3 (on the level, group learner) were asked to play *Guessing Game* in which they thought of an animal or an object and described it to one another using *can/can't*. The listeners were supposed to guess the described animal or object. The instruction was given by example; *it can climb trees, it can carry its baby (Koala); you can make omelets with it, you can boil it (Egg)*. Concerning the others (on the level, and below the level) excluding St-8 (below the level, inclusive student) they were given a worksheet in which they completed the blanks with the correct form of *can*. For St-8 only, he did a simpler exercise given in the textbook. Feedback was given each group separately. In the following session, St-1, 2 (above the level) and St-3 (on the level) were asked to do a conversation activity through which they exchanged a series of questions about each other's personal abilities in order to find their commonalities. For the rest of the class (on the level, below the level, group and individual learners) the teacher assigned them to conduct a *Find Someone Who*. activity through which they repeated the TL in a meaningful way. Feedback was given not only at the end of the activities but also while they were engaged in tasks. In the last session of this week, the group was offered two choices to select:

## Choices

1. Individual or pair work: The students prepare a life skills questionnaire with 10-15 questions to ask at least 10 people in the school. For example, *can you cook a meal?*

2. Individual (the textbook, pg. 27): Conduct the given questionnaire to 15 people and write a paragraph about the result.

St-1, 2 (above the level, auditory learner, social jobs) and St- 3, 4 (on the level, group learner, conventional/enterprising jobs) chose the first choice, while St-5 (on the level, individual learner, realistic jobs) and St-6, 7, 8 (below the level, individual/group learner, social/artistic/enterprising jobs) decided to work on the second choice.

The teacher monitored the tasks and facilitated preparation of the questionnaires. The result of the questionnaire was shared at the beginning of Week 3.

For the weekend assignment, students were asked to choose from the following options that were prepared in conjunction with the group's interests.

- Capture five snapshots from the life showing an ability, and making a flashcard with that (St-1-3-5-6-7-8 chose this assignment)
- Shoot or mount a video showing life abilities of yourself, a person you know, or a celebrity you admire (St-2-4 chose this assignment).

As displayed in the previous section, tiered activity, choices strategies, and flexible grouping strategies were used to differentiate the instruction. Students sometimes get grouped based on their readiness, and sometimes based on their learning styles and interests. In this week, their interests were also taken into consideration, particularly in assigning the weekend task which were relevant to photography (St-2, 3), computing sciences (St-1, 3, 5, 8), artistic jobs (St-7). As reflected in the Table 2 section 3.2, students expressed their interests in these areas, or it was inferred from the Holland Career Inventory.

**3.3.4.5 Week 5.** In the third treatment week, the teacher researcher and his colleague revised the discussed outcomes of the week. The following section first describes the instruction in the control group and the DI group respectively.

In the control group, it was aimed that students would be to be able to give positive and negative instructions in the context of a computer program disorder

using instructions of guide book and specific set of words such as *code, select, go to, check* etc. The teacher conducted the lesson in the suggested order in the textbook. Specifically, a dialog between Pierre and his mother was used to elicit the model sentence out of which meaning, and form was conveyed and stressed. The listening and speaking activities were also completed to consolidate the TL. As homework assignment, students were asked to do the activity pages assigned by the textbook.

When it comes to the DI group, as was also carried out in the previous two weeks, the teacher both abode by the objectives of the lesson and differentiated the instruction in parallel with the group dynamics as is indicated below:

Procedure: The given context was used to focus on the use of the TL. It was elicited that imperatives were widely used in real life (e.g. program guides, classroom, traffic signs, suggestions, recipe etc.) after which the teacher followed the procedure given in the textbook. In other words, presentation of the TL was not modified in this week, either. Having covered the textbook, the teacher provided the group with several tasks/projects to choose and complete within a week. The offered tasks were as follows:

- Prepare a solution guide for common problems of a computer program or game.
- Prepare a recipe in a slideshow or a video
- Dos and don'ts of photography
- Prepare a user guide for an application
- Enlist the instructions you see in your environment (including China and France) and prepare a PowerPoint presentation
- Give advice to someone who wishes to become a successful movie star
- Tips for a healthy life

St-1 (interested in technology, Chinese and Turkish culture) chose to prepare a presentation about interesting signs in China and tips for healthy life

St-2 and St-3 (interested in cooking and photography) opted for preparing recipe video and dos and don'ts of photography

St-4 (interested in media) opted for preparing dos and don'ts of photography

St-5 (born in France, interested in computing science) opted for preparing a presentation about interesting signs in France

St-6 and St-8 (interested in computing science) opted to prepare instructions in our environment

St-7 (interested in cinema, and artistic jobs) opted for tips for candidate actors.

The researcher took the students to computer lab where they worked on their projects. The researcher was also in the computer lab and assisted the tasks by guiding them to complete their works. Students were grouped at times according to the task they opted for. That is, St-1 and St-5, and St-6 and St-8 came together both to brainstorm about the input and to give each other technical support about how to use PowerPoint. As homework assignment, students worked on their projects at the weekend.

In this week, the researcher employed choices strategy by offering multiple task options that not only meet curricular goals but also accommodate the groups' interests, as understood from Table 2 showing information about the students. The researcher also used flexible grouping strategy in a different way this week. That is, he grouped students in compliance with their interests and preferred ways of showing ability rather than their readiness level.

**3.3.4.6 Week 6.** In the last treatment week, the teacher researcher and his colleague revised the outcomes of the week. The following paragraphs first describe the instruction in the control group and the DI group respectively.

In the control group, students worked on the revision of the last three weeks through extra grammar, vocabulary, speaking, reading, and writing exercises offered in the teacher materials of the book. No homework assignments were given in this week due to upcoming exam week.

In the DI group, the outstanding works of St-4-5-6-7-8 from the previous week were completed in this week, while St-1-2 and 3 willingly started and completed a new assignment from the given list. At the end of the week, volunteer St-1, 2, 6 (social jobs) were encouraged to make oral presentation to share their piece.

In this and partly in the previous weeks, students interest in computer science were supported by assigning them computer-based tasks. Moreover, students career dispositions were also taken into account by offering them tasks related to photography, computer sciences, and cinema, as inferred from Holland Career Inventory the summarized results of which were reflected on Table 2.

**3.3.4.7 Week 7.** In this week students took the achievement test as the post-test. The test was conducted at the end of last treatment week (Week 7) at the same time with both groups. It was aimed to find out the effect of the treatment on learners L2 achievement after comparing the results of the post-test with the pre-test. At the end of the test, the school took a two-week semester break.

**3.3.4.8 Week 8.** In this week students took the achievement test as the delayed post-test five weeks after the post-test. Both control and DI groups took the test at the same time. It was aimed to measure to what extent the student knowledge and skills retained, and to see if there was a significant difference between post-, and delayed post-tests.

**3.3.4.9 Week 9.** One week after the delayed post-test the researcher conducted VKS to further explore students' vocabulary knowledge. The scale was taken by both groups at the same time. Due to the level of the participants translation of the descriptions of the scale was provided by the teachers in the control and DI groups.

**3.3.4.10 Week 10.** In the last week of the study, the students in the DI group were asked to write their experience about the treatment they experienced. The students were told to express their opinions in Turkish to make sure of reliable data.

Overall, it is evident that the researcher utilized data obtained from his observation, the PLSPQ and Holland Career Inventory before the start of treatment. Through these three pre-assessment tools, the teacher researcher aimed to know the participants better by having more insight into their interests, learning styles and career dispositions, and thereby designing suitable DI lesson procedures.

As far as the treatment is concerned, this study was guided by the theoretical frameworks of constructivism in that it required learners to engage in learning environment, to connect the input to their real-life and existing experience and most importantly to build knowledge through interacting with peers and other people with an aim to construct meaning of the given input. Additionally, taking the advice of Vygotsky (1978), the treatment included activities that were just above the current level of students, thus challenging them to reach the lesson goals

by constructing new knowledge stage by stage. In concern with the role of the teacher, the teacher, as is also assumed in the constructivist theory, took on the role of facilitator who not only diagnosed the needs, abilities, interests, and learning styles of learners but also helped them construct meaning of the lesson through appropriately designed lesson plans as supported by DI strategies.

Regarding the implications of multiple intelligence theory on this study, the researcher paid attention to the ways of production that the students would likely prefer. In other words, lessons were designed bearing the diverse dominant intelligences in the classroom rather than entailing meaningful engagement from students with the fixed potent type of intelligence.

Additionally, given the 21<sup>st</sup> century abilities, this study clearly reinforced the DI group's communication, collaboration, problem solving and creativity skills, as could easily be understood from the implementation section of the study.

Furthermore, this study incorporated some DI strategies, as suggested by Tomlinson (1999). To name, it included the strategy of tiered-activities in order to design materials in line with the readiness of the participants. In other words, the activities were tiered a bit challenging as compared to their level. The other experimented strategy was choices through which the researcher provided learners with alternative tasks in relation to their interests and real life and gave them the liberty of opting for any of them. The last implemented strategy was flexible grouping through which the researcher grouped learners differently not only in compliance with their learning styles (e.g. individual learner, group learner) but also their interests (e.g. the ones interested in photography), as reported in the preliminary tests, namely the PLSPQ and Holland Career Inventory.

The study lasted ten weeks including pre-assessment tools, implementation of pre-test, treatment, implementation of post-, and delayed post-tests, VKS, reflective journals and reflective essays. The treatment lasted four weeks, and in each week 6 hours (40 min each hour) were allocated for the treatment. In total treatment lasted 24 hours.

**3.3.5 Data analysis procedures.** For the purpose of reaching the study goals not only quantitative but also qualitative data were collected, analyzed, and interpreted. Quantitative data were gathered through pre-, post-, and delayed post-tests and VKS, while qualitative data were obtained from reflective essays of the

participants and reflective journals of the teacher researcher. The sampling size was taken into account to determine data analysis methods. Non-parametric analysis method was used since the size was not equal in control and experimental groups, and sampling was 22 in total. All data obtained from pre-, post-, and delayed post-tests and VKS were processed and analyzed through SPSS (Statistical Package for the Social Sciences) version 22. The results of each test were compared to indicate intragroup and intergroup developments. As regards the quantitative tools in this study, firstly, Shapiro-Wilk test, which is a test of normality and recommended by most researchers (Ghasemi & Zahediasl, 2012), was used to measure if data came from a normally distributed group. Secondly, Friedman test, which is a non-parametric statistical test used as an alternative to parametric repeated measures ANOVA, was used to measure differences across multiple attempts in this study. Ultimately, Mann-Whitney U test, which is a non-parametric test stipulating that two groups have the same distribution, (Nachar, 2008) was used to measure whether there was a significant difference between the two groups.

Apart from quantitative data collection, qualitative data collection procedures took place by means of the reflective essays written by the participants and reflective journals kept by the researcher. Following exploratory analysis of the essays to obtain a general sense of data (Creswell, 2012), in-depth coding process was conducted. During open coding, major categories (themes) related to the DI were identified. Specifically, major themes in concern with the participants' perceptions of DI were determined.

As the study included assessing writing ability and doing open coding, the interrater reliability was identified for a true interpretation of the results. Interrater reliability means that "two or more individuals observe an individual's behavior and record scores, and then the scores of the observers are compared to determine whether they are similar" (Creswell, 2012, p. 622). To find out the inter-rater reliability, two expert ELT teachers determined major categories out of the codes. The interrater reliability was thus found to be .83 which demonstrated an acceptable agreement (Creswell, 2012).



**3.3.6 Reliability and validity.** While reliability shows how consistently a test measures what it intends to measure. Gay (1981) defines validity as “...the degree to which the test measures what it is supposed to measure” (p. 137).

In the present study, measurement of instruments as a source of error was controlled by the researcher who administered and scored the instruments both in control and experimental groups. In addition to this, the procedure of scoring was objective and clear-cut, as the publishing company had already prepared the answer key of the test, which had single correct answer. For the writing products of the participants, a second rater graded the writings of the participants for more reliable interpretation. Moreover, the test was not brief but long enough to measure specific skills of the students efficiently, which also contributed to the reliability of the study. Furthermore, the achievement test was retaken five weeks after the post-test, which also increased the reliability of the study. When it comes to the Cronbach's alpha value of the study, it was .831 which confirmed the reliability and internal consistency of the test.

Validity is the extent to which the tool measures what it claims to measure. In this study, delayed post-test and VKS were used to triangulate the vocabulary scores of the participants, thus increasing the construct validity of the study. Moreover, the items in the achievement test were directly taken from the examination paper prepared by the institution and were linked to the content covered in the treatment period. In addition to this, the researcher took some field notes to provide data for reflective journals, triangulated data, and increased the construct validity of the study. To establish a high external validity in the study, intact classes whose levels were almost equal were selected for the study. However, compared to average class size in the region, the sampling size of the study was quite small, which obviously impacts the external validity of the study. In other words, it is hard to generalize the results of the study due to small sampling size.

### **3.4 Limitations**

It can be claimed that the study achieved its goals thanks to thorough and detailed data collection and analysis procedure. Having said that the study had some limitations that may affect its validity and generalizability. The first and the most prominent limitation is the sample size (N=22) which is quite small. With

regard to this, attempts to conduct similar studies with larger groups is likely to yield more valid and reliable results that could be generalized to some degree. Moreover, owing to the limited time in the school's English program, the treatment itself lasted four weeks. Therefore, a longitudinal study up to a school year or further might generate more in-depth and interesting findings. In addition to these two aspects, the other limitation is that the study was carried out only with elementary English language learners, and the DI group consisted only of male students. Therefore, implementing DI strategies with different levels of learners and with mixed classes might result in various interpretations and perspectives through a comparative analysis between levels and genders, thus increasing external validity of the study. Ultimately, the instructors of the control group and experimental group were different educators due to the convenience reasons, which might have an impact on the reliability of the results.

## Chapter 4

### Findings

#### 4.1 Overview

This chapter presents the findings of the current study which aimed to seek a difference in student achievement after the treatment (DI), and explore the perceptions of learners and teacher about DI. The following sections detail the results of quantitative data and then qualitative data respectively.

#### 4.2 Quantitative Data Analysis

All data were analyzed using SPSS 22. The continuous data were displayed as mean (M), standard deviation (SD), median (Mdn), minimum (Min) and maximum (Max). Firstly, Shapiro Wilk Test was used to measure the normality of data. Then, Friedman Test was used for non-normal repeated measures to get continuous data. Finally, Mann-Whitney U Test was used to see if there was significant difference between the groups.

**4.2.1 Findings about overall achievement.** The following section displays overall L2 achievement statistics of the experimental and the control groups. Firstly, comparative analysis is made to find if there is a significant difference between the groups, and then in-group statistics are given to determine the impact of traditional L2 instruction and differentiated L2 instruction.

Table 8

*Overall Measurement Difference*

<i>Design</i>	<i>Group</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>Min</i>	<i>Max</i>	<i>Mean Rank</i>	<i>z</i>	<i>sig.</i>
Pre-,Post-test	Experimental	8	31.5	11.68	30	18	57	18.13	-3.624	.000
	Control	14	12.5	5.93	14	2	20	7.71		
Post-,Del.test	Experimental	8	0.88	6.77	1	-9	11	13.25	-.959	.338
	Control	14	-1.29	11.17	-4.5	-15	24	10.5		

The Table 8 not only demonstrates descriptive statistics of the overall pre- and post-test scores of the experimental group who experienced DI, and of the control group who experienced traditional instruction but also shows if there is a statistically significant difference between these two groups.

When Table 8 is interpreted, the score of the experimental group rose up to 31.5 points following the treatment, while the score of the control group rose up to 12.5 points. When the difference is analyzed between these two groups ( $z=-3.624$ ,  $p=0.000<.05$ ), there is a statistically significant difference between the groups. The overall mean rank of the experimental group is higher than that of the control group.

As shown in Table 8, there is 0.88 points overall increase from post- to the delayed post-test in the experimental group, while there is -1.29 points decrease in the control group. When the difference is analyzed between these two groups ( $z=-.959$ ,  $p=0.338>.05$ ), there is not a significant difference between the groups.

The following section details in-group differences between pre- and post, pre- and delayed, and post- and delayed post-tests.

Table 9

*Comparison of Overall Achievement with Friedman Test*

Item	Experimental (N=8)									Control(N=14)								
	M	SD	Mdn	Min	Max	Mean Rank	Chi-Square	df	p - value	M	SD	Mdn	Min	Max	Mean Rank	Chi-Square	df	p - value
Pre_overall	35.7 5	18.5 1	32.0	13	66	1				36.9 3	15.0 3	39	10	63	1.18			
Post_overall	67.2 5	17.0 1	70.5	41	90	2. 44	12. 45	2	0.002	49.4 3	15.3 2	49.5	25	80	2.68	16. 77	2	0.00 0
Delayed_ overall	68.1 3	18.3 5	67.0	41	92	2. 56				48.1 4	12.6 9	47	30	77	2.14			

The Table 9 displays the overall statistics of the pre-, post- and delayed post-test scores of the control and experimental groups. To measure the difference among these tests Friedman test, which is conventionally used for non-parametric repeated measures, was employed.

The experimental group's overall scores of the achievement test are respectively ( $\bar{X}_1 = 35.75$ ,  $\bar{X}_2 = 67.25$  ve  $\bar{X}_3 = 68.13$ ) which indicated that the

experimental group almost doubled the score after the treatment, as is reported in the post-test result. It is, thus, concluded that the treatment made a difference on the students' achievement. The delayed post-test test was implemented five weeks later the post-test, and the result showed no significant difference as compared to the post-test.

The control group's overall scores of the achievement test are respectively ( $\bar{X}_1 = 36.93$ ,  $\bar{X}_2 = 49.43$  ve  $\bar{X}_3 = 48.14$ ), which showed around 13% increase from pre- to post-test. Once the delayed post-test was carried, the result showed no difference comparing to the post-test.

Friedman test was utilized to measure if there was a significant difference between the overall scores of the applied tests in the experimental group, A view to the table ( $\chi^2(2) = 12.45$ ,  $p=.002<.05$ ) shows that there is a significant difference in the overall scores of the achievement test.

Friedman test was used to measure if there was a significant difference between the overall scores of the achievement test in the control group. As the table ( $\chi^2(2) = 16.77$ ,  $p=.000<.05$ ) shows that there is a significant difference in the overall scores of the control group.

There are two widely-used nonparametric methods that are applied to find out the groups that pose difference. The first one is Wilcoxon Signed Rank Test and the other one is Siegel and Castellan (1988) which considers the mean rank differences. For this study, Wilcoxon Signed Rank Test was opted because of its practicality in measurement. As multiple comparisons were required to be made on the same data, the significance level was taken as  $=.05/3=.0167$  (Bonferonni correction).

Table 10

*Overall Results with Wilcoxon Test*

Group		Post_overall – Pre_overall	Delayed_overall – Pre_overall	Delayed_overall – Post_overall
Experimental	Z	-2.533 <sup>b</sup>	-2.524 <sup>b</sup>	-.254 <sup>b</sup>
	Asymp, Sig, (2-tailed)	0.0110	0.0120	0.7990
	Asymp, Sig, (1-tailed)	0.0055	0.0060	0.3995
Control	Z	-3.297 <sup>b</sup>	-2.626 <sup>b</sup>	-.770 <sup>c</sup>
	Asymp, Sig, (2-tailed)	0.0010	0.0090	0.4410
	Asymp, Sig, (1-tailed)	0.0005	0.0045	0.2205

a. Wilcoxon Signed Ranks Test.

b. Based on negative ranks.

c. Based on positive ranks.

When Table 10 is analyzed for the experimental group, there is a statistically significant difference between pre- and post-test overall scores ( $z=-2.533$ ,  $p=.006<.0167$ ). The scores of the participants raised at a significant level from pre- to post-test. In other words, the treatment made a significant difference by leading to an increase in the overall scores. A significant difference is also true between pre- and delayed post-test ( $z=-2.524$ ,  $p=.006<.0167$ ). Regarding the difference between post- and delayed post-test, there is not a significant difference in terms of overall achievement ( $z=-.254$ ,  $p=.399>.0167$ ).

As demonstrated in Table 10, the control group, there is a statistically significant difference between post-test and pre-test overall scores ( $z=3.297$ ,  $p=000<.0167$ ). The scores of the participants raised at a significant level from pre- to post-test. In other words, the traditional instruction made a significant difference by leading to an increase in the overall scores. A significant difference is also true between pre- and delayed post-test ( $z=-2.626$ ,  $p=.004<.0167$ ). Regarding the difference between post- and delayed post-test, there is not a significant difference in terms of overall achievement ( $z=-.770$ ,  $p=.221>.0167$ ).

**4.2.2 Findings about reading achievement.** The following section displays L2 reading achievement statistics of the experimental and the control groups. Firstly, comparative analysis is made to find if there is a significant difference between the groups, and then in-group statistics are given to determine the impact of traditional L2 instruction and differentiated L2 instruction.

Table 11

*Reading Measurement Difference*

<i>Design</i>	<i>Group</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>Min</i>	<i>Max</i>	<i>Mean Rank</i>	<i>z</i>	<i>sig.</i>
Pre-,Post-test	Experimental	8	6.63	2.72	6.5	2	1	15.25	-2.085	0.037
	Control	14	3	4.69	4.5	-7	1	9.36		
Post-,Del.test	Experimental	8	1.25	3.53	1	-4	6	12.25	-.413	0.680
	Control	14	0.64	5.73	0	-10	12	11.07		

When Table 11 is interpreted, the score of the experimental group rose up to 6.63 points following the treatment, while the score of the control group rose up to 3.00 points. When the difference is analyzed between these two groups ( $z=-$

2.085,  $p=0.037<.05$ ), there is a statistically significant difference between the groups in terms of reading achievement. The reading mean rank of the experimental group is higher than that of the control group.

According to Table 11, there is 1.25 points increase from post-test to the delayed post-test in the experimental group, while there is 0.64 points increase in the control group. When the difference is analyzed between these two groups ( $z=-.413$ ,  $p=0.680>.05$ ), there is not a significant difference between the groups.

The following section details in-group differences between pre- and post, pre- and delayed, and post- and delayed post-tests.

Table 12

*Comparison of Reading Achievement with Friedman Test*

Item	Experimental (N=8)					Control(N=14)					Chi-Square	df	p - value		
	M	SD	Mdn	Min	Max	Mean Rank	M	SD	Mdn	Min				Max	Mean Rank
Pre_reading	5.75	6.62	4	0	20	1.06	5.93	4.25	6	0	12	1.46			
Post_reading	12.38	6.02	11	4	25	2.38	8.93	4.30	10	3	18	2.29	6.89	2	0.032
Delayed_reading	13.63	7.11	15	2	25	2.56	9.57	7.40	10	0	25	2.25			

The experimental group's reading scores of the achievement test are respectively ( $\bar{X}_1 = 5.75$ ,  $\bar{X}_2 = 12.38$  ve  $\bar{X}_3 = 13.63$ ), which indicated that the experimental group achieved just more than two times higher after the treatment, as shown in Table 12. It is, thus, concluded that the treatment made a difference on the students' reading achievement. The delayed post-test test was implemented five weeks following the post-test, and the result showed no significant difference as compared to the post-test.

The control group's reading scores of the achievement test are respectively ( $\bar{X}_1 = 5.93$ ,  $\bar{X}_2 = 8.93$  ve  $\bar{X}_3 = 9.57$ ), which showed almost 3% increase from pre-test to post-test. Once the delayed post-test was carried, the result showed no difference comparing to the post-test.

Wilcoxon Signed Rank Test was applied as nonparametric tool to find in which groups there were differences.

Table 13

*Reading Results with Wilcoxon Test*

Group		Post_reading – Pre_reading	Delayed_reading – Pre_reading	Delayed_reading – Post_reading
Experimental	Z	-2.527 <sup>b</sup>	-2.371 <sup>b</sup>	-.957 <sup>b</sup>
	Asymp, Sig, (2-tailed)	0.0120	0.0180	0.3390
	Asymp, Sig, (1-tailed)	0.0060	0.0090	0.1695
Control	Z	-1.723 <sup>b</sup>	-1.336 <sup>b</sup>	-.447 <sup>b</sup>
	Asymp, Sig, (2-tailed)	0.0850	0.1810	0.6550
	Asymp, Sig, (1-tailed)	0.0425	0.0905	0.3275

a. Wilcoxon Signed Ranks Test.

b. Based on negative ranks.

According to Table 13, there is a statistically significant difference between pre- and post-test overall scores for the experimental group ( $z=-2.527$ ,  $p=.006<.0167$ ). The scores of the participants raised at a significant level from pre- to post-test. In other words, the treatment made a difference by leading to an increase. A significant difference is also true between pre- and delayed post-test ( $z=-2.371$ ,  $p=.009<.0167$ ). The scores of the participants statistically increased at a significant level from pre- to delayed post-test. Regarding the difference between post- and delayed post-test, there is not a significant difference in terms of reading achievement ( $z=-.957$ ,  $p=.169>.0167$ ).

When Table 13 is viewed for the control group, there is not a statistically significant difference between pre- and post-test reading scores ( $z=1.723$ ,  $p=.042>.0167$ ) and between pre- and delayed post-test ( $z=-1.336$ ,  $p=.090>.0167$ ). Regarding the difference between post- and delayed post-test, there is not a significant difference in terms of reading achievement ( $z=-.447$ ,  $p=.327>.0167$ ).

**4.2.3 Findings about writing achievement.** The following section displays L2 writing achievement statistics of the experimental and the control groups. Firstly, comparative analysis is made to find if there is a significant difference between the groups, and then in-group statistics are given to determine the impact of traditional L2 instruction and differentiated L2 instruction.



Table 14

*Writing Measurement Difference*

<i>Design</i>	<i>Group</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>Min</i>	<i>Max</i>	<i>Mean Rank</i>	<i>z</i>	<i>sig.</i>
Pre-,Post- test	Experimental	8	7.38	5.23	6.5	-2	14	16	-2.467	0.014
	Control	14	2.36	2.70	2.5	-2	8	8.93		
Post- ,Del.Test	Experimental	8	1.38	4.27	0.5	-6	9	10.88	-.345	0.730
	Control	14	1.79	4.93	1	-10	10	11.86		

When Table 14 is analyzed, the score of the experimental group rose up to 7.38 points following the treatment, while the score of the control group rose up to 2.36 points. When the difference is analyzed between these two groups ( $z=-2.467$ ,  $p=0.014<.05$ ), there is a statistically significant difference between the groups in terms of writing achievement. The writing mean rank of the experimental group is higher than that of the control group.

As displayed in Table 14, there is 1.38 points increase from post-test to the delayed post-test in the experimental group, while there is 1.79 points increase in the control group. When the difference is analyzed between these two groups ( $z=-.345$ ,  $p=0.730>.05$ ), there is not a significant difference between the groups.

The following section also details in-group differences between pre- and post, pre- and delayed, and post- and delayed post-test.

Table 15

*Comparison of Writing Achievement with Freidman Test*

Item	Experimental (N=8)							Control(N=14)										
	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>Min</i>	<i>Max</i>	<i>Mean Rank</i>	<i>Chi-Square</i>	<i>df</i>	<i>p - value</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>Min</i>	<i>Max</i>	<i>Mean Rank</i>	<i>Chi-Square</i>	<i>df</i>	<i>p - value</i>
Pre_writing	8	6.48	6	2	22	1.13			7.86	4.33	10	0	15	1.5				
Post_writing	15.38	5.04	16	9	23	2.19	11.24	2	0.004	10.21	4.59	10	0	18	2.11	7.08	2	0.029
Delayed_writing	16.75	5.49	16.5	10	23	2.69			12.00	6.64	10	0	22	2.39				

The experimental group's writing scores of the achievement test are respectively ( $\bar{X}_1 = 8.00$ ,  $\bar{X}_2 = 15.38$  ve  $\bar{X}_3 = 16.75$ ), which indicated that the experimental group almost doubled the score after the treatment, as is reported in the post-test result. It is thus concluded that the treatment made a significant

difference on the students' writing achievement. The delayed post-test test was implemented five weeks following the post-test, and the result showed no significant difference as compared to the post-test.

The control group's writing scores of the achievement test are respectively ( $\bar{X}_1 = 7.86$ ,  $\bar{X}_2 = 10.21$  ve  $\bar{X}_3 = 12.00$ ), which showed a continuous increase from pre- to delayed post-test.

Wilcoxon Signed Rank Test was applied as nonparametric tool to find in which groups there were differences.

Table 16  
*Writing Results with Wilcoxon Test*

Test Statistics <sup>a</sup>				
Group		Post_writing – Pre_writing	Delayed_writing – Pre_writing	Delayed_writing – Post_writing
Experimental	Z	-2.395 <sup>b</sup>	-2.524 <sup>b</sup>	-.944 <sup>b</sup>
	Asymp, Sig, (2-tailed)	0.0170	0.0120	0.3450
	Asymp, Sig, (1-tailed)	0.0085	0.0060	0.1725
Control	Z	-2.638 <sup>b</sup>	-1.989 <sup>b</sup>	-1.381 <sup>b</sup>
	Asymp, Sig, (2-tailed)	0.0080	0.0470	0.1670
	Asymp, Sig, (1-tailed)	0.0040	0.0235	0.0835

a. Wilcoxon Signed Ranks Test.

b. Based on negative ranks.

According to Table 16, there is a statistically significant difference between post-test and pre-test reading scores for the experimental group ( $z=-2.395$ ,  $p=.008<.0167$ ). The scores of the participants raised at a significant level from pre-test to post-test. In other words, the treatment made a difference by leading to an increase. A significant difference is also true between pre- and delayed post-test ( $z=-2.524$ ,  $p=.006<.0167$ ). The scores of the participants statistically increased at a significant level from pre- to delayed post-test. As regards the difference between post- and delayed post-test, there is not a significant difference in terms of writing achievement ( $z=-.944$ ,  $p=.172>.0167$ ).

As seen in Table 16, there is a statistically significant difference between pre- and post-test writing scores for the control group ( $z=2.638$ ,  $p=.004<.0167$ ). The scores of the participants raised at a significant level from pre- to post-test. Regarding the difference between pre- and delayed post-test, there is not a significant difference ( $z=-1.989$ ,  $p=.023>.0167$ ), which is also true between post- and delayed post-test ( $z=-1.381$ ,  $p=.083>.0167$ ).

**4.2.4 Findings about vocabulary achievement.** The following section displays L2 vocabulary achievement statistics of the experimental and the control groups. Firstly, comparative analysis is made to find if there is a significant difference between the groups, and then in-group statistics are given to determine the impact of traditional L2 instruction and differentiated L2 instruction.

Table 17

*Vocabulary Measurement Difference*

<i>Design</i>	<i>Group</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>Min</i>	<i>Max</i>	<i>Mean Rank</i>	<i>z</i>	<i>sig.</i>
Pre-,Post-Test	Experimental	8	9.5	3.16	10	6	16	18.19	-3.678	0.000
	Control	14	2.71	2.64	3	-2	8	7.68		
Post-,Del.Test	Experimental	8	-0.25	3.28	0	-5	5	12.44	-.525	0.600
	Control	14	-1.93	5.75	0	-12	8	10.96		

As shown in Table 17, the score of the experimental group rose to 9.5 points after the treatment, while the increase is 2.71 points in the control group. When it comes to the difference between the groups ( $z=-3.678$ ,  $p=0.000<.05$ ), there is a statistically significant difference in terms of vocabulary achievement. The mean rank of the experimental group is higher than that of the control group.

According to Table 17, there is -0.25 points decrease from post- to the delayed post-test in the experimental group, and similarly there is -1.93 points decrease in the control group. When the difference is analyzed between the groups ( $z=-.525$ ,  $p=0.600>.05$ ), there is not a significant difference between the groups.

**4.2.4.1 VKS analysis.** The VKS was carried out to triangulate data related to the participants' vocabulary knowledge. The following section shows difference rates in terms of vocabulary knowledge, as measured by the VKS.

Table 18

*VKS Measurement Difference*

	<i>Group</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>Min</i>	<i>Max</i>	<i>Mean Rank</i>	<i>z</i>	<i>sig.</i>
VKS	Experimental	8	4.32	.237	4.26	4.07	4.67	18.5	-3.829	0.000
	Control	14	3.22	.267	3.26	2.73	3.67	7.5		

The Table 18 not only displays the descriptive statistics of the results gained from the VKS which was taken by both the experimental group and the control group, but also shows if there is a statistically significant difference between these two groups.

As shown in the Table 18, the mean score of the experimental group is  $\bar{X}_1 = 4.33$  and it is  $\bar{X}_2 = 3.23$  in the control group. This scale was taken after the delayed post-test for triangulation purposes. When the difference is analyzed between these two groups ( $z=-3.829$ ,  $p=0.000<05$ ), the vocabulary mean rank is higher in the experimental group than the control group.

The following section details in-group differences between pre- and post, pre- and delayed, and post- and delayed post-tests.

Table 19

*Comparison of Vocabulary Achievement with Freidman Test*

Item	Experimental (N=8)									Control(N=14)								
	M	SD	Mdn	Min	Max	Mean Rank	Chi-Square	df	p - value	M	SD	Mdn	Min	Max	Mean Rank	Chi-Square	df	p - value
Pre_vocab	9.5	3.46	10	4	14	1				11.93	4.41	13.5	4	18	1.61			
Post_vocab	19	3.42	20	13	24	2.56	13.31	2	0.001	14.64	4.78	15	7	22	2.43	6.04	2	0.049
Delayed_vocab	18.75	4.36	19.5	10	24	2.44				12.71	3.17	11.5	10	20	1.96			

The experimental group's vocabulary scores of the achievement test are respectively ( $\bar{X}_1 = 9.5$ ,  $\bar{X}_2 = 19$  ve  $\bar{X}_3 = 18.75$ ), which indicated that the experimental group doubled the score after the treatment, as is reported in the post-test result. It is, thus, concluded that the treatment made a difference on the students' vocabulary achievement. The delayed post-test test was implemented five weeks following the post-test, and the result showed no significant difference as compared to the post-test.

The control group's vocabulary scores of the achievement test are respectively ( $\bar{X}_1 = 11.93$ ,  $\bar{X}_2 = 14.64$  ve  $\bar{X}_3 = 12.71$ ), which showed almost 3% increase from pre- to post-test. Once the delayed post-test was carried out, the score decreased to as many as 3%.

Wilcoxon Signed Rank Test was applied as nonparametric tool to find in which groups there were differences.

Table 20

*Vocabulary Results with Wilcoxon Test*

<b>Test Statistics<sup>a</sup></b>				
Group		Post_vocab – Pre_vocab	Delayed_vocab – Pre_vocab	Delayed_vocab – Post_vocab
Experimental	Z	-2.555 <sup>b</sup>	-2.524 <sup>b</sup>	-.271 <sup>c</sup>
	Asymp, Sig, (2-tailed)	0.0110	0.0120	0.7860
	Asymp, Sig, (1-tailed)	0.0055	0.0060	0.3930
Control	Z	-2.773 <sup>b</sup>	-.475 <sup>b</sup>	-1.190 <sup>c</sup>
	Asymp, Sig, (2-tailed)	0.0060	0.6350	0.2340
	Asymp, Sig, (1-tailed)	0.0030	0.3175	0.1170

a. Wilcoxon Signed Ranks Test.

b. Based on negative ranks.

c. Based on positive ranks.

According to Table 20, there is a statistically significant difference between pre- and post-test vocabulary scores for the experimental group ( $z=-2.555$ ,  $p=.005<.0167$ ). The scores of the participants raised at a significant level from the pre- to the post-test. In other words, the treatment made a difference by leading to an increase. A significant difference is also true between pre- and delayed post-test ( $z=-2.524$ ,  $p=.006<.0167$ ). The scores of the participants statistically increased at a significant level from pre- to delayed post-test. Concerning the difference between post- and delayed post-test, there is not a significant difference in terms of vocabulary achievement ( $z=-.271$ ,  $p=.393>.0167$ ).

As demonstrated in Table 20, there is a statistically significant difference between pre- and post-test vocabulary scores for the control group ( $z=2.773$ ,  $p=.003<.0167$ ). Concerning difference between pre- and delayed post-tests there is not a significant difference ( $z=-.475$ ,  $p=.317>.0167$ ), which is also true for the difference between post- and delayed post-test ( $z=-1.190$ ,  $p=.117>.0167$ ).

**4.2.5 Findings about grammar achievement.** The following section displays L2 grammar achievement statistics of the experimental and the control groups. Firstly, comparative analysis is made to find if there is a significant difference between the groups, and then in-group statistics are given to determine the impact of traditional L2 instruction and differentiated L2 instruction.

Table 21

*Grammar Measurement Difference*

<i>Design</i>	<i>Group</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>Min</i>	<i>Max</i>	<i>Mean Rank</i>	<i>z</i>	<i>sig.</i>
Pre-,Post-test (treatment effect)	Experimental	8	7.75	4.43	6,5	3,00	17	14.44	-1.611	0.107
	Control	14	4.14	4.81	4,5	-5,00	14	9.82		
Post-,Del.Test (sustainable effect)	Experimental	8	0	3.02	0,00	-5	5	12.88	-.757	0.449
	Control	14	-1.43	5.04	-1,50	-10	7	10.71		

When Table 21 is interpreted, the score of the experimental group rose up to 7.75 points following the treatment, while the score of the control group rose up to 4.14 points. When the difference is analyzed between these two groups ( $z=-1.611$ ,  $p=0.107>05$ ), there is not a statistically significant difference between the groups in terms of grammar achievement.

According to Table 21, there is neither increase nor fall from post- to delayed post-test in the experimental group, while there is -1.43 points fall in the control group. When the difference is analyzed between these two groups ( $z=-.757$ ,  $p=0.449>05$ ), there is not a significant difference between the groups.

The following section also details in-group differences between pre- and post, pre- and delayed, and post- and delayed post-tests.

Table 22

*Comparison of Grammar Achievement with Freidman Test*

Item	Experimental (N=8)									Control(N=14)								
	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>Min</i>	<i>Max</i>	<i>Mean Rank</i>	<i>Chi-Square</i>	<i>df</i>	<i>p - value</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>Min</i>	<i>Max</i>	<i>Mean Rank</i>	<i>Chi-Square</i>	<i>df</i>	<i>p - value</i>
Pre_grammar	12.6	5.1	12	6	20	1.0				11.2	5.3	12	4	20	1.5			
Post_grammar	20.3	4.5	22.	15	25	2.5	13.3	2	0,00	15.3	4.4	17	8	22	2.4	6.6	2	0.03
Delayed_gramm ar	20.3	3.2	20.	15	25	2.4				13.9	4	15	10	20	2			

The experimental group's grammar scores of the achievement test are respectively ( $\bar{X}_1 = 12.63$ ,  $\bar{X}_2 = 20.38$  ve  $\bar{X}_3 = 20.38$ ), which indicated that the experimental group achieved around 8% higher after the treatment, as is reported in the post-test result. It is, thus, concluded that the treatment made a difference on the students' grammar achievement. The delayed post-test test was implemented five

weeks following the post-test, and the result showed no significant difference as compared to the post-test.

The control group's grammar scores of the achievement test are respectively ( $\bar{X}_1 = 11.21$ ,  $\bar{X}_2 = 15.36$  ve  $\bar{X}_3 = 13.93$ ). While there is over 4% increase from pre- to post-test, there is a small decrease from post- to delayed test.

Wilcoxon Signed Rank Test was applied as nonparametric tool to find in which groups there were differences.

Table 23

*Grammar Results with Wilcoxon Test*

		Test Statistics <sup>a</sup>		
Group		Post_grammar - Pre_grammar	Delayed_grammar - Pre_grammar	Delayed_grammar - Post_grammar
	Z	-2.524 <sup>b</sup>	-2.527 <sup>b</sup>	.000 <sup>c</sup>
1	Asymp, Sig, (2-tailed)	0.0120	0.0120	1.000
	Asymp, Sig, (1-tailed)	0.0060	0.0060	0.500
	Z	-2.591 <sup>b</sup>	-1.889 <sup>b</sup>	-1,062 <sup>d</sup>
2	Asymp, Sig, (2-tailed)	0.0100	0.0590	0.2880
	Asymp, Sig, (1-tailed)	0.0050	0.0295	0.1440

a. Wilcoxon Signed Ranks Test.

b. Based on negative ranks.

c. The sum of negative ranks equals the sum of positive ranks.

d. Based on positive ranks.

According to Table 23, there is a statistically significant difference between pre- and post-test grammar scores for the experimental group ( $z=-2.524$ ,  $p=.006<.0167$ ). The scores of the participants raised at a significant level from pre- to post-test. In other words, the treatment made a difference by leading to an increase. A significant difference is also true between pre- and delayed post-test ( $z=-2.527$ ,  $p=.006<.0167$ ). The scores of the participants statistically increased at a significant level from pre- to delayed post-test. Regarding the difference between post- and delayed post-test, there is not a significant difference in terms of grammar achievement ( $z=-.000$ ,  $p=.500>.0167$ ).

When Table 23 is analyzed, there is a statistically significant difference between pre- and post-test grammar scores for the control group ( $z=2.591$ ,  $p=.005<.0167$ ). Moreover, regarding pre- and delayed post-test there is not a significant difference ( $z=-1.889$ ,  $p=.029>.0167$ ), which is also true for the difference between post- and delayed post-test ( $z=-.447$ ,  $p=.327>.0167$ ).

**4.2.6. Findings about overall individual achievement.** Apart from comparative and in-group analysis, the study also targeted at examining students' individual achievement after the treatment. The following section thus accounts for how DI influenced individual students' overall achievement based on pre-, post-, and delayed post-tests and teacher researcher's own observation with respect to their performance during the treatment.

Table 24

*Overall Individual Achievement*

Student	Pre-test	Post-test	Delayed post-test
1	66	90	92
2	55	85	85
3	45	71	67
4	38	75	83
5	26	56	67
6	13	70	65
7	23	41	45
8	20	50	41

When Table 24 is viewed, it can be claimed that DI made a difference in the overall L2 achievement of each participant, which is also supported by the field notes of the researcher. The observation also showed that throughout the treatment weeks the DI group cooperated effectively despite appearing a bit unaccustomed to the experimented L2 instruction. The next paragraphs deal with the performance of each participant.

St-1, who is the strongest student in terms of proficiency level, auditory learner, interested in computer, and inclined to social jobs, obviously improved his L2 score up to 25% after the treatment. Moreover, the effect of the treatment was observed through his performance and increased engagement. He appeared to be challenged by tiered tasks, which previously was not a matter of fact. Including plenty of listening tasks and computer-assisted activities considering his major intelligence (auditory learner), and interest area paid off as evidenced in the classroom observation. Furthermore, he was content with undertaking the responsibility of helping classmates with technical issues in computer-aided tasks, and making presentation of his product before the classroom, as informed by his stated inclination to social jobs in the future. Overall, he showed better achievement, engagement and boosted satisfaction throughout the study.



St-2, who is the other student with relatively high proficiency level together with St-1, auditory learner, interested in cooking and photography, and inclined to social jobs, also achieved increased L2 performance up to 30% following the treatment. St-2 seemed to be challenged by the tiered-tasks, yet he overcame difficult tasks thanks to the collaboration with St-1. Both students were actively engaged when they were paired. It was also noted that offering interest-related activities (i.e. photography, cooking) motivated St-2 to learn actively. His tendency to social jobs in his prospective career was also capitalized on through charging him with solving problems related to Photoshop, and PowerPoint in the computer lab, for which he showed and expressed his content.

St-3, who is on the level of the program, group, and kinesthetic learner, interested in cooking, and photography, and inclined to conventional jobs, increased his achievement to as much as 26%. It was observed that he initiated the conversation and extended it by encouraging his classmates in group activities. He seemed motivated and meaningfully engaged by interest-related activities. Additionally, he was satisfied with computer-based tasks, as understood from his willingness to do more than one task.

St-4, who is on the level, auditory, kinesthetic and group learner, interested in media, inclined to enterprising jobs, doubled his achievement score from pre-, to post-test despite the note that he was not very participative in classroom activities but mostly silent. He generally preferred to work on tasks that aligned with his major learning style, interest area, and career disposition (e.g. preparing a life skills questionnaire, shooting a video). Judging by the rate of his achievement, he can actively engage in learning processes despite preferring to keep silent in the lesson.

St-5, who is on the level, auditory, and kinesthetic learner, interested in computer, inclined to realistic jobs, improved his score up to 30% following the DI. Judging by his performance in the classroom, DI did not change his general attitude toward the lesson. Nevertheless, he seemed a bit more engaged when he was supposed to work on computer-required tasks even during which he still needed help. Working on activities related to France did not seem to motivate and engage him better. After all, he performed better in the post-, and delayed post-tests.

St-6, who is below the level, individual learner, interested in history, and theology, inclined to social jobs, increased his score as much as 57%. It was observed that he was more engaged when he was supposed to work individually,

and tiered-tasks. he Conversely, he was quite passive in group works. Given his inclination to social jobs, he was encouraged to make a presentation, which seemed to pay off. It was also observed that he needed constant assistance in computer based activities, which was provided mostly by St-1 and St-2.

St-7, who is below the level, group, and visual learner, interested in cinema, inclined to artistic jobs, achieved the least increase in the DI group (18%). Like it was observed in St-6 he was not good at computer-based tasks despite his efforts. On the other hand, being engaged in cinema related tasks was observed to have motivated him.

St-8, who is below the level, kinesthetic and group learner, interested in computer programs, preparing presentations, searching, and matching visual and inclined to enterprising jobs, increased his achievement rate up to 30%. It was obvious that tiered-tasks in line with his level and low IQ helped him to some degree. It was also noted that involving him in group tasks facilitated understanding and engagement.

### **4.3 Qualitative Data Analysis**

This section comprises two sub-sections: In the first subsection, findings related to students' perceptions about the treatment based on the reflective essays written by the experimental group at the end of the treatment were analyzed, and in the second subsection the teacher's perceptions about the implementation of DI were analyzed based on the reflective journals the teacher researcher kept himself during the implementation.

**4.3.1 Student reflective essays.** The participants wrote down the essays at the end of the study on 6th March, 2018. The essays were coded and then organized into themes. As a result of the analysis of students' reflective essays, seven major themes which signpost their perceptions about the treatment were identified from data analysis, which namely are distinctive, entertaining, engaging, informative, instructive, and collaborative nature of DI, and appreciation for interest-related materials, tiered-tasks, and computer-aided instruction.

**4.3.1.1 The distinctive nature of the DI.** The analysis of the reflective essays revealed that all the participants found the DI quite different from the earlier instruction, as reported in the following excerpts:

[...] The lessons were different from last weeks’.

(S1)

[...] The activities were not the same as the previous lessons’. For example, we prepared a questionnaire, and made a presentation.

(S2)

[...] It was a different experience for me because we used to cover the textbook before this.

(S6)

It can be interpreted from the reports of the participants that the DI provided them with untraditional lesson procedure that they had not experienced before. Therefore, it can be concluded that the differentiated L2 instruction brought on distinct lesson procedures and materials that traditional instruction lacks.

**4.3.1.2 The entertaining and engaging nature of the DI.** The analysis of the students’ essays also showed that all the participants found the treatment more entertaining and engaging than the traditional delivery, which is indicated in the following excerpts:

[...] The lessons were more entertaining, and I was more engaged than before.

(S4)

[...] I had such entertaining lessons that sometimes I did not take a break because I was engaged in the tasks. In the previous lessons. I was not this engaged.

(S5)

[...] I never got bored because the lessons were entertaining. I sometimes get bored in English lessons.

(S8)

Based on the reflections of the participants, it can be inferred that differentiating L2 instruction resulted not only in fun and entertainment, but also engagement, which made lessons less monotonous and teacher-centered. Simply saying, the differentiated L2 instruction boosted engagement of the learners through entertaining and fun teaching materials.

**4.3.1.3 Informative and instructive aspect of the DI.** The majority of the participants, especially St-1,2,3,5,6,7, further reported that the differentiated L2 instruction was more instructive than traditional instruction due to some aspects of it, as is also displayed in the excerpts below:

[...] I easily learnt about grammar topics and words. I did not have any difficulties to understand them because we did several practices.

(S2)

[...] These lessons taught me better than the previous lessons because I did lots of speaking activities and some projects. For example, I searched about the street signs in France, and prepared a presentation. It was very informative.

(S5)

[...] I think I was able to understand the topics thanks to a diversity of activities, but past lessons were not presenting this diversity.

(S7)

The statements of the participants revealed that they learned better with the treatment they had been exposed to for four weeks, which proved that the differentiated L2 instruction was more informative and instructive than the traditional instruction.

**4.3.1.4 Collaborative tasks with the DI.** Most of the participants, specifically the students who are below the average level and needed technical and academic support, pointed out that the DI was boosting collaboration required by the nature of the activities that were supposed to be done in pairs or groups, as is evidenced in the following excerpts:

[...] I did not use to work with a classmate very often, but in these lessons, I generally worked with them to prepare a questionnaire, to get their help about preparing a presentation and so forth. It was very useful.

(S5)

[...] I worked with my classmates, which was very beneficial. I learned a lot from them. For example, I learned about preparing Slideshow and using Photoshop thanks to St-1 and St-2.

(S6)

[...] There were many speaking activities and tasks that required pair or group work. They were very useful.

(S8)

As is evident from the reported opinions of the participants, they evaluated the DI as useful thanks to its collaborative nature. It, therefore, means that the DI managed to make a difference by encouraging collaboration through differentiated tasks in the learning environment.

**4.3.1.5 Interest-based lesson materials.** Half of the participants (St-1,2,3,5,7) reported that they liked working on the tasks they chose because it was about their interest, which is indicated in the excerpts below:

[...] The teacher presented us some options to choose. I generally chose the areas that I was interested in. For example, I once chose a topic related to China. I liked working on it.

(S1)

[...] We were offered to choose among different tasks. I enjoyed preparing a recipe for “Patlıcan Kebabı”, and Dos and Dont’s of photography.

(S2)

[...] I noticed that these lessons were taking our interests into account. For instance, there was a task related to being an actor. I chose it and I enjoyed working on it.

(S7)

The above statements of the students suggest that they found something related to their areas of interest in the activities they had been engaged for a month. We can therefore conclude that DI through interest-related materials was able to strengthen motivation for learning.

**4.3.1.6 Tiered tasks with the DI.** Some of the participants (St-1,2,8), especially the ones whose level is well above or below the program and the group, also highlighted that the treatment allowed them to work on challenging or level-appropriate tasks that they lacked in the past lessons, as is shown in the following excerpts:

[...] Previous lessons were easy for me, but I was challenged in these lessons. I wish this were always true in English lessons.

(S1)

[...] The tasks in these lessons were more difficult than the ones we had before. I learned a lot from these tasks.

(S2)

[...] The teacher was giving me easier tasks than before. I had little difficulty to do them. It should always be like this.

(S8)

As is obviously inferred from these comments that being one of the key strategies of DI, tiered activities in alignment with student readiness and ability

made a difference on learner motivation for doing the assignments. In other words, it can be concluded that differentiated L2 instruction through tiered-activities enhanced learner motivation.

**4.3.1.7 Computer-assisted instruction.** Moreover, some of the learners (St-2,3,4) especially the ones who are keen on computer, reported that they enjoyed working on computer-assisted tasks and being outside the usual classroom environment, which contributed to not only their English skills but also computer skills, as is pointed out below:

[...] We sometimes went to the computer lab to prepare our projects. It was very useful because I learned how to prepare a presentation.

(S2)

[...] For example, I chose to prepare a video for which I used movie maker program in the computer. It was a rewarding experience because I happened to learn new features of the program.

(S3)

[...] I liked the activities in the computer lab. We should not be in the classroom for the whole day.

(S4)

These comments of the learners vividly reveal that they had great time outside the classroom not only because of learning English but also learning about computer programs. This finding obviously suggests that differentiating the process of the instruction with the help of technology exerted significant difference on the learning environment.

**4.3.2 Teacher journals.** The other qualitative data source was the reflective journals which were kept by the teacher researcher following each treatment week. Having an in-depth look into the journals unveiled the subsequent themes with regard to the challenges faced during the preparation and implementation of DI throughout the study.

**4.3.2.1 Time constraints:** Each week's journal included statement about the difficulty of keeping up with the school responsibilities and preparing DI for the experimental group at the same time, as is shown in the following excerpts:

[...] It was an effective start in terms of DI because I managed to attend to my learners' varieties through a variety of tasks, instructions, and assignments. However, I had to neglect the preparation for my 12th grade classes.

(T, 22.12.2017)

[...] I cannot help thinking how I could deal with DI if it were required by the school, because it took all my weekend to prepare for one class.

(T, 05.01.2018)

These statements obviously indicate that planning and preparation for DI was time-consuming and nearly unmanageable because of the regular school responsibilities such as lesson plans, paperwork, and administrative burdens. Such being the case, it can be inferred that planning and preparing DI is requires a great deal of time, or else it is highly likely to be obstructed by time-constraints.

**4.3.2.2 Getting to know students.** The reflection of the teacher in the journals also uncovered the fact that the study entailed a full awareness of the learners with regard to their interests, abilities, learning styles, and overall profile, which is reflected as a challenge by the teacher as is evidenced in the following excerpts:

[...] Although I applied the PLSPQ and Holland Career Inventory to get to know their preferred learning styles, strong intelligences, and occupational orientations, I had to hold some unreported interview sessions, and make some observations to become more aware of my learners.

(T, 22.12.2017)

[...] I noticed new characteristics of some learners. I might have made further observations or held more in-depth interviews to know them better.

(T, 29.12.2017)



The records of the teacher demonstrate that differentiating instruction called for a full awareness of learners in concern not only with their learning characteristics but also individual tendencies, interests, and so forth. Therefore, it can be concluded that DI starts with knowing learners' academic, and social varieties, as a result of which instruction can be effectively differentiated based on those varieties.

**4.3.2.3 *Knowing how to differentiate.*** Since the present study incorporated a treatment which is namely DI, the researcher was supposed to deal with the lesson materials in that both curricular goals and learning varieties would be addressed. This responsibility was experienced as a challenge by the teacher whose perceptions are reflected in the following excerpts:

[...] It was extremely difficult to vary instruction in response to learner varieties, for varieties were present not only in the ability or dominant learning style but also in the interests.

(T, 05.01.2018)

[...] I was overwhelmed while putting thought on how to cater to varieties and follow the curricular objectives at the same time. I need to improve myself in this area.

(T, 12.01.2018)

The expressions of the teacher highlight that DI necessitated some degree of knowledge about the treatment to overcome the obstacles related to integrating DI tools into the present curriculum. This challenge of the teacher brings the issue of professional development to the light, as DI does not simply assume finding extra sources for the program, rather it relates developed or adapted materials to learner varieties, which naturally varies from context to context.

**4.3.2.4 *Restrictions by institutional requirements.*** It was further found in the reflective journals of the teacher that lack of flexibility in the institutional standards such as curriculum, common exams led to a trouble conducting this study, which is displayed in the excerpts below:

[...] If I did not have to adhere to the textbook, it would be easier to differentiate. Textbook constrained me to include target language and unit goals.

(T, 29.12.2017)

[...] I had to cover certain parts of the book at times, as it was required by the foreign languages department to conduct the same exams across two campuses, which sort of affected the efficiency of the study.

(T, 05.01.2018)

The comments emphasize that DI was impeded from a complete implementation due to institutional policies. This challenge of the researcher implies the issue of strict policies in the schools in which teachers neither have room to modify syllabus nor are given autonomy to differentiate instruction complied with learner varieties, mostly because of standardization reasons. In other words, schools do not allow their teachers to change instruction for the sake of establishing standard instruction across multiple campuses in the city or country.

## Chapter 5

### Discussion and Conclusions

#### 5.1 Discussion of Findings for Research Questions

The principal purpose of this study was to investigate the impact of DI on students' overall L2, and L2 reading, writing, vocabulary and grammar achievement. In addition to this, the study sought to determine its impact on students' perceptions, and the perceptions of the teacher researcher about planning and implementing DI in an L2 high school setting. In an attempt to reach the objectives of the study, data were obtained through quantitative and qualitative data instruments including achievement test, VKS, reflective essays and reflective journals. The following section aims to discuss the findings of the determined research questions.

**5.1.1 Discussion of the findings of RQ1a: Will there be a difference between DI group and control group regarding overall L2 achievement?** This research question sought to determine whether there was a difference in students' overall achievement including reading, writing, vocabulary, and grammar scores from pre- to post-test. The results indicated that there was a significant difference between the scores of two tests both in control and DI groups, which suggests that both traditional and DI gave rise to an increase in students' L2 overall achievement. To put it differently, the differentiated L2 instruction that was experienced by the DI group led to an increment in the student's overall achievement. However, concerning comparative results, it was found that the difference is higher in DI group than control group.

The reason to this is most probably due to DI's learner-centered approach which assumes and accepts students as individuals with diverse abilities, needs, interests, learning styles, and preferences. Conversely, traditional instruction bears whole-class instruction with little diversity but full commitment to the syllabus of the textbook. In other words, it is more teacher-centered in that it offers a standard instruction which is carried out nearly in the same way across the country. Simply put, traditional instruction did not surpass the impact of DI because it was applied irrespective of learner varieties in the classroom.

Another reason that DI resulted in better scores might be due to the fact that the instruction incorporated such DI strategies as tiered activities, choices, and flexible grouping. With tiered activities, the researcher assumed the mixed levels and abilities of the students by designing or redesigning materials in concert with learners' readiness and abilities over the same unit goals. For instance, some students worked on preparing and conducting a new questionnaire on life skills, while the others conducted a ready-made questionnaire after making sense of the questionnaire items, which allowed all learners to reach the equal unit goals through level-appropriate tasks. This finding concurs with the study of Cusumano and Mueller (2007) who also found increased overall scores in a low-achieving U.S. elementary school through the strategies of tiered activities, flexible grouping; with Chien (2012) who reached similar outcomes through the aforesaid strategies in an elementary school's EFL class in Taiwan, and with Siddiqui and Alghamdi (2017) whose study generated very similar results at the L2 remedial hours of a preparatory program in Saudi university.

Ultimately, incorporation of interest-relevant materials might be the other reason for the difference. Taking interests of learners into account led to a conducive learning environment in which the learners enjoyed studying. This outcome is in line with the findings of Beecher and Sweeny (2008) who also found increased achievement scores after taking learners' interests into account in their longitudinal study conducted at an elementary school in the USA. Similar conclusions were also reached in math contexts (Luster, 2008; Kasteloot, 2011; Maxey, 2013).

In conclusion, since limited research is available in L2 setting, there is still a need for further investigation into the impact of DI strategies regarding.

**5.1.2 Discussion of the findings of RQ1b: Will there be a difference between DI group and control group regarding L2 reading achievement?** This research aimed at seeking an increase in students' reading achievement from pre- to post-test. The results indicated that there was a significant difference between the scores of two tests both in control and DI groups, which suggests that both traditional instruction and DI gave rise to an increase in students' reading achievement. To put it differently, the differentiated L2 instruction which was experienced by the experimental group led to an increase in reading achievement.

However, comparatively, it was found that the difference is higher in DI group than control group.

The reason to this might lie in the fact that DI presented a variety of reading opportunities that were tiered to their readiness. In other words, students had the opportunity to practice reading level-appropriate reading texts. The other reason might be that these reading texts were suited to their interests as much as possible, which possibly led to an increase in interest for reading, and thus understanding the text better. In contrast to DI, traditional instruction assumed pre-determined reading texts given by the textbook, which proved less effective than the DI. This finding is in accordance with Aliakbari and Haghghi (2014) who tested reading achievement of control group and experimental group with ANOVA. At the end of the study, the experimental group outperformed the control group in reading achievement.

The variety of reading input to which the experimental group were exposed might be the other reason for the increased achievement in the experimental group. To put it differently, the students in the DI group had to practice reading not only with a variety of contexts but also with tiered materials, which concurs with the study of Baumgartner et al. (2003) who carried out DI strategies viz. flexible grouping, and access to different reading sources with primary and middle school learners and reached an improvement in the students reading levels. It also aligns with Koeze (2007) who found significant impact of DI on middle schoolers' reading achievement after designing the instruction in compliance with the learning style framework of Dunn et al. (1995) and carrying out the strategies of choice and interest. Moreover, the study is in line with the study of Schlag (2009) who found significant relationship between flexible grouping strategy and reading achievement, and Welsh (2010) who implemented differentiated reading strategies with struggling fifth graders in the USA and found out an improvement in their learning proficiency. Regarding L2 setting, the findings are consonant with the study of Aliakbari and Haghghi (2014) who reached similar consequences after carrying out grouping, and tiered activities strategies with elementary EFL learners in Iran.

In sum, although there is a little focus on reading ability, it is limited to native language reading abilities of students. Therefore, it still deserves close scrutiny into impact of DI on L2 reading abilities of students. Furthermore,

research is needed to specify and explore the impact of DI on learners' sub-skills of reading such as comprehension of gist, and specific information.

**5.1.3 Discussion of the findings of RQ1c: Will there be a difference between DI group and control group regarding L2 writing achievement?** This research question aimed to identify whether there was a difference in students' writing achievement from pre- to post-test. The results indicated that there was a significant difference between the scores of two tests both in control and DI groups, which suggests that both traditional instruction and DI gave rise to an increase in students' writing achievement. To put it differently, the differentiated L2 instruction which was experienced by the experimental group led to an increase in writing achievement. However, it was found that the difference is higher in DI group than control group.

The rise in writing achievement might again be the result of the differentiated activities presented to the students in the experimental group. For instance, every one of the students was required to practice writing based on the level- and interest-appropriate tasks like preparing a life skills questionnaire and writing a brief paragraph about the result of the questionnaire. In other words, they engaged in challenging and meaningful writing practices. The other factor might be the autonomy of the students at opting for the tasks they would like to engage in. Due to very limited number of existing studies that measured specific L2 abilities in concern with writing abilities, the findings of this study can only be compared with few studies. Namely, the study aligns with Koeze (2007) who found the significant impact of choice and interest strategies on fifth grade learners' writing performance, and with Gualbertus and Made (2013) who experimented DI to measure writing competency of high school Indonesian students and found that DI made a significant difference on the participants' writing competency.

In conclusion, due to the limitations of the study (i.e. sample size, level) it is still hard to generalize that DI is better than traditional instruction regarding writing achievement. Moreover, since there is a dearth of evidence supporting DI on writing abilities, it is hardly possible to compare the findings in this area with the ones in the previous studies. Therefore, a focus on this area still remains to be made.

#### **5.1.4 Discussion of the findings of RQ1d: Will there be a difference between DI group and control group regarding L2 vocabulary achievement?**

This research question aimed to find whether there would be an increase in students' vocabulary achievement as measured by pre-, and post-test, and VKS. The results shown that there was a significant difference between the scores of two tests, and the scores of the VKS both in control and experimental groups, which suggests that both traditional instructional and DI resulted in an increase in students' vocabulary achievement. In other words, the DI which was experienced by the experimental group led to an increase in vocabulary achievement. However, concerning comparative results, it was found that the difference is higher in DI group than control group.

The reason in the student vocabulary achievement might lie in the fact that the students in the experimental group were not only taught the target vocabulary but also they were presented meaningful and various opportunities to practice the presented vocabulary in the context they were interested in and in the way which they preferred to practice. For instance, in one of the lessons some students preferred to prepare a recipe video, while the others felt more interested in preparing a presentation. The findings of this study are closely aligned with the findings of Alavinia and Farhady (2012) whose study also yielded better vocabulary results because of the DI in response to learners' dominant intelligence and learning styles in a foreign language institute in Iran.

In conclusion, it was obvious that DI was impactful in terms of vocabulary achievement, yet a large scale experimental study aiming to see the greater depth by gauging the impact of DI over many a year makes it more possible to generalize the findings.

#### **5.1.5 Discussion of the findings of RQ1e: Will there be a difference between DI group and control group regarding L2 grammar achievement?**

The purpose of this research question was to find out about the impact of DI on students' grammar achievement from pre- to post-test. The results indicated that there was a significant difference between the scores of two tests both in control and DI groups, which suggests that both traditional instruction and DI led to an increase in students' grammar achievement. In other words, the differentiated L2 instruction which was experienced by the DI group resulted in increased grammar

achievement. It also showed that the difference is almost equal in DI and control groups, which was not present in the previous areas.

Regarding what led to this result, it is probably because students were presented a variety meaningfully tiered controlled and semi-controlled because of which they understood and got challenged by the grammatical structures at their own level. For instance, while some students did not receive instruction on the negative form of possessive *have*, the others did. A similar conclusion was reached in an elementary school setting where English language arts instruction was differentiated through the strategy of choice and interest based on the learning style. The findings of the study (Koeze, 2007) indicated that these strategies were pivotal to English language arts achievement. The findings are also congruous with Paredes (2017) in which DI strategies such as double entry journal, reading charts, project menus in compliance with learner interests and needs positively affected the L2 grammar achievement of 43 university students.

In brief, significant impacts of the experimented strategies regarding grammar achievement, there is still a need to look into this area in tandem with different strategies and with varied group of learners.

**5.1.6 Discussion of the findings of RQ2: What are the students' individual achievement after DI?** The main purpose of this research question was to discuss the impact of the treatment on each student by capitalizing on the size of the DI group. The analysis of their overall achievement score in pre-, post-, and delayed post-tests, and teacher researcher's observation notes during the instruction showed that each student raised their achievement score from pre- to post-test, and did not show any inconsistency in the delayed post-test. In addition to this, teacher's notes were aligned with the increased scores as evidenced by increased engagement, learner's reactions, and better performance in the class.

With respect to underlying reasons, there are some factors that could have had impact on this depending on the individual. First and most prominently, the study took each learner's varieties into account although it is different from individualized instruction by adapting lesson materials prepared in conjunction with individual level of readiness, particularly for St-1, 2, 6, 7, 8 who are either well above or below the level of the class. This finding complies with Cusumano and Mueller (2007) who also found increased overall test scores in a low-achieving



elementary school. In addition to DI for readiness, the study provided the participants with tasks and activities that were prepared in conjunction with their interest areas, which potentially contributed to enhancing understanding of the input, and motivation to deal with them. Furthermore, the study mostly based the parts requiring production on learners' major intelligences and career dispositions such as auditory, individual learning, and social jobs, which are in line with Alavina and Farhady (2012) who addressed learners' intelligence and learning styles by modifying vocabulary instruction, and reached increased test scores from pre- to post-test.

All in all, although DI differs from individualized instruction, it might be a good way to start DI with small number of students, or focusing on a specific area so as to pilot it and adapt to larger classes. In this case, there might be modifications at individual level, which does not necessarily make DI and individualized type of instruction.

**5.1.7 Discussion of the findings of RQ3: What are the students' perceptions about DI?** This research question aimed to look into the impact of DI on students' perceptions, as interpreted from qualitative data obtained from reflective essays kept by the students in the DI group at the end of the study. Given the overall results, it can be stated that DI through the strategies of tiered activities, flexible grouping, and choices which were suited to learners' readiness and interests made a difference on the learners' perceptions.

One reason to the significant difference in learner perception is most probably because of the fact that learners' interests (e.g. St-2's interest in cooking and photography, St-7's interest in cinema etc.) were taken into consideration during the preparation of DI, which is in parallel with the result of Danzi et al. (2008) who also found increased motivation, and decreased boredom in their study with primary and middle school learners.

The other reason to such a result might be due to the unconventional instruction in which learner's mixed readiness levels were respected, and dealt with through tiered activities, which is in agreement with Karadağ and Yaşar (2010), whose study revealed that such DI strategies affected students' attitude in a positive way among middle school Turkish learners. By the same token, Chien (2012) measured the impact of tiered tasks, and found out increased learner motivation,

and joy among a Taiwanese elementary school's EFL learners. Moreover, the findings are in line with Liao (2015) who uncovered that such tasks had positive impact on learner perception at a Taiwanese university's EFL classes.

However, it should be noted that it is almost impossible to address each learner's individual interests, and abilities especially in larger groups. Therefore, the size of the class was the reason that encouraged the teacher to offer diverse interest-relevant tasks. Yet, it is likely to diversify existing materials in the way that are suited to mixed abilities, and interests in general.

Consequently, although the teacher did his best to bear learner interests and abilities in mind while preparing the instruction, not all the specific characteristics of each learner were able to be addressed. Therefore, DI should not be confused with individualized instruction.

**5.1.8 Discussion of the findings of RQ3: What are the teacher's perceptions about DI?** The objective of the final research question was to elucidate the perceptions of the teacher researcher about the implementation of DI, as extracted and interpreted from the recurring themes in the reflective journals weekly kept by the teacher. The overall results of data analysis indicated that implementation of DI posed many a challenge such as keeping up with school schedule and DI at the same time, being fully aware of the learners, knowing how to differentiate, and meeting institutional curricular requirements.

The first and foremost difficulty for the teacher was to maintain DI and the regular workload at the same time. In other words, the most significant issue is time constraints. The necessity for more time is generally induced by the amount of regular workload of teachers including lesson plans, documentations, paperwork, and meetings. This issue is also agreed by Theisen (2002) in which teachers expresses their concern, and difficulty about the lack of time; Robinson et al. (2014) who also found time constraints among many other challenges of teachers, as well as Stewart (2016), Oliver (2016), and Siam and Al-Natour (2016), all of whom reached the same conclusion.

The other recurring theme found in the reflective journals was the necessity of being aware of learners, by which the researcher drew attention to the becoming aware of learners' needs, abilities, profiles, interests, strengths, weaknesses and so

on. This finding also aligns with Oliver (2016) in which the participants expressed their trouble knowing and meeting the needs and abilities of learners.

The other key finding was the lack of knowledge about how to differentiate instruction, which implies that professional development and training is required to be able to differentiate instruction effectively, which concurs with the findings of Njagi (2014), Oliver (2016), and Lunsford (2017). This finding uncovers the fact that differentiation of instruction is not an easy errand such as taking attendance, managing classroom that can be achievable by every incumbent teacher. On the contrary, it entails in-depth knowledge about the principles of DI, which institutions need to prioritize as a need of teachers to cater to immediately if DI is of high importance to the school.

The last major finding was the difficulty of implementing DI and meeting department requirements at the same time. This finding both accounts for the trouble of partial DI under the limits of standardization in the schools, and explains the discomfort of teachers while differentiating content, process, and product, since they are not autonomous to differentiate in any way they wish.

In brief, apart from the expected difficulties of DI like time constraints, professional development, the perspectives of institutions in standardization, giving flexibility to teachers constitute a significant issue in front of teachers, and make DI harder.

## **5.2 Conclusions**

The focus of the present study was to find out whether DI made a significant difference in overall L2, and L2 reading, writing, vocabulary, and grammar achievement in a Turkish high school context. At the same time, the study aimed to explore the perceptions of students about DI, as reported by student reflective essays, and to determine the perceptions of teacher about planning and implementing DI, as reported by reflective journals kept by the teacher researcher.

To conclude, the findings of quantitative data showed that DI makes a difference in overall L2, and L2 reading, writing, vocabulary, and grammar achievement of Turkish high school student, as measured by achievement test. Regarding the results of qualitative data, it is concluded that investigating student perceptions generate valuable data for teachers who plan to apply DI in their

classroom. Similarly, findings from teacher journals generated important ideas and issues in the field of DI.

### **5.3 Recommendations**

The study has several recommendations for future research in the field of DI. The recommendations are given firstly through the lens of practitioner and then researcher.

Firstly, and most importantly, it should be noted that DI is not a teaching method or a range of strategies but an approach to teaching and a way of thinking. To elaborate, DI does not have strict boundaries that limit teachers to apply specific strategies in specific ways. Conversely, it offers us a mindset which expects us to become aware of learner varieties in needs, abilities, interests, learning styles, and intelligence in class, thus entailing us to prepare lessons in response to the varieties in the class. Briefly, it is a teaching approach that considers student differences, and assumes student-focused and tailored instruction in accordance with student differences.

Secondly, it is recommended for teachers, who intend to implement DI, especially in large classes, to administer pre-assessment tools and make preliminary observation about how their learners learn, and what their interests are. It is vital to get to know more about learners, which generate valuable data that inform the implementation of DI. After getting the results from pre-assessment tools, teachers could group students in terms of their readiness, preferred learning styles, and interests in their minds. This way teachers could design lessons in alignment with general characteristics of learners, rather than trying to cater to every single variety in the class, which is not a part of DI. In brief, one should note that DI is not individualized instruction.

Thirdly, DI encompasses a wide array of strategies, areas, and theoretical assumptions, which might deter teachers from trying it in their classes. However, teachers should not get daunted by the scope of DI but start DI with small steps. To put it differently, they might start by differentiating presentation (not done in this study), or practice (as done in this study), or production (also done in this study) at the beginning. Apart from the steps of teaching, teachers might consider differentiating specific skills such as reading lessons, or CLIL lessons in the first

place. This way they could see difficulties and possibilities, and thereby conveying it to overall teaching.

Fourthly, as DI requires plenty of time for preparation, it might be advisable to carry out DI with smaller groups for the sake of piloting, and then generalizing it to more classes, and perhaps to the whole school.

The last recommendation for teachers is that it is paramount to invest in professional development in this field by reading about diverse DI strategies, observing a colleague, or watching videos reflecting DI. Otherwise, one might confuse DI with providing individual instruction, giving extra work strong learners, or focusing attention on learners with learning difficulties.

Regarding recommendations for researchers, first of all, more research is needed in this field with a larger group of learners, which makes it more likely to generalize the results of the study. Secondly, similar research should be conducted in which teachers of the experimental group and control group are the same so as to increase reliability of the study. Thirdly, as this study was conducted with a four-week treatment period, further research could be conducted at a longer period, which will yield more sustainable and generalizable data. Lastly, to increase external validity of the study future research could implement DI with different levels and groups of learners such as upper intermediate young adults, advanced adults, or young learners is also recommended.

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## APPENDICES

### A. The Perceptual Learning Style Preference Questionnaire

Reid, J. M. (1984). *Perceptual Learning Style Preference Questionnaire*. Laramie:

University of Wyoming, Department of English.

Directions:

People learn in many different ways. For example, some people learn primarily with their eyes (visual learners) or with their ears (auditory learners); some people prefer to learn by experience and /or by “hands-on” tasks (kinesthetic or tactile learners); some people learn better when they work alone while others prefer to learn in groups.

This questionnaire has been designed to help you identify the way(s) you learn best – the way(s) you prefer to learn.

Decide whether you agree or disagree with each statement. And then indicate whether you:

- Strongly Agree (SA)
- Agree (A)
- Undecided (U)
- Disagree (D)
- Strongly Disagree (SD)

Please respond to each statement quickly, without too much thought. Try not to change your responses after you choose them. Please answer all the questions.

#### PERCEPTUAL LEARNING STYLE PREFERENCE QUESTIONNAIRE

	SA	A	U	D	SD
1. When the teacher tells me the instructions I understand better.					
2. I prefer to learn by doing something in class.					
3. I get more work done when I work with others.					
4. I learn more when I study with a group.					
5. In class, I learn best when I work with others.					

	SA	A	U	D	SD
6. I learn better by reading what the teacher writes on the chalkboard.					
7. When someone tells me how to do something in class, I learn it better.					
8. When I do things in class, I learn better.					
9. I remember things I have heard in class better than things I have read.					
10. When I read instructions, I remember them better.					
11. I learn more when I can make a model of something.					
12. I understand better when I read instructions.					
13. When I study alone, I remember things better.					
14. I learn more when I make something for a class project.					
15. I enjoy learning in class by doing experiments.					
16. I learn better when I make drawings as I study.					
17. I learn better in class when the teacher gives a lecture.					
18. When I work alone, I learn better.					
19. I understand things better in class when I participate in role-playing.					
20. I learn better in class when I listen to someone.					
21. I enjoy working on an assignment with two or three classmates.					
22. I prefer to study with others.					



	SA	A	U	D	SD
23. I learn better by reading than by listening to someone.					
24. I enjoy making something for a class project.					
25. I learn best in class when I can participate in related activities.					
26. In class, I work better when I work alone.					
27. I prefer working on projects by myself.					
28. I learn more by reading textbooks than by listening to lectures.					
29. I prefer to work by myself.					

## SELF-SCORING SHEET

### Instructions

There are 5 questions for each learning category in this questionnaire. The questions are grouped below according to each learning style. Each question you answer has a numerical value:

SA	A	U	D	SD
5	4	3	2	1

Fill in the blanks below with the numerical value of each answer. For example, if you answered Strongly Agree (SA) for question 6 (a visual question), write a number 5 (SA) on the blank next to question 6 below.

Visual  
6 -   5  

When you have completed all the numerical values for Visual, add the numbers. Multiply the answer by 2, and put the total in the appropriate blank.

Follow this process for each of the learning style categories. When you are finished, look at the scale at the bottom of the page; it will help you determine your major learning style preference(s), your minor learning style preference(s), and those learning style(s) that are negligible.

## SELF-SCORING SHEET

### VISUAL

6 - \_\_\_\_\_  
10 - \_\_\_\_\_  
12 - \_\_\_\_\_  
24 - \_\_\_\_\_  
29 - \_\_\_\_\_  
Total \_\_\_\_\_ x 2 = \_\_\_\_\_ (Score)

### TACTILE

11 - \_\_\_\_\_  
14 - \_\_\_\_\_  
16 - \_\_\_\_\_  
22 - \_\_\_\_\_  
25 - \_\_\_\_\_  
Total \_\_\_\_\_ x 2 = \_\_\_\_\_ (Score)

### AUDITORY

1 - \_\_\_\_\_  
7 - \_\_\_\_\_  
9 - \_\_\_\_\_  
17 - \_\_\_\_\_  
20 - \_\_\_\_\_  
Total \_\_\_\_\_ x 2 = \_\_\_\_\_ (Score)

### GROUP

3 - \_\_\_\_\_  
4 - \_\_\_\_\_  
5 - \_\_\_\_\_  
21 - \_\_\_\_\_  
23 - \_\_\_\_\_  
Total \_\_\_\_\_ x 2 = \_\_\_\_\_ (Score)

### KINESTHETIC

2 - \_\_\_\_\_  
8 - \_\_\_\_\_  
15 - \_\_\_\_\_  
19 - \_\_\_\_\_  
26 - \_\_\_\_\_  
Total \_\_\_\_\_ x 2 = \_\_\_\_\_ (Score)

### INDIVIDUAL

13 - \_\_\_\_\_  
18 - \_\_\_\_\_  
27 - \_\_\_\_\_  
28 - \_\_\_\_\_  
30 - \_\_\_\_\_  
Total \_\_\_\_\_ x 2 = \_\_\_\_\_ (Score)

Major Learning Style Preference      38-50  
Minor Learning Style Preference      25-37  
Negligible                                      0-24

### EXPLANATION OF LEARNING STYLE PREFERENCES

Students learn in many different ways. The questionnaire you completed and scored showed which ways you prefer to learn English. In many cases, students' learning style preferences show how well students learn material in different situations.

The explanations of major learning style preferences below describe the characteristics of those learners. The descriptions will give you some information about ways in which you learn best.

#### VISUAL MAJOR LEARNING STYLE PREFERENCE

You learn well from *seeing words* in books, on the chalkboard, and in workbooks. You remember and understand information and instructions better if you read them. You don't need as much oral explanation as an auditory learner, and you can often learn alone, with a book. You should take notes of lectures and oral directions if you want to remember the information.

#### AUDITORY MAJOR LEARNING STYLE PREFERENCE

You learn from hearing words spoken and from oral explanations. You may remember information by reading aloud or moving your lips as you read, especially

when you are learning new material. You benefit from hearing audio tapes, lectures, and class discussion. You benefit from making tapes to listen to, by teaching other students, and by conversing with your teacher.

#### **KINESTHETIC MAJOR LEARNING STYLE PREFERENCE**

You learn best by experience, by being involved physically in classroom experiences. You remember information well when you actively participate in activities, field trips, and role-playing in the classroom. A combination of stimuli—for example, an audio tape combined with an activity—will help you understand new material.

#### **TACTILE MAJOR LEARNING STYLE PREFERENCE**

You learn best when you have the opportunity to do “hands-on” experiences with materials. That is, working on experiments in a laboratory, handling and building models, and touching and working with materials provide you with the most successful learning situation. Writing notes or instructions can help you remember information, and physical involvement in class related activities may help you understand new information.

#### **GROUP MAJOR LEARNING STYLE PREFERENCE**

You learn more easily when you study with at least one other student, and you will be more successful completing work well when you work with others. You value group interaction and class work with other students, and you remember information better when you work with two or three classmates. The stimulation you receive from group work helps you learn and understand new information.

#### **INDIVIDUAL MAJOR LEARNING STYLE PREFERENCE**

You learn best when you work alone. You think better when you study alone, and you remember information you learn by yourself. You understand new material best when you learn it alone, and you make better progress in learning when you work by yourself.

#### **MINOR LEARNING STYLES**

In most cases, minor learning styles indicate areas where you can function well as a learner. Usually a very successful learner can learn in several different ways.

#### **NEGLIGIBLE LEARNING STYLES**

Often, a negligible score indicates that you may have difficulty learning in that way. One solution may be to direct your learning to your stronger style. Another solution might be to try to work on some of the skills to strengthen your learning style in the negligible area.

## B. Holland Career Inventory

<https://openpsychometrics.org/tests/RIASEC/>.

	Dislike		Neutral		Enjoy
Test the quality of parts before shipment					
Study the structure of the human body					
Conduct a musical choir					
Give career guidance to people					
Sell restaurant franchises to individuals					
Generate the monthly payroll checks for an office					
Lay brick or tile					
Study animal behavior					
Direct a play					
Do volunteer work at a non-profit organization					
Sell merchandise at a department store					
Inventory supplies using a hand-held computer					
Work on an offshore oil-drilling rig					
Do research on plants or animals					
Design artwork for magazines					
Help people who have problems with drugs or alcohol					
Manage the operations of a hotel					
Use a computer program to generate customer bills					
Assemble electronic parts					
Develop a new medical treatment or procedure					
Write a song					
Teach an individual an exercise routine					
Operate a beauty salon or barber shop					
Maintain employee records					
Operate a grinding machine in a factory					
Conduct biological research					
Write books or plays					
Help people with family-related problems					
Manage a department within a large company					
Compute and record statistical and					

other numerical data					
Fix a broken faucet					
Study whales and other types of marine life					
Play a musical instrument					
Supervise the activities of children at a camp					
Manage a clothing store					
Operate a calculator					
Assemble products in a factory					
Work in a biology lab					
Perform stunt for a movie or television show					
Teach children how to read					
Sell houses					
Handle customers bank transactions					
Install flooring in houses					
Make a map of the bottom of an ocean					
Design sets for plays					
Help elderly people with their daily activities					
Run a toy store					
Keep shipping and receiving records					

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## C. Achievement Test

Given by the institution

### SECTION 1. VOCABULARY



**1 Look at the photos and choose the correct words to complete the description (10 pts).**

I have a lot of clothes! Here's a photo of my red (1) *trainers* / *jacket*, my red (2) *pullover* / *sandals* and my red (3) *shorts* / *shirt*. Red's my favourite colour!

In the photo of me, I have on my favourite green (4) *shirt* / *jacket*, a grey (5) *hat* / *cap* and my white (6) *top* / *skirt*.

I also have a pair of blue (7) *trousers* / *jeans* and a blue (8) *shirt* / *skirt*.

When I meet friends, I wear my black and white (9) *skirt* / *shirt* and my white (10) *socks* / *scarf*.

**2 Complete the instructions for sending a text message with these words (8 pts).**

go    make    select (x2)    send    the    check    write

**Quickstart Mobile Phone User Guide**

**Send a message**

- (1) \_\_\_\_\_ sure (2) \_\_\_\_\_ phone is on.  
(3) \_\_\_\_\_ to Menu and (4) \_\_\_\_\_ Messages.  
(5) \_\_\_\_\_ your message, (6) \_\_\_\_\_ the person you want to send it to and then  
(7) \_\_\_\_\_ your message. Wait a few seconds to (8) \_\_\_\_\_ the message sent.

**3 Complete with these verbs. Use *don't* where necessary (7 pts).**

ask	be	forget	go	help
select	tell	use		

- 1 ***Don't ask*** me my age!  
2 Phone me tomorrow --- \_\_\_\_\_ my number!  
3 \_\_\_\_\_ to Menu and \_\_\_\_\_ Audio  
4 \_\_\_\_\_ late for the welcome party.  
5 \_\_\_\_\_ me, please. I can't programme the satnav.  
6 \_\_\_\_\_ your mobile for the international calls. It's really expensive.  
7 \_\_\_\_\_ me his name. I can't remember it.

**SECTION 2. GRAMMAR**

**1 Complete the following sentences with *have* or *has* (14 pts).**

- 1 I \_\_\_\_\_ three brothers.  
2 You \_\_\_\_\_ a great bag.  
3 She \_\_\_\_\_ a nice sister.  
4 He \_\_\_\_\_ brown eyes.  
5 It \_\_\_\_\_ five colours.  
6 We \_\_\_\_\_ a new teacher.  
7 They \_\_\_\_\_ blue tops.

**2 Correct one mistake in each sentence (5 pts)**

- 1 I have fifteen years old.  
2 Rio de Janeiro has my favourite city. It has a beautiful beach.  
3 They has four children: three sons and a daughter.  
4 You are a great guitar. Can you play it?

5 We are blonde hair and blue eyes.

**3 Complete the dialogue with the correct form of *can*.**

**Lucy:** So, Carl, how are your life skills?

**Carl:** What do you mean?

**Lucy:** Well, what can you do around the house, for example?

**Carl:** Oh, I (1) \_\_\_\_\_ do lots.

**Lucy:** Really? (2) \_\_\_\_\_ you cook a meal?

**Carl:** Yes, I (3) \_\_\_\_\_. I can cook four or five different meals. My favourite is spaghetti.

**Lucy:** That's good. And (4) \_\_\_\_\_ you iron a shirt?

**Carl:** No, I (5) \_\_\_\_\_, but my mum (6) \_\_\_\_\_!

**SECTION 3. READING**

**1 Read the text and match the headings with the paragraphs (10 pts)**

1 About the saxophone \_\_\_\_

2 What I listen to \_\_\_\_

3 My future plans \_\_\_\_

4 Why I like the saxophone \_\_\_\_

5 Fun with friends \_\_\_\_

**2 Read the text again and answer the questions (15 pts)**

1 Why does the boy like the saxophone?

2 What type of instrument is a saxophone?

3 What music does the boy like?

4 How many people are in the band and how many instruments?

5 What does the boy's mum want him to do in the future?



## **My favourite instrument**

**A**

My favourite instrument is the saxophone. A special thing about the saxophone: it originally comes from Belgium and so do I! The saxophone makes a great noise, too.

**B**

The saxophone is made from a material called brass and it's a wind instrument. You select the buttons or 'keys' to make music while you blow into the mouthpiece.

**C**

Most kids of my age like pop and rock bands like Green Day or Linkin Park, but I prefer to listen to jazz or blues music! I have lots of CDs of famous sax players (called saxophonists). My favourites are Charlie Parker, Coleman Hawkins and David Sanchez.

**D**

I play the saxophone every day. I'm part of a band with my three friends who are also musicians. Charlie plays the drums, Len plays the guitar and Domingo sings. We're not particularly good, but we perform at the school. We've also got our own web page: [www.saxcity.com](http://www.saxcity.com)

**E**

When I don't play the saxophone, I write music with Charlie and Domingo. I write the music and Charlie writes the words. When I'm older, I want to be a famous jazz musician. Mum wants me to go university though.

**SECTION 4. WRITING**

**1 Write a paragraph of an email to a new friend describing yourself and people in your family (25 pts)**

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**D. Rubric for Writing**

*Given by the institution*

Aspect	Score	Description	Weighting
Content (C) 30% - Topic - Details	4	The topic is complete and clear and the details are relating to the topic	3x
	3	The topic is complete and clear but the details are almost relating to the topic	
	2	The topic is complete and clear but the details are not relating to the topic	
	1	The topic is not clear and the details are not relating to the topic	
Organization (O) 20% -Identification - Description	4	Identification is complete and descriptions are arranged with almost proper connectives	2x
	3	Identification is not complete and descriptions are arranged with almost proper connectives	
	2	Identification is not complete and descriptions are arranged with few misuse of connectives	
	1	Identification is not complete and descriptions are arranged with misuse of connectives	
Grammar (G) 20% - Use of <i>have</i> for description - Agreement	4	Very few grammatical or agreement inaccuracies	2x
	3	Few grammatical or agreement inaccuracies but not effect on meaning	
	2	Numerous grammatical or agreement	

Aspect	Score	Description	Weighting
		inaccuracies	
	1	Frequent grammatical or agreement inaccuracies	
Vocabulary (V) 15%	4	Effective choice of words and word forms	1.5x
	3	Few misuse of vocabularies, word forms, but not change the meaning	
	2	Limited range confusing words and word form	
	1	Very poor knowledge of words, word forms, and not understandable	
Mechanics (M) 15% - Spelling - Punctuation - Capitalization	4	It uses correct spelling, punctuation, and capitalization	1.5x
	3	It has occasional errors of spelling, punctuation, and capitalization	
	2	It has frequent errors of spelling, punctuation, and capitalization	
	1	It is dominated by errors of spelling, punctuation, and capitalization	

### E. Vocabulary Knowledge Scale

Wesche, M., & Paribakht, T. S. (1996). Assessing Second Language Vocabulary Knowledge: Depth Versus Breadth. *Canadian Modern Language Review*, 53(1), 13-40.

Dear student,

This questionnaire was prepared to measure your knowledge of listed words. Your answers will only be used for research purposes and will be kept confidential. Your sincere responses are highly appreciated as it is of high importance for the reliability of the study. Thank you very much for taking your time to help me.

- 1: I don't remember having seen this word before.
- 2: I have seen this word before, but I don't know what it means.
- 3: I have seen this word before and I think it means \_\_\_\_\_ (synonym or translation).
- 4: I know this word. It means \_\_\_\_\_ (synonym or translation).
- 5: I can use this word in a sentence. e.g.: \_\_\_\_\_ (if you do this section, please also do section 4).

WORDS	1	2	3	4	5
1. pullover					
2. sandals					
3. skirt					
4. socks					
5. trainers					
6. iron (v)					
7. mend					
8. paint					
9. swim underwater					
10. turn on					
11. check					
12. dial					
13. select					
14. make a video call					
15. use					

### F. Reflective Essays

Write a reflective essay (2-3 paragraphs) including your opinions about differentiated instruction (DI) Do you think it helps you to learn English better? Why/Why not?

## G. Curriculum Vitae

### PERSONAL INFORMATION

Surname, Name: Yavuz, Ahmet Cihat

Nationality: Turkish (T.C)

Date and Place of Birth: 10 February 1988, Beykoz

Marital Status: Married

Phone: +90 554 771 46 86

Email: [ahmetcihatyavuz@gmail.com](mailto:ahmetcihatyavuz@gmail.com)

### EDUCATION

Degree	Institution	Year of Graduation
MA	Endicott College	2014
BA	Dumlupınar University	2009
High School	İbrahim Turan Lisesi	2002

### WORK EXPERIENCE

Year	Place	Enrollment
2009-2018	İhlas Koleji	English Teacher
2012-2018	İhlas Koleji	Head of Department

### FOREIGN LANGUAGES

English, Spanish

### CERTIFICATES

CELTA (PASS A)

DELTA M2 (PASS)

IB Coordination

IB Administration

### PUBLICATIONS

1. Ören, A. D., Öztüfekçi, A., Kapçık, A. C., Kaplan, A., & Yılmaz Uzunkaya, Ç. (2017). Building awareness of world Englishes among university preparatory students. *International Online Journal of Education and Teaching (IOJET)*, 4(4), 483-508. <http://iojet.org/index.php/IOJET/article/view/245/217>

2. Kapçık, A., Öztüfekçi, A., Ören, D. A., Kaplan, A., Uzunkaya, Ç. Y., & Mede, E. (2018). Mentoring University Preparatory University Students Through World Englishes (WEs)- Integrated Courses. In Dikilitaş, K., Mede, E., & Atay, D. (Eds.). *Mentorship Strategies in teacher education*. (pp. 77-96). IGI Global.

3. Kapçık, A. C. (2018). Examining the effect of structured peer observation on EFL teachers' perceptions, attitudes, and feelings. In Barkhuizen, G., Burns, A., Dikilitaş, K., & Wyatt, M. (Eds.). *Empowering teacher-researchers, empowering learners* (pp. 55-65). Kent: IATEFL.

## **HOBBIES**

Learning a new language

