

**THE INFLUENCE OF BLENDED INSTRUCTION ON GIFTED LEARNERS'
LEXICAL APTITUDE AS MEASURED BY LLAMA-B**



Ceyda BASMACI

JANUARY 2021

**THE INFLUENCE OF BLENDED INSTRUCTION ON GIFTED LEARNERS'
LEXICAL APTITUDE AS MEASURED BY LLAMA-B**

**A THESIS SUBMITTED TO THE
GRADUATE SCHOOL PROGRAMS
OF
BAHCESEHIR UNIVERSITY**

CEYDA BASMACI

**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF ARTS
IN THE DEPARTMENT OF ENGLISH LANGUAGE TEACHING**

JANUARY 2021

Approval of the Graduate School

Assoc. Prof. Dr. Burak KÜNTAY
Institute Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Arts.

Asst. Prof. Dr. Mustafa Polat
Coordinator

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

Dr. Zeynep KÖYLÜ
Supervisor

Examining Comittee Members

Dr. Zeynep KÖYLÜ (UNIBAS, English)

Prof. Dr. Kenan DİKİLİTAŞ (UIS, HigherED)

Assoc. Prof. Dr. Enisa MEDE (BAU, ELT)

ETHICAL CONDUCT

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Last Name: Ceyda Basmacı

Signature:

ABSTRACT

THE INFLUENCE OF BLENDED INSTRUCTION ON GIFTED LEARNERS' LEXICAL APTITUDE AS MEASURED BY LLAMA-B

Basmacı, Ceyda

Master's Thesis Program in English Language Education

Supervisor: Asst. Prof. Dr. Zeynep KÖYLÜ

January 2021, 152 pages

The purpose of the study is to investigate if blended vocabulary instruction affects gifted learners' (who are already identified via Wechsler Intelligence Test) lexical aptitude. This study also aims to explore how blended instruction influences the vocabulary acquisition of the gifted EFL learners in a private K12 setting. To this end, the vocabulary-related subtest of the Lognastic tool (Llama-B) was used to determine to what extent these gifted learners develop their lexical aptitude through blended instruction. In addition, the study seeks to explore the attitudes of gifted young EFL learners towards blended vocabulary instruction. The present study was carried out in a private K12 school in the west of Turkey. The participants consisted of 17 grade-4 gifted young EFL learners. The data were gathered via 3 pre and post vocabulary unit tests along with Llama-B lexical aptitude measurement scale which was applied at the beginning of the intervention period as well as at the end. Blended vocabulary instruction group was also given an attitude questionnaire. The results of the quantitative analysis revealed that gifted learners benefitted from blended instruction in terms of vocabulary learning. The results also indicated that blended vocabulary instruction had a positive influence on gifted learners' lexical aptitude. In addition, the findings of the study showed that gifted learners' attitudes towards blended vocabulary instruction were quite positive. These findings confirm that blended vocabulary instruction affects gifted learners' lexical aptitude but that these learners' individual differences; their giftedness also contribute to their EFL vocabulary learning.

Keywords: Blended Learning, Vocabulary, Gifted learners, Lexical aptitude, Llama-B



ÖZ

HARMANLANMIŞ ÖĞRETİM YÖNTEMİNİN ÜSTÜN POTANSİYELLİ ÖĞRENCİLERİN SÖZCÜK EDİNİMLERİ ÜZERİNE ETKİSİ VE BUNUN LLAMA-B YOLUYLA OLÇÜMÜ

Basmacı, Ceyda

İngiliz Dili Eğitimi Yüksek Lisans Programı

Tez Danışmanı: Dr. Öğr. Üyesi Zeynep KÖYLÜ

Ocak 2021, 152 sayfa

Bu çalışmanın amacı, harmanlanmış sözcük öğretiminin yetenekli öğrencilerin (Wechsler Zeka Testi ile zaten tanımlanmış olan) sözcük öğrenme yatkınlıklarını etkileyip etkilemediğini araştırmaktır. Bu çalışma aynı zamanda harmanlanmış öğretimin özel bir ilköğretim okulu ortamında üstün yetenekli öğrencilerin yabancı dilde sözcük öğrenmelerini nasıl etkilediğini keşfetmeyi amaçlamaktadır. Bu amaçla, üstün yetenekli öğrencilerin harmanlanmış öğretim yoluyla sözcük öğrenme yatkınlıklarını ne ölçüde geliştirdiklerini belirlemek adına Lognostik aracının (Llama-B) sözcük alt testi kullanılmıştır. Ayrıca, bu çalışma, üstün yetenekli öğrencilerin yabancı dilde harmanlanmış sözcük öğretimine yönelik tutumlarını da keşfetmeyi amaçlamaktadır. Bu çalışma, Türkiye'nin batısında bulunan özel bir ilköğretim okulunda gerçekleştirilmiştir. Katılımcılar, 17 üstün yetenekli 4. Sınıf öğrencisidir. Veriler, işledikleri ünitelerden seçilmiş sözcüklere ait 3 ön ve 3 son sözcük testi ile müdahale döneminin başında ve sonunda uygulanan Llama-B sözcük yatkınlığı ölçeği ile toplanmıştır. Harmanlanmış sözcük öğretim grubuna ek olarak bir tutum anketi verilmiştir. Nicel analizin sonuçları, üstün yetenekli öğrencilerin sözcük öğrenimi açısından harmanlanmış eğitimden yararlandığını ortaya koymuştur. Sonuçlar ayrıca, harmanlanmış öğretimin üstün yetenekli öğrencilerin yabancı dilde yeni sözcük öğrenme yatkınlıkları üzerinde olumlu bir etkisi olduğunu göstermiştir. Ayrıca çalışmanın bulguları, üstün yetenekli öğrencilerin harmanlanmış sözcük öğretimine

yönelik tutumlarının oldukça olumlu olduğunu ortaya koymuştur. Bu bulgular, harmanlanmış öğretimin üstün yetenekli öğrencilerin sözcük öğrenme yatkınlıklarını etkilediğini, ancak bu öğrencilerin bireysel farklılıklarının da sözcük öğrenme yatkınlıkları üzerinde katkısı olduğunu doğrulamaktadır.

Anahtar Kelimeler: Harmanlanmış Öğrenme, Sözcük Öğrenme, Üstün Potansiyelli, Sözcük Edinme Yatkınlığı, Llama-B



ACKNOWLEDGMENTS

First and foremost, praises and thanks to the God, the Almighty, for His showers of blessings throughout my research work to complete the research successfully.

I wish to express my deepest gratitude to my supervisor Dr. Zeynep Köylü for her advice, guidance, encouragements and insight throughout the research. I would also like to thank her for her empathy, and great sense of humor. I am extending my heartfelt thanks to her for the acceptance of this thesis topic and patience during my research and thesis preparation.

I would also like to thank Prof. Dr. Kenan Dikilitaş, for giving me the opportunity to do this research. His dynamism, vision, sincerity and motivation have deeply inspired me. He has taught me the methodology to carry out the research and it was a great privilege to have been a teacher researcher under his guidance.

I would also like to thank my parents, for their great support throughout my life. Without their understanding, and continuous support, I would have never been able to aspire for this level of education and complete this study.

Finally and most importantly, I would like to thank my little daughter Aslınur, a gifted EFL learner, who inspired me to delve into researching such a distinct field in ELT.

TABLE OF CONTENTS

ETHICAL CONDUCT	iii
ABSTRACT.....	iv
ÖZ	vi
ACKNOWLEDGMENTS	viii
TABLE OF CONTENTS.....	ix
LIST OF TABLES	xiii
LIST OF FIGURES	xiv
LIST OF ABBREVIATIONS	xv
Chapter 1: Introduction	1
1.1 Background of the Study.....	1
1.2 Statement of the Problem.....	3
1.3 Purpose of the Study	6
1.4 Research Questions	7
1.5 Significance of the Study	7
1.6 Operational Definitions of Terms	10
Chapter 2: Literature Review	12
2.1 Vocabulary Learning.....	12
2.2 Vocabulary Learning with Technology	14
2.3 Vocabulary Learning through Blended Instruction.....	18
2.3.1 Mixed studies conducted with higher level of learners.....	18
2.3.2 High school and secondary school context.	22
2.3.3 Turkish EFL context.....	23
2.4 Individual Differences, Foreign Language Learning and Vocabulary Development.....	23
2.5 Language Aptitude as an Individual Difference and Aptitude Measurement Tests in SLA	28
2.5.1 Language aptitude as an individual difference.....	28
2.5.2 Language aptitude tests after MLAT.	28
2.6 Language Aptitude and Vocabulary Learning	29

2.6.1 Working memory capacity & language aptitude, what is the connection?	29
2.6.2 The mutability of language aptitude.....	31
2.6.2.1 L2 exposure.	31
2.6.2.2 Aptitude-based vocabulary instruction.....	31
2.7 Llama-B and Studies Conducted Via Llama-B.....	32
2.8 Another Individual Difference (Giftedness)	35
2.9 Giftedness in Language Learning	37
2.10 Giftedness in Second Language Acquisition	39
2.10.1 Differentiation.	41
2.10.2 Metacognitive strategies of the gifted.	41
2.10.3 Epistemological beliefs of the gifted.....	41
2.10.4 Vocabulary learning of the gifted.....	42
2.10.5 Gifted EFL learners in Turkish EFL context.	42
2.11 Language Aptitude, Giftedness and Blended Learning	43
2.12 Attitudes of Gifted Learners.....	46
2.12.1 Attitudes towards blended vocabulary instruction.	46
Chapter 3: Methodology	49
3.1 Research Design.....	49
3.2 Setting and Participants.....	51
3.2.1 Participants.	51
3.2.2 Setting.	51
3.3 Procedures	52
3.3.1 Data collection instruments.	53
3.3.1.1 Llama-B scale.....	53
3.3.1.2 Vocabulary pre and post tests.....	53
3.3.1.3 Vocabulary instruction type attitude questionnaire.	54
3.3.2 Sources of data.	54
3.3.2.1 Traditional.	54
3.3.2.2 Blended.....	55
3.3.2.2.1 Quizlet.....	56
3.3.2.2.2 Vocabulary.com.....	58
3.3.2.2.3 Tiny cards-Duo Lingo.....	59

3.3.3 Data collection procedures.	60
3.3.3.1 Llama-B measurement scale.....	61
3.3.3.2 Vocabulary tests.	63
3.3.3.3 Vocabulary instruction type attitude questionnaire.	64
3.3.4 Data analysis procedures.	65
3.3.5 Reliability and Validity.	65
Chapter 4: Results	66
4.2 Readiness Exam Scores.....	67
4.3 Llama-B (Lexical Aptitude) Scores	68
4.4 Vocabulary Pre and Post Test Sores	71
4.5 Usage Rate of Blended Vocabulary Learning Tools.....	74
4.6 Vocabulary Instruction Type Attitude Questionnaire Results	75
4.7. Conclusion	76
Chapter 5 : Discussion and Conclusion	78
5.1 Discussion of Findings for Research Questions.....	78
5.1.1 Discussions of results for RQ1: What are the effects of blended learning on gifted students' vocabulary learning as compared to traditional methods?	78
5.1.1.1. Technology catering for the needs of the gifted.....	79
5.1.1.2. Giftedness.....	80
5.1.1.3. Amount of exposure... ..	81
5.1.1.4. The role of other factors.	81
5.1.2 Discussions of results for RQ2: Does blended vocabulary instruction help enhance gifted learners' lexical aptitude as measured by Llama-B vocabulary learning task?	82
5.1.2.1. Blended learning promoting lexical aptitude.	82
5.1.2.2. The role Giftedness on Language Aptitude.....	83
5.1.2.3. Shifting the instruction towards Giftedness.	83
5.1.3 Discussions of results for RQ3: What are the attitudes of gifted learners towards blended vocabulary instruction?	84
5.2 Conclusions	86
5.3 Pedagogical Implications	87
5.4 Recommendations	89

5.5 Limitations	89
5.6 Delimitations	89
REFERENCES.....	91
APPENDICES	117
A. Pretest/ Post-Test	118
B. Attitude Questionnaire.....	127
C. Traditional Vocabulary Instruction Materials	128
D. Blended Vocabulary Instruction Materials.....	143
E. Edmodo Announcements For Blended Group.....	151
F. Parent/Guardian Informed Consent.....	152



LIST OF TABLES

TABLES

Table 1 Blended (Experimental) Groups' use of digital software in terms of 3 sets .	60
Table 2 Llama-B (lexical aptitude) scores of the Experimental Group before and after the whole (6 weeks) treatment	62
Table 3 Llama-B (lexical aptitude) scores of the Traditional (Control) Group before and after the whole (6 weeks) treatment	62
Table 4 Vocabulary pre and post test scores	64
Table 5 Research variables normality test results	67
Table 6 Difference Test of the Readiness exam scores.....	68
Table 7 Lexical Aptitude score difference test	68
Table 8 Lexical aptitude difference test before and after blended vocabulary instruction.....	69
Table 9 Difference Test of Lexical aptitude scores of each group before and after vocabulary instruction.....	70
Table 10 The difference test of Post Llama-B scores in terms of student groups.	71
Table 11 Difference Test of Vocabulary Pre and Post Tests	72
Table 12 Difference Test of Pre and Post Vocabulary Test Scores in terms of groups.....	73
Table 13 Difference test of experimental group students' usage of Quizlet.....	74
Table 14 Difference test of experimental group students' usage of Vocabulary.com	74
Table 15 Self-esteem and Autonomy scale Descriptive statistics and reliability results	75
Table 16 Usability and Effectiveness scale Descriptive statistics and Reliability results	76
Table 17. Relation between gifted learners' attitudes towards blended learning and their performance in vocabulary development.....	85

LIST OF FIGURES

FIGURES

Figure 1. Research design	50
Figure 2. Use of Quizlet (for Set-1)	57
Figure 3. Use of Quizlet (for Set-2)	57
Figure 4. Use of Quizlet (for Set-3)	58
Figure 5. Use of Vocabulary.com (for set-1)	58
Figure 6. Use of Vocabulary.com (for set-2)	59
Figure 7. Use of Vocabulary.com (for set-3)	59
Figure 8. Illustrations on Llama-B Screen	61

LIST OF ABBREVIATIONS

AO	Age of Onset
BDS	Backward Digit Span
BİLSEM	Bilim ve Sanat Eğitim Merkezleri
BL	Blended Learning
CALL	Computer Assisted Language Learning
CANAL F	Cognitive Ability for Novelty in Acquisition of Language Foreign
CLD	Culturally & Linguistically Diverse (Students)
CM	Computer Mediated
DLAB	Defense Language Aptitude Battery
DMGT	Differentiated Model of Giftedness and Talent
DOD	Department of Defense
EAP	English for Academic Purposes
EFL	English as a foreign language
EL	English Learners
ELL	English Language Learners
ELP	English Language Proficiency
ESL	English as a second language
F2F	Face to face
FL	Foreign Language
FST	Formulaic Sequence Test
GJT	Grammaticality Judgement Test
HILAB	High-Level Language Aptitude Battery
ICM	Integrated Curriculum Model
ICT	Information Communications Technology
ID	Individual Difference
IQ	Intelligence Quotient
K12	Education from Kindergarten to Grade-12
L1	Language 1 (mother tongue)
L2	Second Language
LAD	Language Acquisition Device

LTM	Long Term Memory
MALL	Mobile Assisted Language Learning
MLAT	Modern Language Aptitude Test
PBL	Problem based learning
PD	Professional Development
PLAB	Pimsleur Language Aptitude Battery
PM	Phonological Memory
Project GOTCHA	Galaxies of Thinking and Creative Heights of Achievements
PSTM	Phonological Short Term Memory
RST	Reading Span Test
SBELI	Strategy Based English Language Instruction
SLA	Second Language Acquisition
STM	Short Term Memory
U.S. GATE	Gifted and Talented Education Program
UP	Bahçesehir Schools High Potential Students Program
WISC	Wechsler Intelligence Scale for Children
WM	Working Memory
WMC	Working Memory Capacity

Chapter 1

Introduction

This chapter seeks to provide the background of current study called “The Influence of Blended Instruction on Gifted Learners’ Lexical Aptitude as measured by Llama-B.” by touching upon lexical gains via blended learning. It also tries to explore how effective the blended instruction is for gifted EFL learners in terms of acquiring lexical items when compared to conventional methods.

1.1 Background of The Study

Innumerable studies have been implemented with a view to understand the traits of gifted learners, their overall learning and their cognitive strategies. However, there has been relatively little profound analysis conducted on their foreign language learning. Similarly, Gökyaydin, Bağlama and Uzunboylu (2017) state it was not until 2015 could we see the increase on multidisciplinary studies of social studies and foreign language learning of the gifted. Yet, the numbers are still limited for gaining precise results of the impact of blended learning instruction on foreign lexical aptitude and vocabulary development of the gifted.

In terms of foreign language learning, various studies have been conducted. For the last decade, integrating technology into an EFL class and specifically Blended Learning and its positive effects on vocabulary learning have been matters of concern in SLA. To illustrate, Bielawski and Metcalf (2003) claim that blended learning focusing on the right learning technology to the right person at the right time helps meet learning objectives. Tosun (2015) similarly aimed at investigating how blended learning influenced the vocabulary learning of 40 prep school students aged between 18-20. She found out that as learners were more exposed to learning during blended instruction, it had potential to enhance their vocabulary more when compared to regular in-class learning methods. As Tosun (2015) notes, in contrast with pure e-learning, blended learning offers multifaceted ways of learning to an EFL learner.

Khazaei and Dastjerdi (2011) who investigate the impact of traditional vs. blended teaching on Iranian high school EFL learners' vocabulary acquisition find out that blended group learners outperform traditional ones as the blended content creates a desirable condition to promote their skills.

However, not many studies have explored the outcomes of such instruction applied to the gifted population. This study differs from the others as it involves primary EFL 'gifted' learners with high Wechsler scores who are exposed to blended type of instruction when learning vocabulary.

It aims at making the most of blended vocabulary learning tools in terms of promoting the lexical aptitude of gifted K-12 EFL learners and meeting their needs in terms of enhancing vocabulary in a learning context unflagging interest and enthusiasm. Most of the studies that pertain to blended learning have been conducted with high school or adult foreign language learners. In this respect, researches lagged behind in knowledge about how gifted primary K-12 learners may draw on blended type of instruction when learning vocabulary and hence this research will not only provide significant outcomes for young gifted EFL learners' foreign language learning, but also will contribute to the literature in terms of their attitudes towards blended instruction.

All children are capable of learning their L1 despite their individual differences. However, for a learner to reach a native level of competence in an FL, that is not the case. FL Aptitude as an I.D. has the most significant role in second language acquisition. Therefore, this study is devoted to investigate how foreign language learning aptitude may be affected if the instruction is shifted towards individual differences. Therefore, this study is aimed to investigate the relationship between the foreign language aptitude of primary school gifted learners in terms of vocabulary learning and their exposure to blended type of instruction. It will also contribute to the consideration towards the stability/ innateness of FL aptitude as if questioning Carroll's (1981) suggestion on whether foreign language aptitude is fixed or could be modified significantly. To assess the effects on their lexical aptitude, the widely-used Llama Vocabulary Scale (LLAMA-B) is preferred as a lexical aptitude measurement scale. The digital task assessed how large amounts of vocabulary they could learn in a short space of time. As the scale uses visual stimuli, it is found more age-appropriate

to be used as a language aptitude measurement tool for the relevant primary EFL learners.

Having reviewed the former researches based on the same issue, it is evident that there are no similar studies conducted within the Turkish EFL context to the knowledge of the research. As the number of high potential students increase day by day, the need for providing the best foreign language education for the relevant population seem to be unmet. As gifted learners are unique in terms of learning and thinking, and with the rise of such a tech-savvy population, it is fundamental that we improve their language learning independently at a young age. In this respect, blended instruction caters for improving their foreign language learning as it involves a multi-dimensional, motivational and creative approach with a self-paced system. In this study, gifted primary K-12 learners are addressed to reveal the influence of blended instruction in their foreign language-learning context, which is limited not only in terms of being applied to young gifted learners but also being assessed via Llama-B Vocabulary Scale.

1.2 Statement of The Problem

Although EFL learning of gifted learners is relatively a new concern in our country (Akçayoğlu, 2015), it is possible to reach years of research conducted on the same matter. With this respect, studies conducted on gifted individuals' language learning may be classified in terms of their foreign language development and language aptitude, their foreign language learning through technology and blended learning, and their vocabulary development through blended type of instruction.

First, with regard to language learning of gifted individuals, Passet (2015) examined this issue in a broad perspective considering many aspects. Gökaydin et al. (2017) tried to carry out a content analysis of studies that had covered language learning of gifted individuals so far. Şahin and Schmidt (2014) suggested ways of teaching English activities for the gifted and talented students. VanTassel-Baska (2019) tried to assess gifted students' learning and make up a curriculum study of gifted student learning in the language arts. Başer and Kanar (2014) tried to describe the characteristics of gifted children and suggest solutions for the problems they face in foreign language learning.

Besides, most of the researches that delved into foreign language development and second language learning of gifted students have examined secondary or high school gifted population. As an illustration, Frank and Friedl (1973) explored how 10 to 12th grade gifted students were taught foreign language. Likewise, with the study named “Voices for magic brains” (Akçayoğlu, 2015) it was aimed to explore 11-14 years old gifted students’ experiences in foreign language classroom. Šafranĵ (2019) investigated the effects of cognitive and metacognitive strategies on locus of control and self-efficacy of gifted University level students in EFL learning. Ismail & Abdel-Majeed (2006) examined the epistemological beliefs of 5th-8th level gifted College EFL students compared to non-gifted ones in Saudi Arabia. Additionally, Altun and Yazıcı (2010), referred to the learning styles of gifted secondary school Turkish EFL students. Kaplan- Sayı and Emir (2016), examined the effect of differentiated foreign language instruction on 5th grade gifted Turkish EFL students’ achievement, critical thinking, and creativity. Hayes, Norris, and Flaitz (1998) conducted a preliminary investigation on the oral narrative abilities of 13 year old gifted students. Bain, McCallum, Bell, Cochran, & Sawyer (2010) investigated foreign language learning aptitudes, attitudes, attributions, and achievement of postsecondary gifted students.

Unfortunately, the number of studies that explored young gifted EFL learners’ foreign language learning is quite limited. Pişgin (2014) tried to explore how motivation affected second grade gifted learners’ learning English as a second language. Lindo (2018) tried to explain how English Language Proficiency differences may indicate giftedness among first and fifth grades. Bulut (2010) tried to identify the advantages of applying gifted EFL young learners an enriched program through multiple intelligences theory. Yıldırım and İspınar-Akçayoğlu (2015) investigated the impact of SBELI (Strategy based English language instruction) on young gifted EFL learners aged between 10 and 13.

In addition, many scholars have tried to examine early EFL learners’ vocabulary development in terms of working memory. For instance, Juffs and Harrington (2011) thought phonological memory and working memory played an important role in vocabulary development. Similarly, Kallergi (2015) found out that memory constructs are related to L2 development. Mikan (2012) in a similar manner investigated Verbal Short-Term Memory and Vocabulary Learning. Efsthadi (2019) investigated the role of WM in vocabulary development of EFL learners. Morra and Camba (2008) tried to understand which working memory component predicted vocabulary learning.

However, the number of studies related to language aptitude of young EFL learners is limited. With regard to this issue, the sole scholar to study young learners was Granena (2014) with her study trying to explore whether aptitude played a role in ultimate morphosyntactic attainment in early childhood L2 learners. Therefore, none of the studies related to lexical aptitude of young learners have referred to primary level gifted EFL population so far.

Second, gifted primary K-12 learners, especially the current generation, which has been exposed to technology at a very early age got familiarized with apps and devices much younger than other family members (Song, Murphy and Farley, 2013). With these shared characteristics, they can harness a variety of gains through blended learning, which provides them a potential environment to learn. (Marsh, 2012). Some scholars took a broader view of giftedness and technology. (Bouck & Hunley, 2014). Özcan and Biçen (2016) tried to determine gifted students' opinions on the use of technological tools. Similarly, Swicord, Chancey & Bruce-Davis (2013) investigated perceptions of gifted students on online learning systems. Zimlich (2015) studied the same relation in terms of teachers' perspective. Periathiruvadi and Rinn (2012) examined the same issue, finding a gap regarding the empirical research in this area, with articles on best practices. Umar (2014) tried to explain the effects of blended learning method on gifted students' academic achievement, critical thinking abilities and creativity.

Del Siegle (2004) accepted the merging of technology in the 21st century as a bonus for gifted and tried to explain how technology embraced 21st century skills. However, the number of studies exploring gifted students' language learning via use of technology or blended instruction is quite limited. Yunus and Kwan (2013), conducted a study trying to explore gifted and talented students' use of Web 2.0 tech when learning a foreign language and their experiences with regard to such instruction. Another study related to gifted learners' foreign language learning through technology was of Tai and Chen (2015) which involved exploring English proficiency of 6 gifted EFL 7th grade students using Voicetube online learning program.

Third, no matter what the instruction type is, without learning vocabulary it's impossible to learn a language. Likewise, Wilkins (1972) states "without grammar little can be conveyed; without vocabulary nothing can be conveyed"(p.111-112) Lewis (1993) goes further saying, "lexis is the core or heart of the language" (p.89). Furthermore, as Schmitt (2010) says, "learners carry around dictionaries and not

grammar books” (p. 4). Hence, vocabulary learning, which is the fundamental component of both native and foreign language learning needs to be analyzed thoroughly. When it comes to vocabulary development of EFL learners, numerous studies explored the relationship between blended type of instruction and vocabulary development within a higher level of context. Some researches have been conducted at university level (Ebadi & Ghuchi, 2018; Tosun, 2015; Damayanti & Sari, 2017; Masita, 2020; Cartner, 2009; Alamer, 2020; Djiwandono, 2013; Hassan, 2010, Kim & Kim, 2019; Alshwiah, 2009; Vasbieva, Klimova, Agibalova, Karzhanova, & Bírová, 2016; Bakhtiyar, 2017; Djiwandono, 2013; Markanastasakis, 2019; Alameh, 2018; Mashhadi & Jalilifar, 2016; Karaaslan and Kılıç, 2018, Burston, 2012). Others have been carried out at secondary and high school levels (Khazaei & Dastjerdi, 2011; Krishnan & Yunus, 2019; Pazio, 2010).

However, no specific study exploring gifted primary EFL learners’ vocabulary development referred to ‘blended instruction’. As an illustration, Ragatz (2015) tried to explore the use of games on vocabulary learning of primary gifted EFL learners and their attitudes. Even though her study was conducted at primary level examining gifted learners, it did not involve blended instruction; instead, it focused on non-digital games in the classroom. Similarly, Gallagher (2017) investigated 493 6th and 7th grade gifted students’ abilities to recognize, use, and recall vocabulary yet not through blended learning but via a middle school vocabulary program with a different instructional paradigm.

Last but not least, although blended learning and EFL learning of gifted individuals has long been researched and turned out to be a matter of interest in teaching all around the world, it is quite surprising that no other study referred to the effects of Blended Instruction on the lexical aptitude of gifted primary K12 learners. That being the case, the current study aims to present the influence of blended vocabulary instruction on gifted primary learners’ language/lexical in a private EFL context.

1.3 Purpose of The Study

Recent studies have shown that there has been a steady increase in the integration of technology in the language learning of ‘the gifted’ and the results depicted that the use of technology in gifted language learning has become widespread and apparently

gifted language learning has been positively influenced by the integration of technology. (Özcan & Biçen, 2016)

Therefore, given these positive affordances of technology, the purpose of the study will be to discover how vocabulary learning process of ‘the gifted’ may be facilitated through the use of blended learning in a private K12 EFL class. It will also try to measure the effects of blended learning instruction on gifted EFL learners’ lexical aptitude in terms of Llama-B Scale; (lexical aptitude test) which has loosely been built on the MLAT (Carroll & Sapon, 1959) with linguistic materials revised from British Columbian indigenous language. As it is one of the most robust tests of Llama scale, it is expected to predict the vocabulary/ lexical development of the participants in this study.

1.4 Research Questions

This study seeks answers for the following questions;

1. What are the effects of blended learning on gifted students’ vocabulary learning as compared to traditional methods?
2. Does blended vocabulary instruction help enhance gifted learners’ lexical aptitude as measured by Llama vocabulary learning task?
3. What are the attitudes of gifted learners towards blended vocabulary instruction?

1.5 Significance of The Study

Currently, most of the studies have shown that technology based foreign language materials have been quite beneficial for foreign language learning (Smidt & Hegelheimer, 2004; Pazio, 2010; Khazaei & Dastjerdi, 2011). In contrast to sole digital learning, blended learning provides a learning environment which offers both face-to-face teaching and technology-based instruction. According to what Marsh (2012) says, blended type of instruction can be sustained through using right strategies, supplying pedagogically sound learning materials, creating a supportive online community, providing online collaboration as well as student centered learning in the classroom and managing online interaction. As long as these conditions are provided, it may promise many advantages for foreign language learners.

Vocabulary acquisition is without doubt one of the most significant elements in learning a foreign language. As we all know technology occupies an indispensable part in our lives. Without knowing vocabulary, a language learner cannot survive i.e. have a meaningful communication. It not only supports language skills but also helps forming sentences in meaningful ways. For this reason, vocabulary has a vital role in foreign language teaching.

Blended type of instruction assists learners' vocabulary acquisition in another language in many ways. With blended type of instruction, learners have the opportunity to see many aspects of a word such as its spelling, meaning, phonological representation and grammatical knowledge (Schmitt, 2000). Through the high frequency of encounters and exposures to the written form of the word and its sounds, it makes practice much easier and faster. Besides, as learners produce the word when replying and responding through digital activities, the acquisition of the written form is promoted. By this way students feel more confident and empowered during in-class activities, thus the elicitation process is facilitated. Moreover, deliberate practice through the explicit instruction in class enables them to check their understanding. In class activities also provide them the opportunity to interact with their peers and add productivity with a variety of pace and patterns.

Many studies have revealed the fact that blended learning has positive effects on learning vocabulary. Vasbieva et al. (2016) found out that blended learning instruction made a positive impact on foreign language learners' vocabulary test scores. Similarly, Sherli, Talis, Akib, & Baso (2018) mentioned that blended learning instruction made learners more interested, active and responsible. Likewise, Alpala and Florez (2011) claimed that blended learning made language learners more tech-empowered and active. As Morris (2010) stated vocabulary learning via blended instruction became a prospect for high level of students. Despite the fact that Alpala and Florez (2011) find blended learning in foreign language teaching as an educational challenge, as long as it is applied strategically and effectively, such combination of virtual platforms along with face-to-face learning environment offers EFL students a variety of activities to engage full of different types of interactions. Therefore, blended learning can be an optimum learning model for learning vocabulary in SLA.

With such an advancement in technology all around the world, it is possible that learners with individual differences like 'gifted' students can play an active role in

using technologies for learning a foreign language and developing their vocabulary, which will further open them the doors to the worldwide educational opportunities. As Passow and Frasier (1996) states, people need to understand language so as to communicate; on the other hand, for gifted people, superior language skills are needed for the media of language expression.

Besides, through blended learning, it is possible for teachers to guide ‘gifted’ students through leading them to inquire rather than get them directly respond to their questions. Gifted learners in that respect just like craving to make sense of the world with their curiosity can use technology as a tool to meet their language needs. In addition, with their high level of interest in reading, high degree of concentration and preference for independent work, blended learning instruction can facilitate their vocabulary learning extend well beyond into a fascination with words and their relationships (VanTassel-Baska, 1998). Moreover, through blended instruction, the challenges they face when learning a foreign language may be trivialized. Unquestionably, these learners with their high potential will make high contributions to our society. Therefore, they shouldn't be overlooked or neglected. As mentioned before, in order to meet their gifts and needs in language learning, technology offers unique ways. At higher levels, substantial vocabulary may even provide them access to academic opportunities, college admissions and grants. Hence, it is a necessity for gifted students to practice building their vocabulary in a foreign language from Kindergarten through grade-12 (Gallagher, 2017).

Although teaching vocabulary to gifted learners through blended learning is not totally a new trend, studies regarding this field are limited to EFL learners rather than gifted primary school students. Researches that directly refer to gifted students’ vocabulary outcomes are quite limited. (VanTassel-Baska, Quek, & Feng, 2005; Oh, Hailey, Azano, Callahan, & Moon, 2012; VanTassel-Baska, Johnson, Hughes, & Boyce, 1996). Recapitulating what has been researched so far, we can draw a conclusion that, little is known about how to cultivate primary gifted learners’ vocabulary learning through blended type of instruction.

In spite of the fact that these researches have provided insights on how to vary vocabulary instruction for the gifted, none of them provides the basis for the knowledge on how gifted students at primary level may enhance their vocabulary learning via blended type of instruction. Therefore, this study is aimed to fill such a

blank in SLA and to suggest ways for harnessing blended type of instruction for enhancing gifted EFL learners' vocabulary development.

Accordingly, this study will try to explore the relationship between blended instruction and lexical aptitude. It will try to seek answers to the question if blended instruction can affect gifted primary learners' L2 aptitude or how such instruction type can enhance their lexical aptitude. Unfortunately, studies based on language aptitude of primary learners (Granena, 2014) or gifted population (Bain et al., 2010) are quite limited as well. Therefore, this study is believed to shed light to foreign language instruction of gifted population and contribute to the issue of their lexical aptitude measurement in terms of Llama-B.

That being said, this study seeks to explore the effectiveness of blended instruction on primary EFL K12 learners' lexical aptitude. It also seeks to determine how such instruction affects their lexical aptitude in terms of using Llama- B vocabulary scale. Moreover, it aims to explore these learners' attitudes towards blended vocabulary instruction.

1.6 Operational Definitions of Terms

Language Aptitude: Language aptitude is accepted to be one of the major individual differences in formal language learning. It refers to the prediction of how well some learners can achieve learning a foreign language in a given amount of time and under necessary circumstances (Stansfield, 1989). According to L2 aptitude scholars, proficiency in one's own language, IQ and FL aptitude partially overlap (Ortega, 2013). In this study, it is suggested that blended type of instruction may influence gifted primary foreign language learners' language aptitude in a private K-12 context; which will be measured by means of Llama-B.

Llama-B: A vocabulary measurement scale to assess learners' lexical abilities to learn large amounts of vocabulary in a short amount of time (Artieda & Muñoz, 2016). It is a correspondence of MLAT Paired Associates Task. In this study Llama-B is preferred to measure the language aptitude of gifted primary EFL learners rather than MLAT task; which is found appropriate for higher level students (grades 9 to 12).

Gifted: In the current study, giftedness will be referred in terms of an individual difference (I.D.). Gifted learners here are used as the participants who have undergone

through the screening process and recognized as gifted and are nominated to demonstrate accelerated lexical growth when exposed to blended vocabulary instruction in a private K-12 context. Therefore, to specify the scope of this research it will not refer to the linguistically gifted hyperpolyglots, savants, foreign language high achievers or maximally advanced multilinguals. Rather, these gifted EFL learners will refer to primary school EFL learners with adequate Wisc intelligence scores. The eligibility requirements of these learners have been met in terms of these scores and these learners are accepted to be gifted or highly talented rather than being a super language learner.

Blended learning: It is mainly defined as the combination of face to face instruction with technology-integrated instruction (Bencheva, 2010; Driscoll, 2002; Oliver & Trigwell, 2005; Whitelock & Jelfs, 2003). It can also be defined as the combination of various pedagogical approaches to gain optimum success in education, the combination of several technological means to acquire educational objectives and the combination of instructional technology with tasks. (Bencheva, 2010; Driscoll, 2002; Oliver & Trigwell, 2005; Whitelock & Jelfs, 2003). As Marsh (2012) says, blended learning of today, although seemed to be a new terminology, is an outcome of efforts that try to provide a rich learning environment for language learners via new technology. According to Erşin (2011), such type of instruction addresses different learning styles and needs. Accordingly, in this study blended type of instruction is utilized to meet the lexical needs of gifted primary EFL learners.

Chapter 2

Literature Review

This study aims to explore the impact of blended learning vocabulary instruction on gifted primary EFL learners' language aptitude. This chapter discusses the notions of aptitude, giftedness, lexical acquisition in the light of the findings of the current literature.

2.1 Vocabulary Learning

Both for learning a foreign language and of one's mother tongue, vocabulary learning is a fundamental component. (Morra & Camba, 2009). As Meara (1980) stated, vocabulary learning was a 'neglected aspect' of language learning in 1970s and 1980s. Researchers at that time mostly paid attention to syntax and morphology so as to reveal facts about universals in languages and language acquisition. However, acquisition of vocabulary today turned out to be one of the most active areas in SLA (Lightbown & Spada, 2013).

There are many explanations for vocabulary acquisition in second language. Scholars have long debated on which type of vocabulary teaching instruction to adopt; explicit or implicit. Many researchers had different points of view regarding this aspect. Ellis (1995) and Nation (2001) supported the view that there shouldn't be a distinction between the two types of instruction as production and formal recognition rely on implicit learning whereas meaning depends on explicit and conscious processes (Nation, 2001).

According to some other scholars, vocabulary learning in second language requires little intentional effort. As an illustration, Krashen (1989) states that reading for pleasure is a great way to acquire important potential source of vocabulary. Still, in order to infer the meaning of a new word from a context, a learner should be familiar with 95% or more of the other words and should have had meaningful encounters of it before recognizing it in a new context. Again, as Gardner (2004) assumes those reading mainly fiction may not encounter the words essential for academic purposes

and those who love to read Science may not find the necessary words for social interaction.

Some researchers examined vocabulary learning in a different way; as an experimental study for revealing individual differences of acquisition of words of early learners in their mother tongue and older children and adults in a foreign language (Morra & Camba, 2009). These scholars mostly focused on controlled way of acquiring new words, such as, manipulating the structure or phonological features of vocabulary. In this respect, Baddeley, Gathercole and Papagno (1998) suggested that phonological short-term memory has a vital role in forming representations of phonological form of new words not only in one's native language but also in foreign language. According to Baddeley's (1986) working memory model, there's a component called phonological loop which specifically provides the retention of verbal information.

Age has been another issue regarding vocabulary development in foreign language learning. "The earlier the better" point of view has long been questioned as typical EFL settings lack the adequate time for primary EFL learners to reach superiority. Still, young learners may show high performance in vocabulary learning in the long run when they get substantial target language exposure (Krashen, Scarcella & Long 1982; Singleton & Ryan, 2004). Nation (2001) in that respect suggests that a foreign language learner needs to encounter with the new word many times before firmly establishing it in memory. Some studies suggest that the range can increase up to 16 times whereas some go further and state that the number can go higher so as to automatically understand the meaning of it when it occurs in a different context. (Lightbown & Spada, 2013) Similarly, Hulstijn and Laufer (2001) and many others state that EFL learners' vocabulary acquisition is promoted when they are fully engaged in activities that involve careful attention and productive tasks. Therefore, unlike learning mother tongue, effective vocabulary learning in second language learning needs to involve repetition and multiple exercises and active engagement.

Similarly, Singleton and Ryan (2004) and Muñoz (2010) believe that FL learners are 'part time' learners and do not receive sufficient contact times at the target language in the long term (Pinter, 2007). For this reason, we need to support these early learners with intensive L2 exposure and plenty of opportunities to learn vocabulary in various settings. In this respect, to maximize the amount of exposure

and to meet the vocabulary needs of these FL learners, this study offers blended vocabulary-learning instruction; which forms the equilibrium between face-to-face instruction and technology assisted language learning.

Accordingly, gifted learners, when given the opportunity can acquire amazing amount of words a day; which depends on their ability level. This can also affect their future learning and educational success. (Baker, Simmons & Kame'enui, 1995). Correspondingly, this study seeks to find ways to understand how blended learning may promote vocabulary development of the gifted in a private K12 EFL class and will try to measure the effects of such instruction on gifted learners' aptitude. It is expected that such a study that correlates the language aptitude and the blended EFL instruction within a gifted learning context will redound to novel findings on gifted EFL teaching/learning and vocabulary instruction via blended education tools. The outcomes of the study are expected to be of interest not only to EFL context in terms of blended vocabulary teaching and learning but also to education planners, differentiated curriculum designers, and educators who specifically specialize in teaching gifted language learners.

2.2 Vocabulary Learning With Technology

Without doubt, so as to be competent in a language one has to acquire sufficient vocabulary knowledge. Vocabulary is a salient component of learning language proficiently. Harmar (1993) states; "If language structures make up the skeleton of the language, then it is vocabulary that provides the vital organs and the flesh" (p.153). Unlike Meara's perception of vocabulary in 1970s and 80s, with the globalization and internationalization, vocabulary learning today is receiving increased emphasis in SLA. This may be due to the research efforts of linguists or the exciting opportunities opened up by technology. Foreign language teachers all around the world utilized different types of technology; Computer Assisted language learning (CALL) (including MOOCs), Mobile assisted language learning (MALL) (including SMS messages, Tablets and Video Captioning), and Blended (which will further be discussed thoroughly in the following chapter), to encourage their students and meet their needs in terms of vocabulary.

There are various examples where vocabulary learning of a foreign language learner is enhanced through Computer Assisted Language Learning Technologies (CALL). Although integrating computer technologies into foreign language learning context is still seen as “an alternative game” or as “a reward” to complement the lesson, (Turbill & Murray, 2006, p.97), the need to investigate the effects of computer technology on vocabulary development has been a matter of interest among several researchers (Aust, Kelley, & Roby, 1993; Brett, 1998; Davis & Lyman-Hager, 1997; Plass, Chun, Mayer, & Leutner, 1998). In this manner, Wu and Huang (2015) tried to explore the effectiveness of computer software technologies into vocabulary development of second grade students. Her mixed method embedded research design posttest results revealed the fact that primary learners were more engaged in activities through technological software when compared to traditional instruction.

In terms of adults’ foreign language learning, several studies were conducted to explore what kind of strategies they referred to when acquiring vocabulary. For instance, for facilitating the comprehension of academic lectures full of unknown vocabulary, which is quite challenging for adult learners, practices of CALL contributed to 24 adult learners within the academic context (Smidt & Hegelheimer, 2004). Their findings were classified in terms of gender and strategy use. According to the results of their study, advanced learners used not only metacognitive but also cognitive learning strategies whereas intermediate and lower-level students resorted to cognitive strategies. Besides female learners preferred more cognitive strategies while male ones used more metacognitive ones. Another example for Vocabulary acquisition via interactive computer-based texts was of Tozcu and Coady (2004). Regarding the results of their study with 55 intermediate level University academic preparation class students, it is possible to state that integrating technology in the foreign language learning classes for vocabulary development has positive implications.

In addition, for adult learners, Massive Open Online courses (MOOCs) produced a tech revolution with providing audio-visual teaching content. They offer such content for massive number of users around the world to benefit both collaboratively and at their own pace. These innovative courses have been the subject of Chacón-Beltrán’s (2018) study. It focused on 736 Spanish-course participants’ language learning strategies of vocabulary learning. The results revealed the fact that, during the 8- week course, these adult learners with diverse backgrounds used a wide range of strategies

and hence improved their vocabulary significantly and became more familiar with the 1000 commonest English words.

With the emergence of Mobile Applications, there was a transition of foreign language teachers starting to explore the opportunities of integrating such technologies into their classroom in order to enhance their learners' practice of vocabulary. As an illustration, Taj, Ali, Sipra and Ahmad (2017) conducted a quasi-experimental study, which made use of both mobile phones through WhatsApp application (MALL) and Vocabulary flashcards via PCs (CALL). The study which was based on pre-test and post-test control group design, including a six-week treatment of 122 University preparatory class students, contributed to the Saudi Arabian context in terms of helping learners' EFL vocabulary development and making them engaged and motivated.

Using Mobile Apps started to become a panacea for the active engagement of EFL learners with their real-time response and instant feedback system. They not only promote academic achievement of foreign language learners but also enhance retention. So far, they have been approved to positively influence vocabulary learning (Zhang, Song & Burston, 2011; Kalyuga, Mantai & Marrone, 2013; Ağca & Özdemir, 2013). Recently, mobile apps are used as an essential component of vocabulary learning. Yükselir (2017), so as to increase awareness of mobile assisted language learning (MALL), collected qualitative research results and presented a meta synthesis of these studies. He used thematic analysis and some themes were identified and analyzed in line with the data. According to his findings, mobile learning not only contributed to skills such as listening and speaking but also affected vocabulary learning and pronunciation of the learners positively. Similarly, Wu and Huang (2017) through their quasi experimental research on App assisted English vocabulary learning found out that App assisted vocabulary learning efficiently improves the spelling of junior high school students. Regarding the perceptions of students; they felt satisfied and positive about using it. Likewise, Al Buraiki and Al-Hamdani (2017) with group of 47 students in the Omani school context, found out that using supplementary online activities through Socrative App improved the vocabulary acquisition of foreign language learners.

SMS messages were also applied as a part of mobile technology in foreign language vocabulary learning. (Lu, 2008; Thornton & Houser, 2005; Zhang et al., 2011). Song and Fox (2005) with their mixed design pilot study conducted with Hong

Kongese adult learners, found out that learners had significant improvements in their vocabulary performance and showed positive attitudes towards SMS technology through m-learning (Mobile Learning). They highlighted many aspects of SMS technology including accessibility, immediacy, transportability, engagement, and push.

Tablets also played important role as a part of MALL in learning vocabulary in the target language. (Chapelle, 2001; Ellis, 1995; Fotos, 2001; Kitade, 2008; O'Brien & Levy, 2008; Salaberry, 2001; Zhao, 2003). Accordingly, Taghizadeh and Porkar (2018) explored the effectiveness of flashcards vs. tablets or SMS messages with 45 Iranian advanced level university students. The results of their mixed design study revealed the fact that the group working with tablets had the highest mean score on the posttest and reported that working on tablets made them motivated and their learning more efficient. On the other hand, the group using SMS messages found the method troublesome due to the tiny screen of the phones and stated that they would rather receive emails than SMS messages. The ones working with flashcards argued that these cards could be used on the move and supported flexible learning.

Video Captioning through mobile devices has also contributed to vocabulary learners' performance in a foreign language (Aldera & Mohsen, 2013; Hsu, Hwan, Chang, & Chang, 2013; Mohsen, 2016; Stewart & Pertusa, 2004; Winke et al., 2010). Mahdi (2017) with his experimental study making use of YouTube examined 34 Arab EFL students' vocabulary learning as well as pronunciation and attempted to examine the efficiency of keyword captioning specifically and reached the conclusion that keyword captioning improved learners' performance better than full video captioning.

Another study by Lee et al. (2014), tried to determine the outcomes of instructional differences between three groups of Taiwanese Senior High School and undergraduate students. The first group was exposed to traditional instruction (a book and an EFL teacher), the second group was taught vocabulary via an app on a mobile device whereas the final group was instructed through both an EFL teacher and the App on a mobile device (blended instruction). The results of the mixed-method design indicated that mobile application-based instruction enhanced their vocabulary learning both used when independently and when combined with an EFL teacher. This study will lead us to the significance of Blended type of instruction which will further be discussed in the following section in a more detailed way.

2.3 Vocabulary Learning Through Blended Instruction

There have been numerous studies on teaching vocabulary by means of blended instruction. This method has offered convenient ways for EFL learners to have access to learning not only in the instructional domains but also at home at school or on the go. Blended vocabulary learning not only enables foreign language learners to acquire new words in a context where they would like to select and practice but also contributes to their language production with the facilitation process of a trained instructor. This approach, defined as a combination of face-to-face classroom component with online instruction (Osguthorpe & Graham, 2003) has been beneficial for EFL learners' vocabulary learning in many aspects. It met the needs of higher education learners and ensured active engagement of them by integrating a variety of technological devices which fits 21st century skills (including the positive influence that has specifically taken place in Turkish K-12 context) which will be discussed in this section.

2.3.1 Mixed studies conducted with higher level of learners. As for the higher-level context, Vasbieva et al. (2016), through a qualitative research conducted with 22 Russian University level students being exposed to blended type of instruction at the rate of about 4 hours per week, found many favorable results. Upon having undergone two months exposure, they were given the posttest. The results of the study revealed the fact that blended format produced positive effects on these undergraduate EFL learners' results. They furthermore stated that these students achieved great learning outcomes by the end of the blended format program and added that it promoted their independent work at their own pace.

Similarly, Masita (2020), through her case study including 30 Indonesian University level EFL students conducted a quan-qual model analysis involving an interview and observation, reached the conclusion that blended vocabulary instruction created optimal learning environment when compared to traditional teaching environment and increased student interest and promoted student independence and finally helped learners stay abreast technological developments. Likewise, Pazio (2010) with her case study investigated the effectiveness of blended instruction and measured it in terms of expanding vocabulary knowledge. In her study a native speaker of English and the Polish learner of English exchanged emails on certain tasks without

time limit; which was the asynchronous computer mediated communication part. There was also deliberate vocabulary practice based on the items chosen from this correspondence. Her study findings revealed the fact that email correspondence assisted students with promoting their vocabulary skills, improving their spelling, adding complexity to their writing.

Hassan (2010), explored the effects of computer aided vocabulary learning software on Egyptian University level students' vocabulary acquisition. The results of Arabic language and literature students whose ages ranged from 19 to 29, showed a significant increase; which proved the effectiveness through explicit teaching. Besides, the majority of learners reported that they found such instruction quite positive as it involved different contexts, prompt feedback, multiple word retrieval, recognition for comprehension (Hassan, 2010). They also added that the software facilitated their learning process; which also supported the view that technology is an undetached part of SLA pedagogy.

Djiwandono (2013), reported a small-scale exploratory research on the influences of blended learning instruction on Indonesian University level EFL learners' vocabulary development. 21 students were involved in the process of 100 minutes of class time every week. In addition to regular intentional learning they had a vocabulary profiler to access the materials. They were also requested to demonstrate their texts full of new words on a blog for their classmates to learn. Posttest and questionnaires were used and the measured gains showed that they had large enough gain on the mastery of new words despite a slight decline from the first test scores and the later ones. Their responses to the questionnaires demonstrated that most of them favored the new approach. The same scholar Djiwandono (2013), through another small scale exploratory research tried to find out the potential of Facebook on learners' mastery of new vocabulary. Similarly, 25 Indonesian freshman University students took part in the study. Upon being administered a pretest, they were assigned an online task in line with their initial vocabulary mastery. The face-to-face interaction assisted them to get over the challenges and facilitate the process. As a result of their scores, it was clear that they performed significantly higher when acquiring new words. The questionnaire responses varied, though. The majority still thought they needed face-to-face interaction to complement the online process and to clear up some issues. Still,

some of them picked the online session thanks to its efficiency. Passive learners on the other hand showed higher participation rate.

Ebadi and Ghuchi (2018) also investigated the effects of blended learning strategy in enhancing Iranian University level students' vocabulary performance via Memrise application. Students had no prior experience on blended learning. To this end they randomly divided 40 FL learners into two groups; the traditional and the blended one. Qualitative and quantitative data collection tools were used and the semi structured interview followed their study. The results showed that there was a significant difference between the two groups. It was clear that blended learning strategy developed University students' vocabulary performance. The findings also demonstrated the fact that students had positive attitudes towards blended instruction.

Zhang et al. (2011) reexamined the effectiveness of vocabulary learning via SMS text messages. This blended type of instruction was applied to two intact classes of Chinese University sophomores. There were two groups with two different instruction types; vocabulary learning with technology and without technology. The result of the study showed that there is a significant difference in the posttests but not in the delayed tests. The study further concluded that both methods were effective in their own way as the retention rates declined when the exposures became less frequent.

Alameh (2018), examined the lexical relations among target vocabulary items via blended learning approach. This study used an experimental approach to analyze data as well as a questionnaire. Triangulation was also employed. 60 students sharing the same social educational background were used for the experiment. The experimental group was exposed to 4-week blended learning strategies so as to study target vocabulary items. The results of the study indicated that Lebanese International University students were significantly affected by vocabulary learning through blended instruction. Therefore, students exposed to online and in-class activities showed higher performance in identifying the lexical relations among target vocabulary items. As for the qualitative analysis of the study, the majority of students either agreed or strongly agreed that they performed better in identifying lexical relations among target vocabulary when exposed to blended type of instruction.

Mashhadi and Jalilifar (2016), through their experimental study tried to understand the impact of podcasts on Ahvaz Junishapur University EFL learners' vocabulary development. They randomly divided volunteers into 3 different scenarios

in terms of Vocabulary Levels Tests; self-study learning, conventional learning and podcast-mediated blended learning approach. They were exposed to 32 sessions. The data was analyzed both descriptively and inferentially. Learners were also assigned a questionnaire and an interview to ascertain their attitudes. In terms of the quantitative data, learners were prodded to study more when podcasts were integrated into their learning. Learners admitted that they were more engaged with the integration of podcasts. Researchers concluded that podcast mediated blended vocabulary instruction was the most effective among all types of scenarios.

Damaiyanti and Sari (2017), with their action research, tried to explore how students' vocabulary by blended type of instruction could be improved in Politeknik Negeri Padang University. They made use of instruments like observation, field note, and interview for the descriptive qualitative analysis. Students' test results were collected for the quantitative data analysis. The research was performed in two cycles. Students' participation increased after conducting the second cycle. Similarly, the vocabulary scores also significantly increased. Edmodo was used as an LMS system to transfer the necessary online learning materials. Students got involved in classroom discussions more often than expected. Those who occasionally referred to their mother tongue; the reluctant ones, contributed in online group discussions. Students also felt enthusiastic as the instruction was based on Internet and the online class was a novel experience for them.

Alshwiah (2009), explored the effects of blended learning instruction when teaching vocabulary to Premedical students'. In his research, 50 students were selected as participants. These students were randomly divided into two groups upon being employed English language entry exam. Besides, the research instruments included AGU Arabian Gulf University attitude towards English language and Satisfaction with the unit scales. Data analysis uncovered the fact that there was no statistical difference between the experimental and control group test score performance in terms of having online instruction. This was assumed to be caused by the lack of administrative support or students' unawareness regarding the long-term benefits of using digital materials. The experimental group, though, showed great amount of satisfaction towards the online unit.

Kim and Kim (2019), examined the effectiveness of input enhanced versus output enhanced instructions on vocabulary as well as grammar gains in blended

learning. Input enhanced instruction (processing instruction) was conducted in comparison with output enhanced instruction (dictogloss) in blended classes. 90 Korean University level students were assigned to three different classes in terms of; meaning-focused instruction, input enhanced group and output enhanced group. The meaning-based group was exposed to video clip watching without input or output treatment in both traditional and blended instruction, the input enhanced group on the other hand was exposed to audio tweaking enhancement techniques whereas the last group performed dictogloss tasks both on and offline. In terms of grammar gains, the input group surpassed both meaning based and dictogloss group. However, the dictogloss group outperformed both groups in terms of vocabulary gains. According to the results gleaned from this study, researchers suggest that because of lack of vocabulary and grammar, University level students have challenges to cope with authentic English materials; which will further provide the basis of their academic learning in the long run.

2.3.2 High school and secondary school context. In terms of secondary school context, Krishnan and Yunus (2019) explored 14 low proficient secondary school Malaysian Students' CEFR vocabulary development via blended instruction through both qualitative and quantitative data analysis. Their findings revealed the fact that blended instruction not only improved low proficient students in terms of CEFR vocabulary knowledge but also kept them motivated and promoted their autonomous learning.

Khazaei and Dastjerdi (2011), explored the impact of blended teaching instructions on Iranian high school juniors' L2 vocabulary development. Upon being assigned Nelson English language test, 60 learners were selected in terms of language proficiency. These learners were divided into two groups with regards to having traditional and blended mode of teaching instruction. Afterwards, they were assessed with reference to their recall and recognition of lexical items through a vocabulary level test, English Vocabulary Recognition and Recall test and an open-ended questionnaire. Based on the results, it could be stated that the blended group outperformed the traditional one. The findings of the study were in congruence with the claim that appropriate use of SMS assisted language learners enhance their

vocabulary. Besides, they found out that the application of SMS to L2 vocabulary enhancement process could create a desirable condition for EFL learners.

2.3.3 Turkish EFL context. Within Turkish context, Tosun (2015) conducted a mixed method- design study on Blended learning approach and its effects on EFL students' vocabulary enhancement. Her study involved 40 university level prep school students being exposed to intensive English instruction. Upon administering paper based vocabulary test, it was clear that the experimental group had many advantages when compared to the group who had face to face instruction. As for the qualitative data analysis, students were satisfied with blended strategy and preferred it to the traditional based one. However, her study suggested far better implementations of the process proposing digital tools in accordance with students' needs and interests and the needs for provoking their curiosity and authenticity to make e-learning a more powerful option.

As could be seen from the researches so far, to the author's knowledge, no other study has been conducted on the effects of blended vocabulary instruction on gifted primary learners within Turkish EFL context.

2.4 Individual Differences, Foreign Language Learning and Vocabulary Development

It is a widely known fact that some learners acquire second language or a foreign language more easily than others. In foreign language classes we encounter some successful examples regarded as 'having a knack' or 'having an ear' for learning languages (Ortega, 2013). In fact, this almighty attribute could be explained through several factors called 'individual differences'. 'Research findings so far have supported the idea that these differences affect learners' foreign language or second language learning to a great extent. Understanding the connection between Individual differences and language learning is of great significance not only for researchers but also for educators. According to Skehan (1991), the most important individual differences to be taken into account when learning a second or foreign language are intelligence, motivation, learner styles, personality, learner strategies, age, and language aptitude. Although these variables seem to be separated from each other and

measured independently they may also be regarded as interdependent as in some circumstances they may cause one another. In this section, individual differences; intelligence, motivation, learner styles, personality, learner strategies, age, and language aptitude will be examined in terms of their relation to foreign language learning and vocabulary development

With regards to ‘intelligence’, researches over the years have shown that intelligence scores could be a good way of predicting success in learning a foreign language. Studies so far might have shown correlation between reading, grammar and vocabulary. Yet, intelligence seems to be restricted with instructions where there is rule learning. If the classroom instruction is based on communication instead of rule learning, Gardner’s (1992) multiple intelligences would be more associated with foreign language success in school. (Lightbown & Spada, 2013) Throughout the literature, IQ has been correlated with language proficiency, and children with high scores on intelligence tests, generally score high when evaluated in terms of reading and writing (Paradis, 2011). Genesee (1976) explored the correlation between IQ and L2 acquisition of native English speakers learning French as L2 at all grade levels. Similarly, the researcher found that intelligence correlated with reading performance and language usage tests. Nonetheless, the findings revealed that there was no correlation found between IQ and listening and interpersonal communication skills. L2 proficiency and IQ relationship was another concern of the SLA researcher. Sasaki (1993) with his research based on the relationship among three constructs; IQ, L2 proficiency and aptitude showed that only %42 of the variation in L2 proficiency could be related with IQ. A recently conducted research by Pishghadam and Khajavy (2013) also indicated that only 30 % of variance in EFL attainment stemmed from IQ and metacognition. Therefore, intelligence stands to be a limited ID in predicting foreign language learning. The indicated results led SLA researchers to examine relationships between other IDs as well.

As for ‘motivation and attitudes’ as individual differences, it is not quite possible that positive attitudes can guarantee success in a foreign language learning class. However, it is likely to say that when a foreign language learner is motivated, the participation rate is higher. Foreign language teachers, in this respect, can highly contribute to classroom atmosphere in terms of motivation. Gardner and Lambert (1972) refer to two types of motivation; Instrumental motivation (language learning

for instant or beneficial goals) and Integrative motivation (language learning for personal growth and cultural enrichment through interaction with speakers of that language). Although through integrative motivation, a foreign language learner is likely to make more cumulative effort to be a part of the target language community, most of the studies have shown that both types of motivation are related to success. Gardner, Lalonde and Moorcroft (1985) explored how aptitude and integrative motivation influence students' learning rate of English/French vocabulary. Results of the study indicated that EFL learners with high integrative motivation learned vocabulary faster. Tseng and Schmitt (2008), suggested that the dynamic stages of motivation influenced the process of learning vocabulary in a dynamic way as well. There have been several studies, which identified the positive outcomes of the effects of motivation on various aspects of foreign language vocabulary learning. (Elley, 1989; Gardner & MacIntyre, 1991; Fontecha, 2010).

'Learner styles' is a kind of learning preference of an EFL learner at which we need to be skeptical of when applying a single teaching method or using a single course book that suits the needs of all learners in our class (Lightbown & Spada, 2013). Foreign language teachers, in this respect, need to be aware of using the exact vocabulary instruction that matches their learners' style preferences. To illustrate, sensory preferences (visual, aural, tactile, and kinesthetic) of foreign language learners may influence the way they learn vocabulary. A learner with a visual learning style may prefer imagery and semantic mapping, whereas a kinesthetic tactile learner would rather enjoy TPR way of instruction when learning vocabulary. (Oxford & Crookall, 1990)

Researches on the characteristics of personality as an individual difference for foreign language learning produced very interesting results. For example, extraversion seems to be an attribute of successful language learners. However, up to the observations of Fillmore (1979), introvert learners willing to observe are higher achievers in terms of foreign language learning. The aspect of anxiety is also controversial when measured as a permanent feature of personality. Besides, as MacIntyre (1995) puts forth, being nervous would hinder foreign language learners learning when compared to relaxed ones. However, anxiety is also a dynamic feature of a foreign language learner, i.e. a learner might feel anxious or stressed when delivering the speech in front of the whole class but feel confident and relaxed during

classroom interaction. (Lightbown & Spada, 2013). Thus, the feeling of anxiety might be context specific. Much of one's personality is stable and does not change. In terms of 2nd language vocabulary learning Covner-Crockin (1981) classified 13 students with various ages. They took Myers-Briggs Type Indicator in order to be grouped in terms of their personality types; extroversion or introversion, sensing or intuition, thinking or feeling, and judging or perceiving. During a 10-week study, they found out that students with intuition types did better at developing their vocabulary, than those with sensing personality types. They reached the conclusion that one's personality is associated with the expansion of their vocabulary. Therefore, each learner with different personality respond to the same input in a variety of different ways; with their own perception and interpretation of the world (Grace, 1998).

‘Learner strategies’ are also accepted as individual differences in formal language learning. There have been many studies regarding learning strategies. In 1970s, five general strategies of very successful learners were identified by (Naiman, Frohlich, Stern & Todesco, 1978). Their description regarding the strategies of a successful language learner are as follows; holding an active task approach, being aware that language is a system and used for communication, being able to get over affective challenges in language learning and having the capability to observe his/her own progress. These findings were all reached through questionnaires. However, the findings of 80s and 90s were mostly based on less-structured data collection techniques trying to discover the metacognitive, cognitive and social strategies of languages users. Chamot and Kupper (1989) added another perspective on how to approach learner strategies. They thought one must focus on choosing the right strategy for the right occasion rather than the number of strategies used when learning a foreign language. In this manner, the most important aspect that needs to be taken into account regarding learner strategies is that decision-making capacities of foreign language learners need to be improved. (Skehan, 1991) As for vocabulary learning, a variety of learning strategies (analytical or holistic) full of input/ output opportunities need to be demanded, for a vocabulary learner to choose.

The ‘age’ of starting a FL, has been an important factor at the heart of SLA in terms of individual differences. As Lightbown and Spada (2013) state, children of immigrant families mostly have native-like fluency. Scholars tried to explain the superiority in a foreign language in terms of age group. However, this has also led to

many discussions as there were still contradictory findings as in the case of early learners. Those accepted as early bilinguals were more advantageous and exhibited superiority as they learned the language in a natural setting and had an earlier arrival in the L2 community. Yet, according to various studies, older learners were found more competent learners with respect to their explicit learning abilities and cognitive maturity (Cenoz 2003; Lecumberri & Gallardo 2003; Muñoz 2003, 2010), advanced speaking abilities (Krashen, 1985), or more complex learning tactics (Oxford, 1989). Therefore, just as there is critical period for first language acquisition, there is a critical period for second language acquisition as well. (Critical Period Hypothesis) However the function between learners' age and their exposure to second language input is non-linear. There are many examples where we see adult second language learners who come to achieve high level of proficiency. However, when language learning happens after the end of the critical period, language learners do not rely on their innate abilities as they did in their early childhood. They rather depend on their skill or information-based abilities. It is believed that critical period ends either around puberty or earlier. There is another belief that there could be multiple critical periods linked to different phases of language learning. Age is closely related to another variable; 'language aptitude'. Thus, language aptitude needs to be taken into account so as to clarify the debates on age.

In this study the focus area will be on 'language aptitude' as the most influential individual difference. Language aptitude focuses on a talent for acquiring new languages. The term is considered to be stable and differs among people. However, it has long been confused with two other terms 'ability' and 'achievement'. Although they were differentiated by Carroll, the evaluation of achievement overlapped with the measurement of aptitude. Aptitude differed from the other terms as it indicated the initial condition of a person's readiness, willingness and competence for learning a foreign language (Skehan, 1991). Through Carroll's (1959) Modern language aptitude test (MLAT), aptitude gained more importance in 1960s. Carroll (1959), added 5 different components to the term; phonemic coding ability, associative memory, grammatical sensitivity, and inductive language learning ability. Skehan (1986) contributed to the aspect with differentiating language aptitude profiles; analytic and memory-oriented learners. As long as each profile is met in terms of its strength, it is

possible to reach success in foreign language learning. Language aptitude will be mentioned thoroughly in the next section.

2.5 Language Aptitude As An Individual Difference and Aptitude Measurement Tests In SLA

2.5.1 Language aptitude as an individual difference. Some people learn a foreign language with a greater ease and achieve higher results. Language aptitude has been a widely studied phenomena to understand the reason why these people learn languages better or at a faster pace/rate. Dornyei and Skehan (2003) define language aptitude as the capability of learning foreign languages which shows difference among learners. Granena (2012) suggests that aptitude may differ from one child to another.

As mentioned before, the definition of language aptitude came under criticism by researchers from different perspectives. The behaviorists and cognitivist researchers interpreted it as stable, unaffected and accurately measurable. According to Carroll (1959) aptitude consisted of five different components; phonetic coding ability, associative memory, grammatical sensitivity, and inductive language learning ability which could be measured by modern language aptitude test (MLAT). These measurement tools have been used for more than 50 years and accepted as the most inclusive and accurate ones in terms of election, prediction and classification purposes. These tests are not only used as aptitude assessment tools but also are utilized by government and military institutions when selecting and placing employees for language training.

2.5.2 Language aptitude tests after MLAT. MLAT tests were conducted during the time when language learning was based on grammar translation and audiolingual methods. Pimsleur (1966), added components or what he called; ‘patterns’ of language aptitude which he considered might vary relatively independently. Dr. Pimsleur’s tests, Pimsleur Language Aptitude Battery (PLAB) were used specifically for learners from grades 7-12. His tests also differentiated unsuccessful learners in terms of percentages (20, 10 or 5 percent). Another aptitude measurement test called ‘VORD’, which meant ‘word’ in the artificial language it was based upon, was introduced by Central Intelligence Agency (CIA) and Department of

Defence (DOD) in 1973. The short duration of the test with 57 items predicted a learner's success at Western Indo-European languages. (Celik-Yavas, 2019) Later, 'DLAB' was introduced by U.S. Department of Defence to select the potential military linguists by assessing potential for learning a foreign language. (retrieved from <https://dlabprep.com/>). In 2000, Grigorenko (Thompson, 2013) developed a measurement test and named it as 'Cognitive Ability for Novelty in Acquisition of Foreign Language Theory (CANAL-FT). Through its unique artificial language called Ursulu, it aimed to assess the skill for vocabulary acquisition, understanding long texts, being able to comprehend grammatical rules and making semantic inferences. One aptitude test, 'High Level Language Aptitude Battery and Profile System' (HILAB), differed from the others with respect to its different determination scale. Rather than predicting initial language stage, it enabled the identification of very advanced level of proficiency.

Recently, LLAMA by Meara (2005), through its 4 subtests developed in line with the advancement in changing foreign language learning approaches, proposed a language-neutral measurement scale which could be utilized universally regardless of learners' L1. These tests included; LLAMA-D (Sound Recognition Test), LLAMA-E (Sound-Symbol Correspondence Test), LLAMA-F (Grammatical Inferencing Test), and LLAMA-B (Vocabulary Learning Test). In this research LLAMA-B is selected to measure the lexical aptitude of primary EFL learners. Primary gifted EFL learners tried to remember and pair 20 character names; based on British Columbian native language of Canada, by responding to their picture stimuli. Details on Llama-B and studies conducted via Llama-B scale will be further discussed.

2.6 Language Aptitude and Vocabulary Learning

2.6.1 Working memory capacity & language aptitude, what is the connection? Empirical studies connected working memory and language aptitude when learning vocabulary. Working memory seems to have a positive correlation with vocabulary learning and language aptitude as learning vocabulary in a foreign language requires learners' aptitude to memorize phonological sequence (Degani & Goldberg, 2019). Such process holds a positive association between working memory and vocabulary growth. (Baddeley, Gathercole, & Papagno, 1998; Gathercole &

Baddeley, 1993; Hummel & French, 2010). Therefore, another factor to influence foreign language learning as a part of language aptitude is ‘working memory’. Ellis (1996) hypothesized that working memory capacity could be the most significant variable that affects language learning. What is meant by working memory is the active processing of information in a short amount of time; as it is also called short term memory.

Although memory capacity is considered as a privileged factor of L2 aptitude as a part of vocabulary learning, through recent researches it is possible to find counterevidence. The reason is that, the contributions of memory to foreign language aptitude remains restricted as the language learner ages. According to researchers, once the threshold size of foreign language vocabulary is obtained, learners start to be proficient at grammar gains rather than vocabulary gains. Recent researches show that these learners’ greater memory capacity facilitate other aspects of foreign language learning in the following years. They start to make use of their memory for foreign language grammar (e.g. learning certain rules that involve surface form-form co-occurrence) and for foreign language interactions (e.g. being better at noticing corrections of more proficient interlocutors) Besides, memory span tasks indicate that the significance of working memory (or short-term memory) weakens as proficiency in the foreign language increases. Vocabulary learning is rather enhanced by a more extensive and developed L2 mental lexicon instead of superior memory capacity. In adulthood, learners start to use their analytical capacities for explicit learning whereas their memory for implicit learning. As an illustration, Harley and Hart (1997) stated that different dimensions of aptitude are added as the foreign language learner ages. According to one of the studies they conducted in Canada, in a French immersion school program, early foreign language beginners’ proficiency differences (grade-2) were related to their individual differences in memory, whereas late beginners’ (grade-7) proficiency differences were found relevant to their individual differences in analytical abilities. As Ross, Yoshinaga, & Sasaki (2002) put forth, when the foreign language starting age increases, more school-like factors come into play; such as formal instructional contexts with less natural input and proficiency.

Accordingly, the findings of Yalçın & Spada (2016) study through Llama measurements also diminished the role of working memory as an additional component of aptitude. Yalçın and her colleagues, commented that WMC and

language aptitude despite being moderately related, are separate dimensions which cannot replace each other. Through the findings of their study, they claimed that there are several other factors that need to be taken into account when explaining language aptitude; such as proficiency, or L2 exposure.

2.6.2 The mutability of language aptitude

2.6.2.1 L2 exposure. With the emergence of the communicative approach in 1970s, language aptitude was regarded not as a monolithic factor rather a construct that could be influenced by affective factors. Language aptitude once being accepted as more or less unalterable was now considered to be malleable with the efforts of more exposure and practice. (Singleton, 2017) Although language aptitude is considered to be given to us, our experiences and the power of practice can influence it to a great extent (Vinkhuyzen, Vander Sluis, Posthum, & Boomsma, 2009). Kormos (2013) similarly adds that certain components of aptitude can improve during the process of language learning. As bilinguals are highly exposed to language learning elements, apparently, they have higher capability of using their L2. Eisenstein (1980), reported that bilinguals and students who have higher training levels evinced higher FL aptitude.

2.6.2.2 Aptitude-based vocabulary instruction. Yalçın et al. (2016) also mentioned that the modality of input to be processed affects language aptitude as well. This leads us to the point where we need to be aware that the mode of vocabulary instruction needs to be fitting EFL learners' language aptitude. Thus, applying the right instruction method that fits the foreign language learners' language aptitude is of great importance. As Larsen-Freeman and Long (1991) state "the high-performance results of the language aptitude tests is not an indicator of linguistic ability of a learner but the classroom experience itself" (p.169). According to Wesche's (1981) study which monitored two different instructional programs in which learners were exposed to either compatible or incompatible instruction in terms of their aptitude profile; the results revealed that learners who were sufficiently accommodated in terms of their aptitude profiles attained higher achievement levels than those who were mismatched. Therefore, a fixed type of instruction cannot benefit all learners in the same way and

hence the most significant challenge is to find the exact instructional method that fulfills the needs of each foreign language learner with a variety of aptitude profile. (Skehan, 1991).

Although we admit that foreign language teachers can not refer to ID of each learner on a practical level, applying a single instructional method would deprive learners of their chances for foreign learning (Lightbown & Spada, 2013). However, as Dornyei (2005) expresses, teachers can find ways to assist their learners make the most of their individual preferences when learning a foreign/ second language. Taking the ID of 21st century learners into account, this study selected blended type of instruction to influence vocabulary gains of gifted primary EFL learners. As such, it will focus on the language aptitude of this relevant group and measure it by means of Llama-B; whose relationship to working memory was disconfirmed through Yalçın et al's (2016) research.

2.7 Llama-B and Studies Conducted Via Llama-B

Abrahamsson and Hyltenstam (2008) enumerate the evolutionary process of language learning aptitude. Carroll and Sapon's MLAT- Modern Language Aptitude test was followed by PLAB, DLAB, CANAL-F, HI-LAB and finally LLAMA Language Aptitude Tests of Meara. Llama tests were first designed for Swansea University MA students. LLAMA tests which include four subtests LLAMA_B, LLAMA_D, LLAMA_A and LLAMA_F were supposed to test, respectively; vocabulary, sound recognition, sound-symbol association and grammatical inferencing (Granena, 2014). As Carroll and Sapon's MLAT was basically designed for English learners and assesses their abilities through English to Kurdish word combination, it becomes problematic when language learners with different L1s try to use it. In this respect, LLAMA tests stand out as a panacea by being language neutral. They can be utilized for measuring the language aptitude of any language learners irrespective of their L1.

Within this research, LLAMA_B was selected to assess the vocabulary learning of the young gifted language learners. LLAMA_B, which tests vocabulary aptitude of language learners, uses image sets and allows flexibility with 20 illustrations appearing simultaneously on the language learners' screen. After the initial stage of the test where

learners are shown the names of the illustrations, learners are supposed to identify each appearing picture within two minutes without being restricted in terms of strategies. Learners are given five points for each figure to be correctly identified. Throughout this process learners are not allowed for correction and the total score they can get be maximum 100. The images named by British Columbian indigenous language as well as Central-American language especially motivate young learners when compared to late learners.

There have been various studies which made use of LLAMA measurement scale; in terms of various topics; such as the role of aptitude in relation to age of onset, near nativeness and ultimate attainment (Abrahamsson & Hyltenstam, 2008; Granena & Long, 2013a, Granena & Long, 2013b; Granena, 2014; Forsberg-Lundell & Sandgren, 2013), L2 attrition and L1 effects on L2 learning (Bylund, Abrahamsson, & Hyltenstam, 2012; Cherciov, 2011; Opitz 2011; Bylund & Ramirez-Galan, 2016), aptitude effects at different L2 levels (Artieda & Muñoz, 2016), explicit and implicit aptitude (Granena, 2012; Granena & Long, 2013a; Granena & Long, 2013b; Granena, 2016; Granena, 2018; Yi, 2018), instructed L2 learning and feedback (Yalçın, 2012; Yılmaz, 2013; Jackson, 2014; Yalçın & Spada, 2016; Yılmaz & Granena, 2016; Yılmaz & Köylü, 2016; Yılmaz, Granena & Meyer, 2016; Suzuki & DeKeyser, 2017; Curcic, Andringa & Kuiken, 2019), learning abroad (Larson- Hall & Dewey, 2012; Serrano & Llanes (2015); aptitude, memory, working memory and intelligence (Granena, 2013; Yılmaz, 2012; Yalçın, Çeçen & Erçetin, 2016; Cox, Lynch, Mendes & Zhai, 2019; Milton, 2007), neurolinguistic research (Kepinska, de Rover, Caspers & Schiller, 2017), oral proficiency and aptitude (Saito & Hanzawa, 2015; Saito, 2017, Saito, Suzukida & Sun, 2018; Saito, Sun & Tierney, 2019; Saito, 2019), visually impaired learners' and sighted learners' measure of long-term recognition memory (Smeds, 2015), musical performances (Martens, Nakatsukasa & Percival, 2016), individual differences (Wucherer & Reiterer, 2018; Rogers, Meara, Barnett-Legh, Curry & Davie, 2017), Circadian rhythms and vocabulary learning (de Bot, 2015), and voice recognition of Dutch L1 learners (Drozdova, van Hout & Scharenborg, 2017).

Among these studies, similar to this one, to the author's knowledge, only two researchers conducted a research using specifically LLAMA-B (excluding other LLAMA subtests). To illustrate; Harmick (2015) with his study considering declarative and procedural memory abilities as individual differences tried to

investigate if such memory abilities predicted the retention and acquisition of L2 syntactic structures. In this study, 31 monolingual graduate / undergraduate native speakers of English were selected as participants. Their memory abilities as IDs were measured by means of Llama-B subtest. Participants got exposure to syntactic structures in a semi-artificial language paradigm. Results showed that the correlation between declarative and procedural memory abilities and second language development during intentional learning environment might also correlate in incidental learning conditions. Serrano & Lanes (2015) worked with a group of Catalan / Spanish bilinguals who were aged between 12-17. They spent 3 weeks in the U.K. Their aptitudes were measured by LLAMA-B, examining their rote memory whereas their L2 skills were analyzed by 2 different tests; grammaticality judgment test (GJT) and a formulaic sequence test (FST). According to the outcomes of the study, they found out that not only age but also aptitude had an effect on performance, not in development, though.

Within Turkish EFL context, several studies conducted via LLAMA subtests are a few in number. For example, Çelik (2019) used LLAMA subtests in order to measure the role of language aptitude on foreign language learners' achievement. In her study she used 152 University students aged between 18 and 22. The results of the study indicated that language aptitude has an effect on foreign language learning achievement. LLAMA-B subtest, which determined aptitude profiles of learners, also contributed on determining participants' self-reported strategy use. Another study by Yılmaz (2012), investigated the role of two different types of feedback on working memory capacity and language analytic ability of L2 learners. In his study, 48 adult native speakers of English were randomly assigned into explicit correction, recast and without-feedback groups. The participants were exposed to 2 error treatment tasks conducted by a native speaker of Turkish. Participants' language analytic ability and working memory capacity were measured by a span task and LLAMA-F. Results of the study indicated that explicit correction was more beneficial than recasts as long as the compared groups have high Working memory capacity and language analytic ability. Also, Yalçın et al. (2015), tried to find insights into the misconception of the replacement of working memory with language aptitude. Within their study, 72 Turkish University students with advanced English, were treated in order to find the determinants of language aptitude focusing on Working memory. Learners were

exposed to Reading span task both in Turkish and in English whereas operation span task in Turkish. LLAMA-B was used in order to measure their language aptitude. According to the correlation analysis, WM did not have a correlation with language aptitude subcomponents (except for grammatical inferencing), rather it correlated with language aptitude as a whole. Therefore, the conclusion they reached proved that working memory capacity and language aptitude were two distinct constructs. Yalcin (2012) through her doctoral dissertation, researched the relationship between IDs and two grammatical structures. Within her research with a quasi-experimental design, four hours of grammar instruction was given to 66 secondary school Turkish learners of English. They were instructed two grammatical subjects; past progressive (as the easier) and passive voice (as the harder). Their individual differences were measured by LLAMA subtests, and several other tests measuring motivation and metalinguistic awareness. Grammar Instruction aided each of these learners differently in terms of their aptitude profiles (low, medium and high). For instance, learners with high aptitude outperformed the lower aptitude ones on passive voice. With regards to past continuous, significant improvement was established by only the medium aptitude profile group. The study also revealed the fact that L2 progress did not solely rely on language aptitude, other factors contributed to their growth as well.

Once again, it is clear that no other study within Turkish EFL context made use of LLAMA-B with respect to language aptitude measurement of primary gifted K12 population. Therefore, this study aims to fill the gap and will try to understand the influence of blended instruction on both vocabulary growth and language aptitude of learners and help them utilize LLAMA-B in terms of measuring their language aptitude before and after the exposure.

2.8 Another Individual Difference (Giftedness)

The fact that some learners have higher aptitude for learning and acquire knowledge more rapidly than others is undeniable. SLA research has always attempted to find a way to explain the mystery of why some people learn better or faster while some struggle to develop their language skills (Lightbown & Spada, 1992). Scholars have attempted to explain this oft-asked question through depiction of high language aptitude or advanced learning capacities. They found a way of differentiating these

high achievers or fast learners as ‘gifted’ upon the findings of several scales, such as Weschler scale. According to the latest definition of the National Association of Gifted Children, gifted learners are those who have high performance in one or more areas or who have a high level of potential in exhibiting it. These learners, whose intelligence and performances are evaluated via Weschler scale, are identified as ‘the gifted’. They differ from their peers in terms of cognitive, affective, physical, and intuitive characteristics (Clark, 2002).

Gifted learners differ from their peers with respect to their individual characteristics and demands (Bruning & Horn, 2000). When compared to their peers, they tend to be more proficient at progressing in languages, focusing and have a longer attention span, creativity, critical and analytical thinking, high interest levels, with traits such as perfectionism, sense of humor, sensitivity and impulsiveness. (Sak, 2016).

In this respect, gifted are those whose language skills develop faster and earlier and who have higher interest in language areas (Dunn & Price, 1980; Feldhusen & Sokol, 1982; Miller, 1980; Scruggs & Cohn, 1983; Taylor, 1985), who have higher capacity in acquiring knowledge and in advanced retention when compared to their peers (Scruggs & Cohn 1983), who think more independently (Bates, 1984; Dunn & Price, 1980; Franks & Dolan, 1982; Taylor, 1985), who are skilled at planning, organization and judgement through their cognitive and higher order thinking skills (Taylor, 1985), who have higher motivation (Dunn & Price, 1980; Franks & Dolan, 1982; Ricca, 1984; Taylor, 1985), who are tolerant towards uncertainty, and are ever-ready for inventing new things and learning with their high intuitive skills (Bates, 1984, Greenes, 1981, Miller, 1980; Sternberg, 1981; Taylor, 1985, Cohan, 1987).

Therefore, such significant differences in developmental characteristics should receive different type of education. (Karataş & Sarıçam, 2016). Unfortunately gifted learners’ language needs are not fulfilled in terms of their characteristics such as higher order thinking skills, thus they need to be more supported in order to transition from receptive skills to productive ones in terms of language learning. (Kaplan-Sayı, 2016) However, As İbrahim et al. (2017) state, such students have constantly been the focus of interest regarding scientific subjects rather than their language abilities. That is to say; gifted learners are less mentioned with reference to their language learning when

compared to other studies. Nevertheless, today, there are progressively more and more research studies being conducted on the language learning of the gifted.

2.9 Giftedness in Language Learning

As mentioned earlier, gifted students can be differentiated from their peers in terms of many characteristics. Therefore, they have high potential to reach information; which will further not only contribute to their society and country but also to the world.

According to the summary of an earlier study like of Franklin and Friedl (1973), gifted learners' language background play significant role in their foreign language learning. To illustrate, if the gifted learn languages during elementary grades, they seem to be ready for further study or if the gifted are bilingual, they need to be encouraged to study FL intensively. However, if the gifted learner started learning languages in high school may encounter complications as the learner is anticipated to overlay an entirely new set of linguistic structures and modes of expression on his L1. According to their study which is based on language teaching, for gifted learners who are grades 10-12, there are five stages that need to be taken into account; "recognition, imitation, repetition, variation and selection" (p.6). They also paid attention to two different components during the delivery, staging (dividing the course into sections) and sequencing (ordering the elements of the course to be taught). They further commented that conventional instruction in foreign language classes; which is based on memorization and comprehension should no longer be the primary goal. Once the communication stage is reached, the gifted learner can follow a sequential development which will contribute to the goal to be achieved in terms of intellectual growth.

In this respect, Baser and Kanar (2014), tried to suggest solutions for the problems that families and foreign language teachers face in terms of fostering gifted young learners' language development and second language acquisition. Their suggestions involved providing enriched language learning environment at home, exposing these learners to foreign languages at an early age, providing conferences and seminars, redesigning materials to fulfill their needs, making use of multimedia presentations, and organizing guest speakers and field trips. They also suggested the

adequate language learning environment to be learner centered, focusing on independence and open to new ideas, innovations and exploration.

Besides, communication is the key for all humans as social beings (Uzunboylu, Hursen, Özütürk, & Demirok, 2015; Yavuz, 2017). Using right communicative skills and through effective language development, gifted learners are well able to interact with the external world and share their experiences, emotions and ideas with other individuals. (Gökaydin et al., 2017). Enabling receptive and productive language skills play significant role in intellectual progress and thinking. Gifted learners with their high linguistic abilities can use language in a productive way in getting, comprehending and expressing information (Yunus, Sulaiman, & Embi, 2013).

According to the researches conducted so far, gifted students tend to be motivated to learn English (Al-Khasawneh & Al-Omari, 2015). Besides, studies also revealed the fact that gifted learners are aware of the significance of knowing and learning English, its recognition all around the world and adapting it to their life skills (Harris, Rapp, Martínez, & Plucker, 2007).

The fact that gifted learners learn languages earlier than others and have higher verbal competencies leads them to read before time, reach extensive vocabulary, receive superior level of command, skip preparation for extensive reading (Gökaydin et al., 2017). Gifted individuals acquire language competence earlier than their peers and the majority of gifted individuals have many characteristics based on their higher verbal competencies. These characteristics involve reading before time, having extensive vocabulary and advanced level of comprehension skills, not having the necessity for the preparation of extensive reading in the subject areas where they have high interest and curiosity. (Clark, 2009).

Although it is overlooked by intelligence tests, creativity should be interpreted as a sign of good language skills pointing to giftedness. Without doubt, gifted learners have original ideas and higher level of creativity which they can utilize in foreign language classes. According to Khatena's (2000) view, the major creative thinking abilities are classified into four; "fluency, flexibility, originality and elaboration" (p.33) Faulkner (2003) states that these are all separate dimensions of creative thinking. Therefore, it is of inestimable value to guide gifted learners and highly talented ones to utilize their creativity in foreign language classes. When creativity is integrated into foreign language teaching environments as stated in Maley and

Peachey's (2015) blogpost, it has a motivational power and improves self-esteem, confidence, and self-awareness. Renzulli (1978), researching on creative and productive people who contribute to society found out that they all have achieved recognition with reaching the zenith of creativity.

Besides their cognitive skills, as Sternberg (2002) claims, the mindsets of gifted learners such as their dedication, passion or their persistence can modify their learning. This leads us to the point where Mercer (2012) finds it necessary to deconstruct the term 'gifted' being accepted as inborn genius and tries to replace it with an individual whose success results from his affordances and experience within the environment. Gifted learners may lose opportunities where they can demonstrate their true capabilities. Therefore, EFL teachers of gifted learners considering such attributes need to present language in a way that takes into account their individual differences (IDs).

As said before, gifted learners are able to make use of extensive vocabulary. Having rich vocabulary would enable them to improve their language competency. Accordingly, this research suggests that the trendy and motivating instruction method; blended learning may have high contributions on accelerating their vocabulary learning process. This study, again, can be differentiated from the others, as the center of attention will be on enhancing the lexical development and even the language aptitude of the gifted within a private K12 Foreign language learning setting via blended vocabulary instruction; which is suggested to address the challenges mentioned above.

2.10 Giftedness in Second Language Acquisition

First of all, in this research the terms; 'gifted EFL learners', 'gifted FL learners', and 'gifted ELLs' are used interchangeably. These learners are those who are identified as gifted in countries where English is spoken as a foreign language. As mentioned earlier and as Renzulli (2005) states gifted learners have advanced verbal ability and problem-solving skills, faster rate of learning complex and abstract topics (Reis & Sullivan, 2009). Similarly, gifted learners are capable of using their advanced skills in an EFL context. As Yunus et al. (2013a) express gifted learners have unique learning abilities, and differ from their peers in terms of their exceptional way of

learning languages which positively affects their problem-solving skills and advancement in languages. Accordingly, Faulkner (2003), in her PHD dissertation, which she wrote on predicting gifted language learning and performance, uses a metaphorical expression; resembling gifted learners' utilizing amazing number of abilities to visiting versatile rooms in a mansion.

However, as Passet (2015), summarizes gifted L2 learners may not automatically pick up a second language and therefore they might not apply their skills to language learning. One of the most widely seen misconceptions in teaching foreign or second languages to gifted learners is that they are expected to perform better as they show extensive knowledge characteristics in their L1 at an early age. However, unless instructed and guided properly, these learners may not reach their potential in terms of foreign language learning.

Çelik-Şahin and Schmidt (2014), reviewed the literature on English activities for gifted and talented learners. They suggest that it is essential for instructors be aware of language and cultural backgrounds of their learners. They believe such kind of knowledge will assist teachers in differentiating the curriculum. They assume teaching gifted learners not only involves instruction but also requires counseling and facilitation of their learning potential. For EFL teachers to adopt such strategies surely requires an ongoing PD and focus on empirical studies conducted with such learners. Thus foreign language instruction design needs to be inclusive in terms of individual differences of gifted EFL learners such as creative flair, using imagination, being eager to use communication skills and preferring demanding tasks. Therefore, individual differences play a significant role on the design of the curriculum. To this end, foreign language education and curriculum planners need to take into account this rapid progression of gifted learners and offer a more differentiated curriculum with a superior level of content to fulfill their needs. (Al-Khasawneh & Al-Omari, 2015; Özcan & Katlav, 2016). Such a curriculum needs to activate their higher-level skills such as inquiring, analytical thinking, problem solving skills and imagination (Kronborg & Plunkett, 2015; Zeidner & Matthews, 2017). However, the foreign language curriculum still does not provide the necessary opportunities for these students to use their higher order thinking skills. Therefore, gifted students deserve a better language instruction through higher level and motivating content, effective materials, open-ended activities which would activate their productivity and creativity

in terms of language learning. Combining all these components, a holistic arrangement for language skills curriculum is required (Horak & Galluzzo, 2017).

Reviewing the researches in SLA on the foreign language learning of the gifted, one can also see that studies are mostly centered on reading and writing skills. This most probably arises from the fact that gifted learners are able to read just or long before the commencement of school and have a higher amount of interest in language learning and reading this curiosity (Clark, 2009). Nonetheless, there are several other studies that considered other aspects in terms of effective foreign language teaching for gifted learners.

2.10.1 Differentiation. Kaplan-Sayı (2016), with 24 fifth grade students who are educated at a gifted differentiated curriculum school called Beyazıt Ford Otosan Primary school, made use of Raven SPM plus test, English achievement test, Cornell critical thinking test, and Torrance creative thinking tests verbal form, to indicate the effects of differentiated ESL instruction on gifted learners' achievement, critical thinking and creativity. In her study, the experimental group was exposed to differentiation whereas the control group didn't have any intervention. As the statistical analysis of the data, Mann Whitney U and Wilcoxon signed ranks tests were utilized. According to the outcomes of the study, differentiation in English instruction increased their achievement, creativity and analytical thinking.

2.10.2 Metacognitive strategies of the gifted. Šafranĵ, (2019) referred to how metacognitive strategies influence the locus of control of gifted in formal language learning. The participants in the study were 39 University level engineering students, being identified as gifted. According to the results of this study, through which cognitive and metacognitive strategies were explored, cognitive strategies had substantial and positive influence on academic self-efficacy while metacognitive strategies had meaningful and affirmative effects on locus of their control.

2.10.3 Epistemological beliefs of the gifted. Ismail and Abdel-Majeed (2006), within Saudi Arabia EFL context tried to explore gifted 5th-8th grade EFL learners' epistemological beliefs. As for the data collection, researchers used four tools; a belief questionnaire, a goal orientation questionnaire, and a perceived Linguistic competence

questionnaire. Students' progress was measured in terms of their GPAs. The findings of the research indicated that gifted learners had more sophisticated epistemological beliefs than non-gifted ones.

2.10.4 Vocabulary learning of the gifted. Passet (2015) through his detailed study on giftedness and language learning, conducted with 75 secondary language learners (17 of whom are identified as gifted) aged 14-16 in the Netherlands, contributed to the field by mentioning the learning styles and vocabulary learning of the gifted and offering sufficient insights into the concerns of gifted learners underperforming in language learning. In terms of vocabulary learning of gifted individuals, according to the vocabulary survey results of Passet (2015), gifted learners do not tend to memorize and learn new vocabulary by repeating them out loud to themselves many times. They find this way of acquiring vocabulary rather less enthusiastic. Again, gifted learners do not find drilling, conditioning and repetition very useful. They do not either find looking at the grammatical function of the word (parts of speech) to be useful for vocabulary acquisition. Gifted learners prefer vocabulary learning through portraying the words' meaning with physical gestures or performing tasks, which reveals the fact that this task based, dynamic way of vocabulary learning suits students that are more rapid in acquiring knowledge, and who are interested in being involved in the process.

In another study, Ragatz (2015) used games in her own Grade 5 classroom in order to enhance vocabulary skills of elementary gifted students and measured their use in their writing. This mixed method study made use of quantitative data so as to analyze learners' vocabulary retention, their practice in writing and their feelings towards playing games to acquire vocabulary. Although students did not make use of the relevant words in their writing significantly, both the questionnaire responses and the post test results indicated that playing vocabulary games in a gifted EFL classroom had positive outcomes in all measured areas.

2.10.5 Gifted EFL learners in Turkish EFL context. Researches that have been conducted within Turkish K12 EFL context reveal the fact that there is a scarcity of effective learning opportunities to fulfill the needs of gifted talented learners in terms of foreign language teaching. As an illustration, Akçayoğlu (2015), through the

study she conducted with gifted EFL learners aged 11-14, within the context of BİLSEM, suggests that gifted language classrooms should be enriched with a range of activities unlike the ones in the regular classrooms which involve using such skills mentioned above.

Regarding learning styles of gifted individuals in an L2 environment within Turkish EFL context, Merç (2015) through his quantitative study on perceptual learning styles commented that gifted secondary school foreign language learners preferred tactile and group learning as the major one among all other learning styles. The reason for this selection could be attributed to the social characteristic traits of the gifted. These results differ from the higher education research outcomes in terms of the preference of individualized learning (Tabanlıoğlu, 2003). According to what Altun and Yazıcı (2010) state, gifted learners' major learning styles are visual and kinesthetic. Tüysüz (2013) adds another aspect to the similar case and comments that Turkish gifted students' cultural backgrounds come into play in suggesting that they employ independent, cooperative, competitive and participatory learning which is also in line with the results of Merç's (2015) study.

Yıldırım and İspınar- Akçayoğlu (2015) tried to predict how strategy-based English language instruction influenced the language proficiency of young gifted students. Their study involved participants of an out of school training program called BİLSEM. These learners, aged between 10 and 13, were divided into two groups; experimental (exposed to SBELI) and control. They had treatment of 11 language learning strategies on 8 weeks. The findings of the study showed that SBELI had a positive influence on populations' language learning. SBELI not only accelerated their language learning but also facilitated it in an effective and motivating way.

2.11 Language Aptitude, Giftedness and Blended Learning

Over the past two decades, technology has added many advancements into EFL education. As in any other area, the advancement of technology adds new dimensions to gifted learners' motivation, perception and competence of learning a foreign language; that is, digital age and integration of technology not only influences gifted learners but also effects the way they learn a foreign language. As Jhuree points out, "Education reform is occurring throughout the world and one of the tenets of the

reform is the introduction and integration of ICT in the education system.” (2005, p.467).

Integrating technology into foreign language learning of gifted language learners not only fosters their development but also adds a favorable dimension to their language learning in terms of activating their higher order thinking skills, promoting their creativity and autonomy, fitting their perfectionism and versatility, and increasing their curiosity. Vygotsky (1962, 1978) with the zone of proximal development, argues that the gifted could learn more complex concepts. As the online learning environments offer high exposure to new language forms, it becomes easier for the gifted to learn foreign languages.

Blended learning instruction, which involves the dual way of learning (both face to face and online) without doubt, boosts the 21st century skills of language learners. As Lewis (2009) mentions, “technology is nothing without the teacher and a plan” (p.9). Blended learning emerges as a result of this demand to promote the twenty-first century lifelong learning skills of the autonomous gifted EFL learners through a synthesis. Built upon a sound constructivist pedagogical framework, this design synthesis covers both online and face-to-face learning components. (Buckley, Pitt, Norton & Owens, 2010, p. 57) One of the main reasons teachers and teachers to apply blended learning is that it improves learning effectiveness (Graham, 2006). As Prensky (2001) suggest, the current generation, digital natives, need effective pedagogies which involve collaboration, fast paced technology and actively engaged learning context. Blended learning fulfills such demands in a faster and a more effective way.

Gifted learners with a high level of curiosity tend to learn new things by themselves. As Merç (2015) states, such learners challenge teachers’ versatility through their imagination and creativity. Having such cognitive abilities, high interest areas and curiosity, they are capable of adjusting their own pace in their learning (Asmuje, 2016). Blended type of instruction in this respect seems to be of great concern when it comes to gifted EFL teaching; which also involves student centered learning. Friedman (2005) adds that instilling curiosity by supplying them all the tech gear to discover the ‘new flat world’; will lead them to educate themselves. Since gifted learners are capable of managing and directing their own learning, researchers tried to maximize gifted learners’ learning through blended vocabulary tools by giving them the chance to learn independently. Yunus and Kwan (2013) mooted that the best

way of learning was via Web 2.0 technologies as they “meet gifted students’ needs for challenging learning environments and learner autonomy, thus enhancing their ELL experience” (p.22). Similarly, Tai and Chen’s (2015) research with six adolescent gifted learners, also demonstrated several benefits which led gifted ELLs to deeply engage in learning. These scholars using Voice tube, revealed the fact that gifted learners who tended to work independently “gained more from self-directed discovery” (p.516).

As well as their creativity, they love accurate and challenging feedback as they can self-evaluate. Gifted learners with high rate of perfectionism, believe that they should be flawless. Blended learning platforms with online feedback help these learners feel more confident. Accordingly, these online “comments seemed to benefit students in improving their language from mistakes and weaknesses” (Yunus & Kwan, 2013, p.27) and hence this sensitive notion of ‘virtual critics’ increase their self confidence in terms of receiving feedback.

As gifted can adopt their own techniques for learning vocabulary, EFL teachers can make effective use of digital tools and blended learning when teaching novel words, as is done within this study. This leads us to the belief that if a learner is more exposed to a new word, he's more likely to remember it (Nagy, 2005). Blended learning environments in this respect offers high exposure when learning new words as well. As gifted learners are inspired by ICT and multimedia, they may use such tech-savvy skills for vocabulary development, which will also be referred to in this thesis.

There have been various studies that tried to explore the relationship between the use of technology with a gifted learning environment. (Belcastro, 2002; Eckstein, 2009; Wei & İsmail, 2011; Özmen & Kömürlü, 2011; Diffly, 2002). However in terms of blended type of instruction, within Turkish EFL context, only one study (Umar & Reis, 2017) contributed to the context. Umar, in her study explored the effects of differentiated curriculum through blended instruction on such learners’ academic success, critical thinking abilities and creativity. She chose 34 gifted participants from 10th grade chemistry class. Via pretest and posttest experimental model, one group was exposed to differentiation through blended instruction whereas the other was not (control). By means of the data obtained from Mann Whitney U test and T test, she found out that such an instruction type increased gifted learners’ achievement,

creativity and critical thinking abilities. Even though this research on blended type of instruction with gifted learners contributed to teaching and learning of this special group, still there seems to be a gap of using blended type of instruction for vocabulary development in gifted SLA context.

To the author's knowledge, in terms of blended instruction and vocabulary learning of gifted learners and the measurement of their language aptitude by means of LLAMA-B, no other study has been conducted neither in Turkey nor in other countries, where English is taught as a second or foreign language. All in all, it can be seen that when compared to the other studies conducted in Turkish EFL environment, the intent of this study which is based on blended learning instruction and vocabulary learning enhancement measured by means of LLAMA-B subtest, differs from other SLA researches by its uniqueness in terms of being context wise , participant wise and test wise.

2.12 Attitudes of Gifted Learners

2.12.1 Attitudes towards blended vocabulary instruction. There are various studies, which mentioned such an issue through the perspective of non-gifted language learners. To illustrate, Markanastasakis (2019) tried to explore the vocabulary learning of students in higher education in terms of learning English for academic purposes courses (EAP) using blended instruction. Students' motivation was assessed in the context of self-determination theory (SDT). The participants were exposed to a game created for EAP called Vocabulary Kingdom. Through this game it was expected for the higher level of students to be more engaged with vocabulary learning. The game consists of activities that take place both in the classroom context and online. Students were divided into groups of three or four representing a tribe and a group avatar, which was expected to boost their intrinsic motivation. During the vocabulary acquisition process students are intended to acquire as many points as possible to become the rulers of vocabulary Kingdom. The game was able to elicit intrinsic motivation providing learners competence, independence and empathy during an arduous process of acquiring academic vocabulary.

Bakhtiyar (2017) researched the ways on how to utilize the most common mobile Mobile Application WhatsApp for the purpose of promoting vocabulary. WhatsApp

was expected to be utilized so as to prompt learners' motivation within blended learning context. The researcher proposed that teachers use chatgroups administering supervision and setting time limitation, assigning limited number of words each day, monitor students effectively in terms of comments, and assessing their progress.

Cartner (2009), aiming to gather data about learners' perceptions regarding Academic Word Lists online program conducted through blended learning, made use of two surveys. Student responses were positive to both of the surveys. As academic word lists were based on a corpus, students had more opportunities for practice. Another study aiming to investigate the attitudes of University level students regarding blended vocabulary instruction was of Alamer (2020) with a countervailing argument. In his study, rather conversely, Blackboard LMS was employed with a sample of 34 Saudi Arabian Undergraduate EFL learners. Students completed a 14-item questionnaire, which revealed that they found vocabulary learning challenging and developed negative attitudes towards English corpus.

Karaaslan and Kılıç (2019), conducted a study on Intermediate level University students' reflections on Vocabulary learning through synchronous and asynchronous games and activities. They were exposed to an 8-week treatment on parts of speech and collocations by means of asynchronous and synchronous activities. The main aim of the research was to activate and sustain intrinsic motivation. The survey results reflected their view that games are beneficial and useful platforms to enhance vocabulary skills and memory. Furthermore, they stated that they actively interacted with their peers during in-class vocabulary activities.

Considering the age of the learners, instruction types and the tools in the former studies, none of the studies above has explored the vocabulary learning of the young gifted population through blended instruction. Besides, the selection of the measurement scale for the gifted population, Llama-B, differs from the tests and aptitude scales used in other studies. There is also a need to conduct a study with a younger gifted population as the former studies in literature only focus on secondary or higher education. Therefore, the current study is significant in the sense that it aims to contribute to the broader literature by exploring an under researched population; two groups of gifted 4th graders in a Turkish private K12 EFL setting.

Apparently, no such study has investigated the influence of blended type of instruction on vocabulary development of gifted primary EFL learners. Accordingly,

the study aims to reach the gifted population and try to explain how blended instruction influences their vocabulary learning in terms of SLA and to measure it via Llama-B Scale. Besides, to the author's knowledge, no other study contributed to the EFL gifted context revealing attitudes of gifted primary EFL learners towards aptitude tests. In this respect, this research study aims to fill this gap and also contribute to the literature by referring to primary gifted EFL learners' attitudes towards blended type of vocabulary instruction.



Chapter 3

Methodology

This chapter describes the methodology that was used to investigate the influence of several blended vocabulary enhancement tools on gifted primary K12 learners' lexical aptitude and their perceptions in relation to blended instruction and Llama tool. The relevant chapter presents the research design, the description of the participants, the setting of the study and the procedures for data collection and analysis. Research questions pertaining to the methodological framework of this study are as follows:

RQ1: 1. Can blended instruction be an effective way to promote lexical development of the gifted when compared to traditional methods in a K12 setting?

RQ2: Does blended vocabulary instruction help enhance gifted learners' lexical aptitude as measured by LLAMA vocabulary learning task?

RQ3: What are the attitudes of gifted learners towards blended vocabulary instruction?

3.1 Research Design

This study has a quasi-experimental design. It is aimed to investigate how blended learning instruction influences vocabulary learning and lexical aptitude of gifted learners in a primary K12 setting and to explore their attitudes towards blended instruction. In order to reach the aforementioned aims, control group gifted students were exposed to traditional vocabulary instruction whereas blended group gifted learners were exposed to blended vocabulary instruction. As Ary et al. state (2010), The quantitative data consisted of their pre- and post-Llama-B scores, 3 sets of Vocabulary pre- and post-test results and their responses to the attitude questionnaire. The data collected from this small sample were tried to be generalized into a larger group, which is one of the goals of descriptive statistics in quantitative research (Goodwin & Goodwin, 1996).

This empirical study was designed to comprise two dependent variables (lexical aptitude gains and vocabulary gains) with two levels (pre, and post Llama-B) and a

single between subjects variable (type of vocabulary instruction) with two levels (traditional and blended vocabulary instruction).

In this study, as mentioned before, it was investigated whether the blended instruction affect vocabulary learning skills of private K12 gifted EFL young learners. Experimental method was used in this research and the students were divided into two groups as experimental and control groups. Blended vocabulary instruction was employed to the experimental group students for six weeks so as to develop their vocabulary learning skills. During blended vocabulary instruction, students learned new words through Quizlet, Vocabulary.com and classroom activities. Control group students, on the other hand, learned new set of words through classroom activities only; which is required by the school curriculum. Lexical aptitude of both groups of students was measured by Llama-B Scale. In addition, students' vocabulary knowledge of the sets of words in their course books in line with the school curriculum was also assessed every two weeks through Vocabulary pre and posttests. The assessment involved a pretest at the beginning of each two weeks and the post test at the end of those two weeks. Therefore, two different research designs were used simultaneously in this study. The first research design is given in Figure 1.

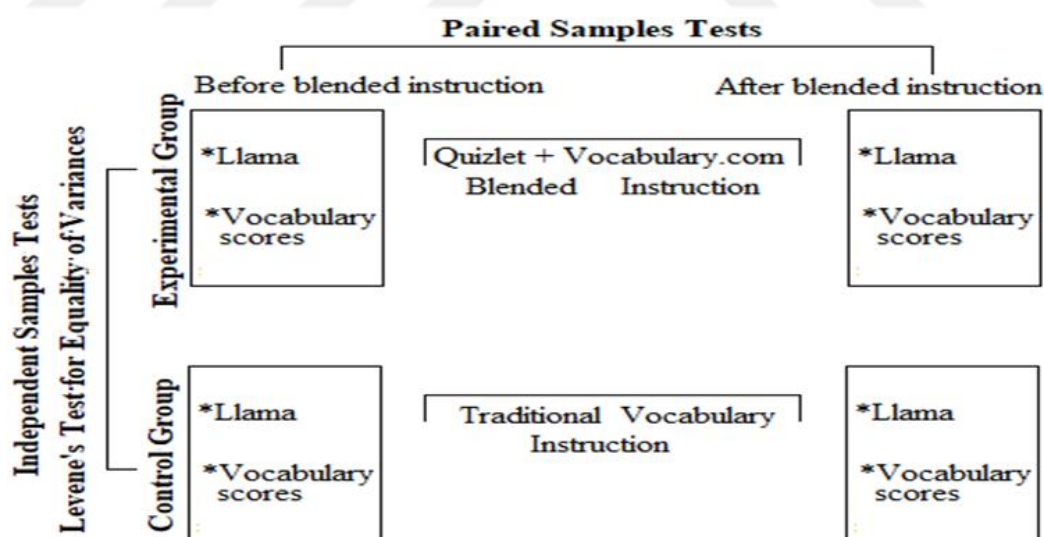


Figure 1. Research design

3.2 Setting and Participants

3.2.1 Participants. The sample consists of a group of primary school gifted EFL learners (who were already identified as gifted by Wechsler Scale required from the school administration to attend UP program). The study was conducted with two groups of gifted grade-4 students aged 10. The first group (experimental) consisted of 8 students whereas the second (9 students). The experimental group (8 students) were exposed to blended vocabulary instruction. On the other hand, the control group (9 students) were taught vocabulary through just EFL core lessons; traditionally without the additional blended learning vocabulary tools.

The participants; grade-4 gifted primary school students, had been learning English as a foreign language in a private primary school for five years. All of them started learning a foreign language at the age of five. As Torras et al. (1997, p.142) state “the younger they are, the more they are like sponges, the more they absorb, the more they retain”. Their level of English, which had regularly been assessed by Pearson’s Benchmark exams, ranged from A1-A2+. Besides, all the gifted students had been learning English through intensive hours of English for the last four years (8 classes of Core, 5 classes of Literacy and 3 classes of CLIL within each week). As Taniş and Dikilitaş (2019) put forth, their CLIL lessons are based on a “CLIL program where a subject such as Science or Art is taught for a certain number of hours in the target language”. In the same vein, as Mede and Çınar (2018) state, utilizing CLIL lessons as a part of foreign language teaching enriches the learning environment in a more practical, natural and interactive way. Accordingly, their CLIL lessons covered the lesson content of Turkish curriculum in L2, i.e. Social Sciences, Maths and Science lesson topics in English along with age-appropriate and engaging materials prepared by the school’s main office.

3.2.2 Setting. The study took place in a private K12 school in the west of Turkey in December, during 2019-2020 academic year. Over the years, private schools in Turkey have assigned high priority to teaching foreign languages. As Solak and Bayar (2015) express, foreign language teaching in Turkey has undergone alterations by means of trial and error in all echelons of the system. Therefore, in order to provide the sustainability of effective EFL teaching, private schools try to follow current trends

and technologies in foreign language teaching methodologies. This study took place in a private school where English is taught in intensive hours (16 hours per week) through Core, CLIL and Extension lessons.

In this research, blended vocabulary instruction was utilized to offer the best means of vocabulary teaching experience to a group of gifted students. The experimental group, who were exposed to such instruction type took 6-week treatment of several blended vocabulary learning tools which were stated earlier. The blended group was notified each vocabulary task digitally as well. Edmodo was used as a communication tool (<https://new.edmodo.com>) and students were envisaged that they would enhance their vocabulary through Vocabulary.com, Quizlet and Tiny Cards Duo-lingo. In this study, 3 sets of lexical items were aimed to be completed. The EFL instructor was able to track each learner's amount of practice in terms of the tracking tools of Vocabulary.com and Quizlet. Yet, as Tiny Cards Duo lingo did not have a tracking system, thus it stayed as an optional tool to enhance the relevant lexical items.

3.3 Procedures

It has been estimated that Quantitative method would best cater for the purpose of such study as it involved numerical scores and measures of the gifted EFL learners, obtained from Llama-B pre- and post-scale and Vocabulary pre and posttests. Ary et al. (2010) state that quantitative research method is experimental in the sense that the subjects are both measured before and after the treatment. Similarly, Quantitative research method was applied to provide insights into evaluating to what extent gifted learners' lexical aptitude was influenced by blended vocabulary instruction and assessing learners' attitudes towards such an instruction. Blended vocabulary instruction stood as the independent variable whereas the dependent variables were vocabulary learning of gifted learners and their lexical aptitude.

As the primary data sources, Independent Double Sample T-Tests were used to analyze the Llama scale results, Wilcoxon Test was utilized for Pre and Post Vocabulary Test Scores and the 5-point Likert scale questionnaire responses were measured with Cronbach Alpha Statistics in order to assess how blended instruction influenced gifted primary K12 gifted learners. The data collection procedure consisted

of two phases. The implementation of Llama-B scale and the blended vocabulary intervention.

3.3.1 Data collection instruments. Three different data collection instruments were utilized during the study: Llama-B scale, Vocabulary pre- and post-tests and the attitude questionnaire, which are fully explained in the relevant subsections below.

3.3.1.1 Llama-B scale. In this study, so as to measure the lexical aptitude of gifted young EFL learners, Llama-B was selected from the Llama battery of tests. Llama battery of tests consist of 4 subtests; Llama-B testing lexical aptitude, Llama-D testing the recognition of repeated sounds in spoken language, Llama-E testing sound-symbol correspondence, and Llama-F testing grammar inferencing.

Llama-B scale is specifically designed to measure high number of vocabulary in a short time. (Artieda & Muñoz, 2016) The illustrations in Llama-B were taken from Microsoft clip-art collection and names from naturally occurring plants and animals in Mixtec, an Oto-Manguean language spoken in Central America. (Rogers, 2016) It has two phases; learning and testing. In the learning phase, test-takers are given 120 seconds to keep in their minds as many words as possible using their own strategies.

Right after using the learning phase, test-takers are expected to identify each character correctly. They don't have any chance to correct their mistakes while guessing. There are totally 20 items and each item is scored 5. Test-takers are immediately given the percentage score that range from 0-100 below the screen. Random guessing score is 5.4. In this study, both experimental and control groups' lexical aptitude scores were measured by Llama-B scale before and after the intervention.

3.3.1.2 Vocabulary pre and post tests. Both pre and pos-tests were formed of 15 questions, 5 of which were distractors and 10 were target items of the units. These target items were determined from the learners' core curriculum. They were gathered under three themes: 'Inventions', 'You're the future', 'Then and now'. The items asked within the pre and posttests were "electricity, refrigerator, medicine, invention, invent, x-ray, useful, turn up, turn down, light bulb" (as set-1), "future, waste, bully, argument, litter, home-schooling, virtual reality, solution, 3D printer, direction" (as

set-2), “civilization, artifact, ancient, dig, in a cast, pottery, coin, statue, jewelry, Empire” (as set-3). Considering their age and grade level, the test included gap-filling, matching with picture and matching with definition questions (see Appendix-A).

When scoring the test, the marking criterion was strict. Each target item answered correctly was scored 1 point. Therefore the total point of each vocabulary set was 10 points. Distractors were not scored. All the tests were reviewed by a group of experienced teachers in M.A. program at BAU. Necessary changes were made to eliminate any problems.

3.3.1.3 Vocabulary instruction type attitude questionnaire. VITAQ in this study was one of the other instruments used in order to gather information on gifted EFL learners’ attitudes towards blended vocabulary instruction. All the items in the questionnaire were first written in English by the researcher, then they were translated into Turkish by the researcher before being administered. Back translation procedure was also conducted by bilingual instructors at the same school.

VITAQ which was designed to elicit information on blended vocabulary instruction and tools consisted of totally twenty 5-point Likert Scale items. Questionnaires with such items are considered as beneficial and effective in collecting data regarding their attitudes and opinions on specific methodologies (Dörnyei, 2003) (see Appendix-B).

3.3.2 Sources of data. In this study, both the participants in the control and the experimental group were applied the same classroom instruction in terms of acquiring the target vocabulary. Yet, the participants in the experimental group practiced the target vocabulary through 2 digital vocabulary learning tools; ‘Quizlet’ and ‘Vocabulary.com’.

3.3.2.1 Traditional. The traditional instruction materials on the relevant vocabulary were prepared by the head school material developers. Three sets (10 word-unit vocabulary) were taken from gifted learners’ Inquiry/Core books as the school policy solely depends on its own curriculum and does not allow additional resources.

Set-1 target vocabulary which included the following items; electricity, refrigerator, medicine, invention, invent, x-ray, useful, turn up, turn down, light bulb, was taken from their Inquiry / Core lessons- Unit-5. The vocabulary exercises of the invention-themed unit is based on integrated skills activities. Therefore, these words were practiced through Unit-5 course book vocabulary exercises such as timeline activity, listen and fill in the blanks, listen and number, think and write, pie-chart, content connection, match with the picture and definition activities.

Set-2 target vocabulary which included “future, waste, bully, argument, litter, home-schooling, virtual reality, solution, 3D printer, direction” was taken from Unit-6. The vocabulary exercises of the future-themed unit involved unscramble the letters, listen and find, discussion and order from most important to least activities.

Set-3 vocabulary target items that included “civilization, artifact, ancient, dig, in a cast, pottery, coin, statue, jewelry, Empire” was taken from Unit-4; which was based on the comparison of now and then or past and present. Gifted learners enhanced their vocabulary through integrated course book exercises (“Grow Level-4 Book-B”, 2020) such as; read, think and match, listen and write, true or false and crossword puzzle activities (see Appendix-C).

3.3.2.2 Blended. Blended materials which include the same set of words (set-1, set-2 and set-3) are created as a list by the researcher herself and automatically generated by the digital software selected for this study (Quizlet, Vocabulary.com, and Tiny Cards Duo Lingo). The target vocabulary was “electricity, refrigerator, medicine, invention, invent, x-ray, useful, turn up, turn down, light bulb” (as set-1), “future, waste, bully, argument, litter, home-schooling, virtual reality, solution, 3D printer, direction” (as set-2), “civilization, artifact, ancient, dig, in a cast, pottery, coin, statue, jewelry, Empire” (as set-3). Therefore, the total number of target lexical items were 30; 10 words for set-1, 10 words for set-2 and 10 words for set-3. (see Appendix-D)

These 30 words were prepared as vocabulary lists by the EFL instructor and were uploaded on the relevant tools. Learners were provided with their own accounts with passwords for each digital application. As mentioned earlier, each learner owned an I-Pad, which was made obligatory by the school administration. This eased the blended learning process. Learners were notified regarding the new sets either by Edmodo

(<https://new.edmodo.com>) or through their Outlook accounts. (see Appendix-E) Besides, their parents were also informed on the grounds that they would forget.

3.3.2.2.1 *Quizlet*. In terms of usage, each blended vocabulary tool has its own way of promoting learners' lexical knowledge; Quizlet offers numerous learning modes. (Crandell, 2017). In this manner, participants were assigned 5 modes of this blended instructional material. These 5 modes assigned to learners as self-study in order to practice the target items were; 'learn', 'flashcards', 'test', 'match' and 'gravity'. Each mode enabled learners to practice the target items in a different way. Flashcards mode allowed the participants to review the target items with the audio (their pronunciation). While practicing through the Learn Mode, participants were asked to type the word in accordance with the representative image and the example sentence/ its definition. Whenever the participant gave an incorrect response, the target item automatically reoccurred until the user can type the item successfully. The Test Mode included fill in the blanks, multiple choice and T/F questions from the items. Upon completing the test, users had the chance to review their performance. Both Matching and Gravity Modes allowed them to gamify what they've learnt. Thus, learners practiced the target items in a variety of different strategies at their own pace.

All in all, these notable features in the 5 modes were expected to aid participants' vocabulary learning process through colorful images and fun activities in conformity with their age and grade level. First, students having been provided both positive and negative feedback and the multi-sensory input, feel motivated and progress easily. (Ashcroft & Imrie, 2014). Second, the flexible learning environment gives them the opportunity to study at their own pace and fosters their autonomy. Third, Quizlet provides a unique way of offering multimedia capabilities for vocabulary learning in terms of meaning, form and pronunciation. (Ersoy Özer & Koçoğlu, 2017).

Quizlet allowed learners to see their own progress and its 'View Class Progress' tool gave the instructor opportunity to track the learners. As can be seen from the figure below, learners selected different modes when learning each set of terms.

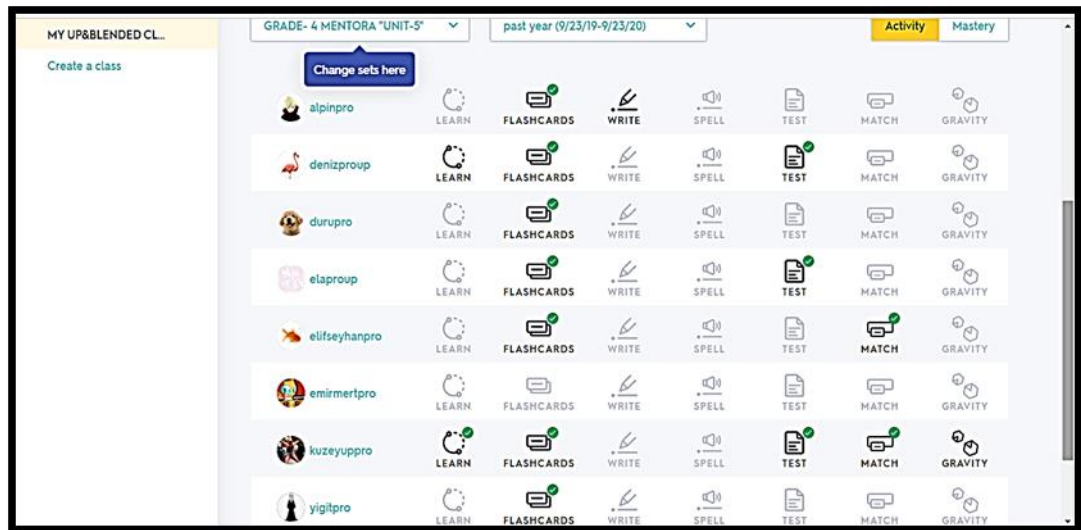


Figure 2. Use of Quizlet (for Set-1)

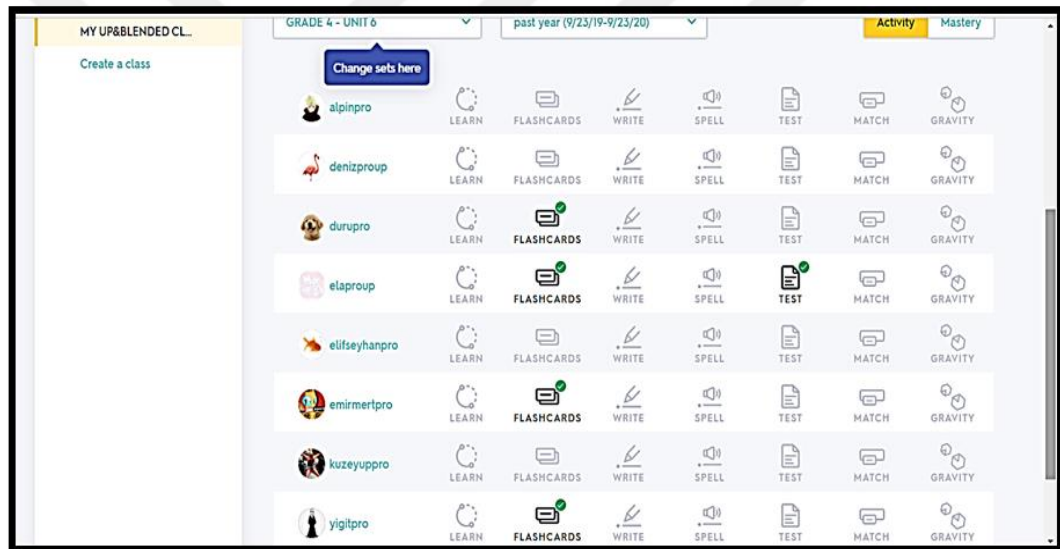


Figure 3. Use of Quizlet (for Set-2)

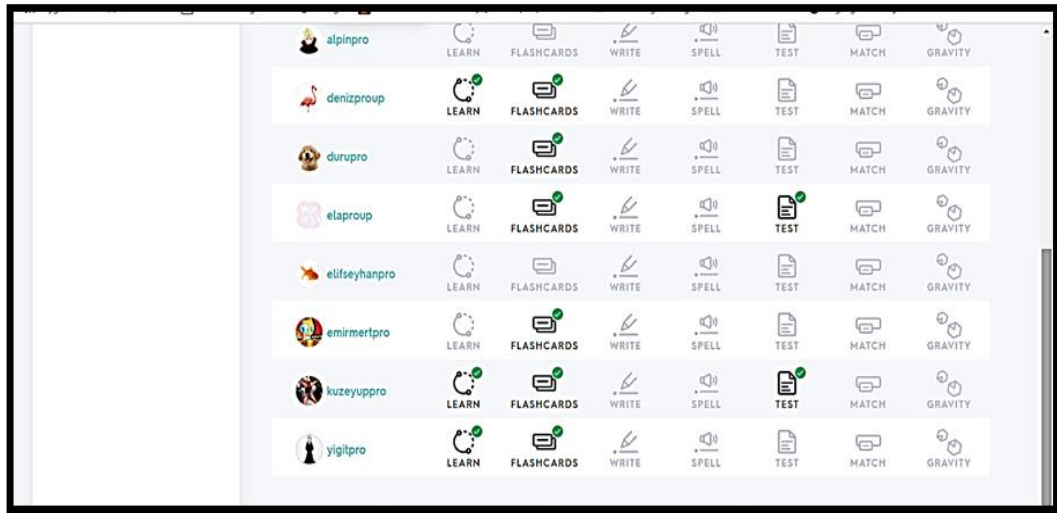


Figure 4. Use of Quizlet (for Set-3)

3.3.2.2.2 *Vocabulary.com*. Vocabulary.com on the other hand has a distinct rehearsal technique when compared to others. During the practice, it automatically finds out the words that students have difficulty with and exposes them to a wide array of questions for them to master the hardest ones. In this study, similarly, it allowed them to rehearse the words through different types of questions to make sure these items stay fresh in their memory. Just like Quizlet, Vocabulary.com provided a detailed report for both the instructor and the learner to monitor the development. The figures below shows their progress during the vocabulary practice.

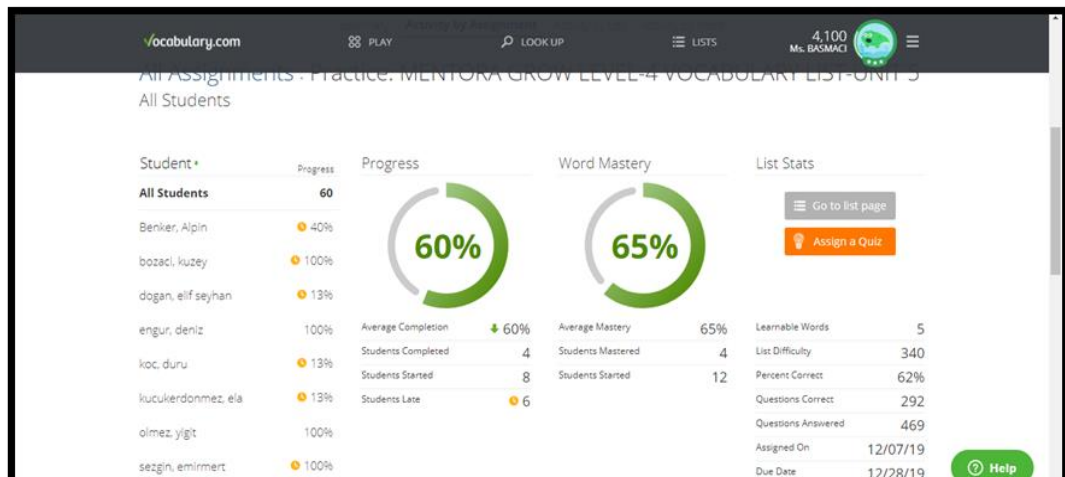


Figure 5 Use of Vocabulary.com (for set-1)

Figure 5. Use of Vocabulary.com (for set-1)

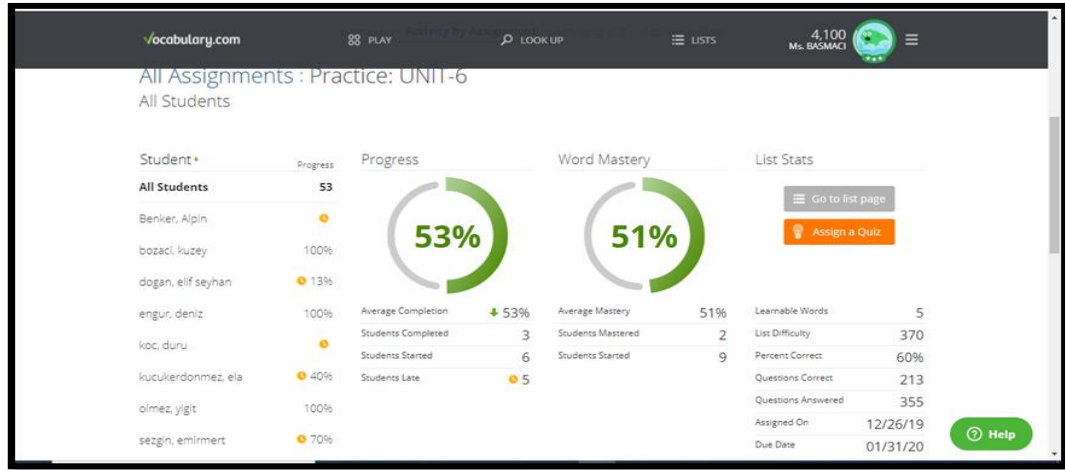


Figure 6. Use of Vocabulary.com (for set-2)

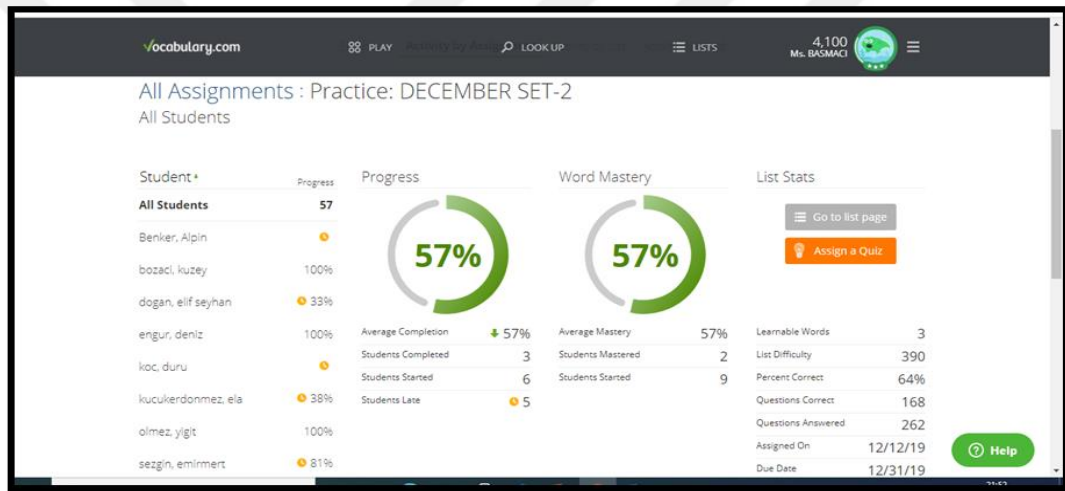


Figure 7. Use of Vocabulary.com (for set-3)

3.3.2.2.3 Tiny cards-Duo Lingo. Tiny cards - Duo lingo helps young learners to master words through flashcard decks. It has a variety of different types of questions until the retention is reached. As the tool offers multimodality and instant feedback, it has been regarded as a promising supplementary tool for learning vocabulary. Besides it promotes self-directed learning with transfers from L1 and reverse translation modes as well as a task-oriented approach which enables learners to reach the highest level to get the badge (<https://www.duolingo.com/learn>). Yet, it doesn't have a tracking tool. Therefore, it's not possible how much students have progressed. As the target population is primary school students and the content is images, it has been anticipated that this digital software would cater for their needs, too. However, the website has announced on Sep 1st, 2020 that it would no longer give access to the self-prepared decks. Therefore, the data has been removed. Therefore, Tiny Cards- Duo Lingo was

not taken into account as an instructional digital vocabulary enhancement tool in this study.

To sum up, apart from the practice of lexical items provided in both groups of learners' own classroom setting, the experimental groups was exposed to blended vocabulary instruction through two different digital vocabulary learning tools. Considering the age group of the experimental group, and the fact that students might not easily adapt the blended approach easily and may not notice the notifications, the experimental group were given 2 weeks to complete the digital tasks after each set was assigned. Still, there were students who did not conform to due date or could not complete several assigned tasks as could be assumed by the tables below. Teacher was able to track each learner's use of the digital tools by reaching their profile and capturing their individual progress.

Table 1
Blended (Experimental) Groups' use of digital software in terms of 3 sets

Blended Group (Experimental) Student	Vocabulary Set-1		Vocabulary Set-2		Vocabulary Set-3	
	Quizlet	Vocabulary.com	Quizlet	Vocabulary.com	Quizlet	Vocabulary.com
Par-1	40%	40%	0%	0%	0%	0%
Par-2	60%	100%	0%	100%	40%	100%
Par-3	20%	13%	20%	0%	20%	0%
Par-4	40%	13%	40%	40%	40%	38%
Par-5	40%	13%	0%	13%	0%	33%
Par-6	0%	100%	20%	70%	20%	81%
Par-7	100%	100%	0%	100%	60%	100%
Par-8	20%	100%	20%	100%	40%	100%

3.3.3 Data collection procedures. Upon determining the research questions, the researcher asked for permission from the department Head and the UP coordinator. The instruments utilized were designed in November whereas the implementation period initiated in December. The necessary changes were made in order to eliminate problems accordingly.

The instruction types in the study were traditional vocabulary instruction and blended vocabulary instruction. Target vocabulary items were chosen to be taught to both groups. The control group which was exposed to 6-week traditional vocabulary instruction and experimental group which had 6- week blended vocabulary instruction treatment were used for the current study.

Before the study was conducted, all participants' lexical aptitude was tested via Llama-B Scale. All participants were taught the same sets of vocabulary (Set-1, Set-2, Set-3) during the 6-week period. Within the classroom context, all students were exposed to same learning methods. However, two different types of Vocabulary Development tools (Quizlet and Vocabulary.com) were implemented to the experimental group as an intervention.

Before the intervention on each target set of vocabulary (set-1, set-2 and set-3), all students were given a pretest to measure the level of their knowledge of the target vocabulary. Post-tests implemented after each set of vocabulary (set-1, set-2 and set-3) helped to find out any difference in vocabulary gain between the control and the experimental group.

Therefore, the results of their pretests and posttests were compared to analyze their vocabulary gains. Besides, after the whole treatment, both groups took Llama-B Scale again in order to detect how blended vocabulary instruction influenced their lexical aptitude. At the end of the whole procedure, an attitude questionnaire was applied so as to reveal learners' attitudes towards blended vocabulary instruction.

3.3.3.1 Llama-B measurement scale. There were two components of assessment in this study. Llama-B tool was applied before and after the intervention so as to measure the changes within their lexical aptitude. Llama-B was specifically selected to assess the primary school gifted learner group as it involved amusing illustrations which would fit their age group as can be seen in Figure-6.



Figure 8. Illustrations on Llama-B Screen

First, both groups of students were applied Llama-B lexical aptitude test before the treatment. Gifted learners were applied the Llama-B scale on a laptop in a quiet and undistracted area. To relieve the students, considering their age and grade, the researcher told that they were going to play a vocabulary game on computer. Right after the end of the whole intervention period, which lasted for 6 weeks, both groups were applied the same Llama-B scale so as to determine if blended learning instruction led to any changes in their lexical aptitude. This procedure enabled the researcher to observe each gifted learner's lexical aptitude.

Tables 2 and 3 below indicate both groups' lexical aptitude assessed by Llama-B Scale before as well as after the implementation.

Table 2
Llama-B (lexical aptitude) scores of the Experimental Group before and after the whole (6 weeks) treatment

Blended Group	<i>Llama-B Test-1</i>	<i>Llama-B Test-2</i>
(Par1)	40%	65%
(Par2)	30%	70%
(Par3)	40%	60%
(Par4)	35%	70%
(Par5)	50%	70%
(Par6)	25%	50%
(Par7)	50%	70%
(Par8)	55%	80%

Table 3
Llama-B (lexical aptitude) scores of the Traditional (Control) Group before and after the whole (6 weeks) treatment

Traditional (Control Group)	<i>Llama-B Test-1</i>	<i>Llama-B Test-2</i>
(Par9)	20%	40%
(Par10)	45%	40%
(Par11)	10%	40%
(Par12)	30%	50%
(Par13)	30%	45%
(Par14)	30%	40%
(Par15)	60%	60%
(Par16)	40%	55%
(Par17)	35%	45%

3.3.3.2 Vocabulary tests. Gifted students who took intervention based on blended vocabulary instruction as well as the control group gifted students having been exposed to traditional vocabulary instruction solely, learned 3 sets of vocabulary in Units-4, 5 and 6. Set-1 included 10 items, Set-2 included 10 items and Set-3 included 10 items. Before and after each unit pre and posttests were applied as a part of the assessment process. Each unit lasted 2 weeks and hence learners took 3 pre-tests and 3 post-tests totally. Before and after each unit, students were applied pre-tests and post-tests. These pretests and posttests involved the same questions and consisted of 3 different question types, 'write the words', 'match with the picture' and 'multiple choice- choose the correct word for the definition'.

Tests involved 10 target items and 5 distractors. Therefore each test consisted of 15 questions. (5=write the words, 5=match with the picture and 5=multiple choice-choose the correct word for the definition). Pre-tests were applied before the intervention of each set whereas Post tests were utilized right after the intervention period (2 weeks). Therefore, the whole testing period took 6 weeks.

There were also distractors inserted into the tests to prevent students from focusing mostly on the target items than they ordinarily do. Within Set-1, out of 15 questions, 10 were target items and 5 were distractors. Within Set-2, out of 15 questions, 10 were target items and 5 were distractors. Within the last set (Set-3), out of 15 questions 10 were target items and 5 were distractors. Distractors were not scored, and each question was 1 point.

All in all, so as to find out whether learners gain and retain these words, 3 pre-tests and 3 post-tests were applied. These tests were applied in the meeting room of the school library with an allocated time of 20 minutes. These tests were meticulously designed by the researcher and checked by the supervisor to refer to both passive (receptive) and active (productive) knowledge of the items. For the purpose of measuring the receptive knowledge, students were required to match the pictures with the target word and circle the right word for the given definition, whereas for assessing the productive knowledge of the words, students had to write the words in a write-the-word test. The test sentences were kept different from the example sentences offered by the digital sets in order to avoid the familiarity. In the matching part, contextual sentences were constructed for each target item. For definition part, Cambridge and Oxford Online Dictionary content was used which was in line with their grade level.

In terms of scoring these lexical items, the total point scored for each test was 10 points (excluding the distractors). In the ‘write-the word’ test, students were supposed to write each word correctly. The vocabulary pre and post-test scores of both groups are shown in the tables below.

Table 4
Vocabulary pre and post test scores

BLENDED	<i>SET-1</i>		<i>SET-2</i>		<i>SET-3</i>	
	<i>Pre (10)</i>	<i>Post (10)</i>	<i>Pre (10)</i>	<i>Post (10)</i>	<i>Pre (10)</i>	<i>Post (10)</i>
(Par1)	5	9	4	6	3	6
(Par2)	4	9	3	9	3	9
(Par3)	3	7	3	6	3	7
(Par4)	5	9	4	9	5	9
(Par5)	5	9	4	8	5	8
(Par6)	2	8	3	8	3	8
(Par7)	5	10	5	10	4	10
(Par8)	5	10	5	10	4	10
(Par9)	5	7	5	8	4	6
(Par10)	5	8	4	8	5	7
(Par11)	4	7	5	7	4	7
(Par12)	4	8	4	7	4	7
(Par13)	3	7	4	6	4	6
(Par14)	4	8	4	8	4	6
(Par15)	4	5	3	5	2	5
(Par16)	4	8	5	9	4	7
(Par17)	4	8	4	7	4	7

3.3.3.3 Vocabulary instruction type attitude questionnaire. Data on the attitudes of gifted young learners towards blended vocabulary instruction were obtained through a questionnaire; which is easy to apply, taking a relatively short time to provide the necessary information to be processed from participants (Dornyei, 2003). The questionnaire aimed to elicit information about their attitudes towards blended vocabulary instruction and the instruction tools.

VITAQ applied at the end of the whole implementation process consisted of 20 5-point Likert Scale questions and was prepared in Turkish to enable learners to understand better. The reliability of the items were also checked with Cronbach Alpha

statistics; which indicated great internal consistency of the items. (Gliem & Gliem, 2003).

3.3.4 Data analysis procedures. The datasets were first checked if any assumptions of statistical tests were violated. When the variables in the tests did not show normality, non-parametric tests were applied. As for the assignment of groups, First, Shapiro-Wilk Normality Test and Levine's Test were used for randomization of the groups. Mann Whitney-U test was used for detecting the difference between the groups' scores. Second, Llama-B (lexical aptitude) scores of students were measured by independent double T-tests. Third, Friedman Test was used to measure if there's a significant difference between repeated measures of students' usage rates of digital tools. Fourth, Wilcoxon test was used to determine the dependent groups' Vocabulary pre and post-test scores. The attitude questionnaire results which provided answers for the third research question were analyzed with Cronbach Alpha descriptive statistics to compute the means and standard deviations of each item.

3.3.5 Reliability and Validity. Reliability and validity are essential factors to be taken into account when evaluating the credibility of the results obtained for a study. According to what Ary et al. (2010) say, validity is "the extent to which scores in a test enable one to make meaningful and appropriate interpretations" (p. 224). In order to provide validity in the study, the instructional material was selected from their own course book content which is in line with Pearson GSE scale. The visuals, definitions and the example sentences selected are also level appropriate (provided by the digital software, researcher and Cambridge/Oxford dictionaries).

Moreover, in this study the factors that could be referred to as threats against validity were tried to be reduced by the researcher. Both experimental and control group students were tested at the same time to eliminate history effect. Students were not provided with any feedback on their performance on their pre-tests, and hence it did not lead to their purposeful improvement for the post-test. Besides, the threat of selection bias was reduced as the groups were selected through both being gifted and their readiness exam vocabulary scores.

As for the reliability, which refers to the consistency of the research measurement, when the number of gifted populations in a grade level is taken into account, the number of students were restricted. However, the reliability of the questionnaire in the study was analyzed and Cronbach's Alpha was measured as ,787.

Chapter 4

Results

In the previous chapter, the methodology used to carry out the study was described in terms of its setting and participants, research design, data collection procedure and its analysis. In this chapter, the details of the data analysis as well as the results revealed will be thoroughly discussed.

In studies involving experimental and control groups, the assignment of the units needs to be random. For this reason, there should not be a statistically significant difference between the (experimental- control) groups in terms of variables and the variances should be homogeneous. Before the randomization of the groups, it was investigated whether the research variables showed normal distribution or not via Shapiro-Wilk normality test.

As a result of the normality test, the variables of readiness exam, vocabulary pre-test set 1, vocabulary pre-test set -2 and vocabulary pre-test set 3 did not show normal distribution, whereas other variables showed normal distribution. When the kurtosis and distortions of the variables were examined, Llama-B score values (pre and post), Vocabulary test set 3 post variables were determined to be right-skewed according to the normal distribution graph, while other variables were determined to be left-skewed. While post Llama-B score values, both Vocabulary Set-2 pre and post-test score values, and Vocabulary set-3 post test score values were lower than the normal distribution curve, other variables were determined as pointed. The results obtained are given in Table-5. While investigating the differences according to the characteristics of the students, parametric tests were utilized when the variables considered showed normal distribution. In this research, nonparametric tests were used if at least one variable did not show normal distribution.

Table 5
Research variables normality test results

	Skewness	Kurtosis	Shapiro-Wilk		
			Statistic	df	Sig.
Readiness Exam	-,106	5,185	,737	17	,000
Pre- Llama-B Scores (percentile)	,701	,269	,927	17	,196*
Post- Llama-B Scores (percentile)	,218	-1,328	,903	17	,076*
Vocabulary Pre-test (Set-1)	-,998	,765	,815	17	,003
Vocabulary Post-test (Set-1)	-,561	,994	,919	17	,141*
Vocabulary Pre-test (Set-2)	-,099	-1,047	,819	17	,004
Vocabulary Post-test (Set-2)	-,116	-,679	,949	17	,434*
Vocabulary Pre-test (Set-3)	-,450	,310	,862	17	,016
Vocabulary Post-test (Set-3)	,537	-,460	,915	17	,120*

4.2 Readiness Exam Scores

For the random assignment of the students to the groups, the readiness exam-Vocabulary scores were taken into account. Students' readiness test scores did not show a normal distribution according to the Shapiro Wilk normality test (*Test Statistic* 0,737 $p=0,0001$.). For this reason, the Mann Whitney U test was used to investigate whether there is a statistically significant difference between the readiness test scores of independent groups (experimental and control) or not. According to the Mann Whitney U test, no significant difference was found between the readiness test scores of the experimental and control groups ($Z= -,390, p= ,696$). The homogeneity of the variances after readiness exam scores of control and experimental groups was examined by Levene's test and variances were found to be homogeneous according to the groups ($F= 1,346, p=,264$). The results obtained are shown in Table 6.

Table 6
Difference Test of the Readiness exam scores

Group	N	Mean	Std. Deviation	Levene's Test for Equality of Variances F	Sig.	Z	P
Experimental	8	17,8338	3,38063	1,346	,264	-	,696
Control	9	18,2944	1,72436			,390	
Total	17	18,0776	2,55792				

4.3 Llama-B (Lexical Aptitude) Scores

In this study, before the integration of digital blended learning vocabulary tools, it was also examined whether there was a statistically significant difference between the lexical aptitude of the groups (Llama-B pre-test) and whether their variances are homogeneous. Since the llama-B pretest scores showed normal distribution, differences were examined by independent double sample T test. The obtained results are given in Table 7. According to Table 7, there was no significant difference between the experimental group and the control group lexical aptitude scores in terms of Llama-B pretest ($t=,768$ $p=,454$). The homogeneity of the variances of the lexical aptitude of the experimental and the control group was examined, and it was determined that the variances of the lexical aptitude scores were homogeneous.

Table 7
Lexical Aptitude score difference test

Group	N	Mean	Std. Deviation	Levene's Test for Equality of Variances F	Sig.	t	P
Experimental	8	40,63	10,501	,116	,738	,768	,454
Control	9	36,78	10,134				
Total	17	38,59	10,174				

The 8 students in the experimental group were exposed to blended vocabulary instruction for six weeks. After this exposure, their lexical aptitude scores were measured again by Llama-B. In the meantime, the control group students maintained their vocabulary acquisition through traditional classroom instruction in line with their school curriculum. In order to see the difference between the Llama-B scores of the

students, paired sample test was used for dependent groups. According to the paired sample test, it was determined that there is a statistically significant difference between the lexical aptitude of the groups of students before and after the exposure. ($t=6,385$ $p=,000$). While the average of lexical aptitude of students before the blended instruction was $38,59 \pm 10,174$, This average increased up to $55,88 \pm 13,257$ after the blended instruction. Therefore, it is possible to say that blended instruction has an effect on students' lexical aptitude. The results obtained are given in Table 8.

Table 8
Lexical aptitude difference test before and after blended vocabulary instruction

	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>t</i>	<i>P</i>
Llama-B Pre	17	38,59	10,174	6,385	,000
Llama-B Post	17	55,88	13,257		

According to table 8, significant differences were obtained, but the lexical aptitude of the experimental and the control group should be examined separately in terms of two different groups. These differences were examined for both groups in terms of paired sample T test.

For the Experimental Group:

A statistically significant difference was determined between students' Llama-B scores before and after blended vocabulary instruction. ($t=9,979$ $p=,000$). According to the difference determined, students post scores were found to be higher. The post Llama-B scores of students after blended vocabulary instruction was determined as $66,88 \pm 8,839$ whereas it was $40,63 \pm 10,501$ before the blended instruction.

For the Control Group:

Statistically significant difference was determined between students' pre-Llama-B and post Llama-B scores After traditional vocabulary instruction ($t=3,980$ $p=,004$). According to the difference determined, students' post-Llama B scores were found to be higher. Before traditional vocabulary instruction students' Llama-B scores was $36,78 \pm 10,134$ whereas after the instruction it was determined as $46,11 \pm 7,407$. The results obtained are given in Table 9.

Table 9
Difference Test of Lexical aptitude scores of each group before and after vocabulary instruction

Groups		<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>t</i>	<i>P</i>
Control Exper.	Llama Pre	8	40,63	10,501	9,979	,000
	Llama Post	8	66,88	8,839		
	Llama Pre	9	36,78	10,134	3,980	,004
	Llama Post	9	46,11	7,407		

In order to determine whether the apparent difference in the lexical aptitude score stemmed from different instructional types, the increase rate of the scores was examined. If the difference is anticipated to have resulted from traditional vocabulary instruction that took place within the classroom context, then the increase rate would be the same. The increase rates of students' lexical aptitude scores are calculated with the following equation.

$$AO = \frac{X_i - x_{i-1}}{x_{i-1}} * 100$$

The rate of increase in the lexical aptitude scores of the students in the experimental group

$$AO_{Ex} = \frac{66,88 - 40,63}{40,63} * 100 = 64,6$$

The rate of increase in the lexical aptitude scores of the students in the control group is as follows;

$$AO_c = \frac{46,11 - 36,78}{36,78} * 100 = 25,3$$

The increase rate of post Llama-B scores of experimental group students was 39,3 % higher than the increase rate determined for the control group students. Therefore, it could be stated that blended vocabulary instruction provided an increase in gifted students' lexical aptitude.

In this study, it was examined whether there is a statistically significant difference between lexical aptitude scores of students after being exposed to blended vocabulary instruction. Since Llama-B post test scores for lexical aptitude showed normal distribution, the differences were examined by independent double sample T test. There is a statistically significant difference between the experimental group and control groups post lexical aptitude scores ($t=5,271$ $p=,000$). According to the difference determined, post Llama-B scores of experimental group students ($66,88 \pm 8,839$) were higher than the control groups' post Llama-B scores ($46,11 \pm 7,407$). The results obtained are given in Table 10. It is inferred from this table that the lexical aptitude of students in the experimental group are higher than the lexical aptitude scores of the students in the control group.

Table 10
The difference test of Post Llama-B scores in terms of student groups.

Group	N	Mean	Std. Deviation	t	P
Experimental	8	66,88	8,839	5,271	0,000
Control	9	46,11	7,407		
Total	17	55,88	13,257		

4.4 Vocabulary Pre and Post Test Sores

Each 2 weeks, student groups learned 1 set of words in line with their units (10 words for each unit) within their school syllabus. Their pretest and post test scores were assessed at the end of 2nd, 4th, and 6th weeks. Their scores were evaluated to a maximum of 10 points. Wilcoxon test was utilized in order to determine if there is a statistically significant difference between dependent groups' pre- and post-test scores before and after each unit in the relevant weeks. According to the Wilcoxon test;

A statistically significant difference was determined between the vocabulary test scores of students before and after the first 2-week period ($Z= 3,686$ $p=,000$). The average of students' vocabulary test scores after first two-week treatment increased from $4,18 \pm .833$ to $8,06 \pm 1.249$.

Another statistically significant difference was found between the vocabulary scores the students gained for the unit set of 4th week ($Z= 3,642$ $p=,000$). According

to the difference determined, 4th week vocabulary scores of students also increased. The average the vocabulary test scores of the students in the 4th week increased from $4,06 \pm ,748$ to $7,71 \pm 1,448$.

There was a statistically significant difference between 6th week pretest and posttest vocabulary scores ($Z= 3,642$ $p= ,000$). According to the difference determined, students' vocabulary scores on the 6th week increased as well. At the end of 6th week, the vocabulary average score increased from $3,82 \pm ,809$ to $7,35 \pm 1,455$. The results obtained are given in Table 11.

Table 11
Difference Test of Vocabulary Pre and Post Tests

	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>Z</i>	<i>P</i>
Set 1_PRE	17	4,18	,883	3,686	,000
Set 1_POST	17	8,06	1,249		
Set 2_PRE	17	4,06	,748	3,642	,0000
Set 2_POST	17	7,71	1,448		
Set 3_PRE	17	3,82	,809	3,658	,000
Set 3_POST	17	7,35	1,455		

After determining the differences between the students' test scores regarding the words they learned by the end of 2nd, 4th and 6th weeks, the differences between the skills of the two groups regarding the words they learned per unit were examined independently with the Wilcoxon test. According to the Wilcoxon test;

For the experimental group:

It was determined that there is a statistically significant difference between the vocabulary test scores of students in the experimental group by the end of the second week ($Z=2,565$ $p=,010$). While the average of vocabulary test scores of the students was determined as $4,25 \pm 1.165$ at the beginning of the first 2-week period, this average was determined as $8,88 \pm ,991$ at the end.

Statistically significant difference was determined between the students' 4th week pre- and post-scores ($Z= 2,552$ $p= 0,11$). While the average vocabulary score of the students at the beginning of the 3rd week was $3,888 \pm ,835$, it was determined as $8,25 \pm 1,581$ at the end of 4th week.

Experimental group students' vocabulary scores during 6th week period also showed a statistically significant difference ($Z=2,539$ $p=,011$). Whereas students' average scores at the beginning of week 5 was $3,75 \pm$, it was determined as $8,38 \pm 1,408$ at the end of week-6.

For the control group:

Control group students' vocabulary test scores showed a statistically significant difference in terms of first 2-week period ($Z = 2,716$ $p=,007$). Their average test scores at the beginning of the first week was $4,11 \pm ,601$ while it increased up to $7,33 \pm 1,00$ at the end of the second week.

Control group students' vocabulary scores during 4th week also showed a statistically significant difference ($Z= 2,694$ $p=,007$). Average scores of the students at the beginning of the third week was $4,22 \pm 6,667$ whereas at the end of the 4th week it was $7,22 \pm 1,202$.

Similarly, a statistically significant difference was found for the week-6 period vocabulary scores ($Z= 2,739$ $p=,006$). Students' average scores at the beginning of week-5 was $3,89 \pm ,782$ while it increased up to $6,44 \pm ,726$ at the end of week-6. The results obtained are given in Table 12.

Table 12
Difference Test of Pre and Post Vocabulary Test Scores in terms of groups

Groups		N	Mean	Std. Deviation	Z	P
Experimental	Set 1_PRE	8	4,25	1,165	2,565	,010
	Set 1_POST	8	8,88	,991		
	Set 2_PRE	8	3,88	,835	2,552	,011
	Set 2_POST	8	8,25	1,581		
	Set 3_PRE	8	3,75	,886	2,539	,011
	Set 3_POST	8	8,38	1,408		
Control	Set 1_PRE	9	4,11	,601	2,716	,007
	Set 1_POST	9	7,33	1,000		
Control	Set 2_PRE	9	4,22	,667	2,694	,007
	Set 2_POST	9	7,22	1,202		
Control	Set 3_PRE	9	3,89	,782	2,739	,006
	Set 3_POST	9	6,44	,726		

4.5 Usage Rate of Blended Vocabulary Learning Tools

While learning new set of words, experimental group students made use of two digital vocabulary learning tools; Quizlet and Vocabulary.com. During 6 week-period, at the end of each 2 weeks, students' usage of these digital tools was assessed. Whether there was a significant difference between repeated measurements of the students' usage rate in terms of the 2 week period was examined by the Friedman test.

Friedman test is a nonparametric test that can be used as an alternative if the assumptions of one-way analysis of variance cannot be provided in repeated measures. Friedman test is widely used in cases where data with a small number of observations are indicated by census or obtained by ordinal scale. Ranking scores are used rather than real values in the test. (Hamarat, 2017, p.246).

According to Friedman test, no statistically significant difference was found between the experimental group students' usage of Quizlet during 2nd, 4th and 6th weeks. ($\chi^2 = 3,10$ $p = ,212$). The results obtained are given in Table 13.

Table 13
Difference test of experimental group students' usage of Quizlet

	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>	χ^2	<i>P</i>
Usage rate of Quizlet set-1	8	40,00	30,237	3,10	,212
Usage rate of Quizlet set-2	8	12,50	14,880		
Usage rate of Quizlet set-3	8	27,50	21,213		

According to the Friedman test, no statistically significant difference was found between Experimental group students' 2nd, 4th and 6th week period usages of Vocabulary.com. ($\chi^2 = 1,059$ $p = ,589$). The results obtained are given in Table-14.

Table 14
Difference test of experimental group students' usage of Vocabulary.com

	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>	χ^2	<i>P</i>
Usage rate of Vocabulary.com set-1	8	59,88	43,796	1,059	,589
Usage rate of Vocabulary.com set-2	8	52,88	45,203		
Usage rate of Vocabulary.com set-3	8	56,50	44,006		

4.6 Vocabulary Instruction Type Attitude Questionnaire Results

In this study, the attitudes of experimental group students towards blended type of vocabulary instruction were also specified. The scale consists of 5-point responses and it includes 20 items. Experimental group consisted of eight students. These eight students in the experimental group were asked to answer the items in the scale. Therefore, the sample size was determined as 8. Exploratory factor analysis could not be performed to determine the factor structure of the items in the sample. This is because the number of units per variable is not sufficient and the Kaiser-Mayer Olkin and Bartlett test statistics cannot be calculated. The dimensions in the scale were determined by using the relevant literature and expert researchers whose experience is trusted. The reliability of the scales was measured with Cronbach's Alpha statistics. Three dimensions were determined in the scale, but the reliability of one dimension could not be obtained as a result of the reliability analysis, and the items that distorted the scale were removed from the scale by examining all the correlations (Corrected item-total correlation) in other dimensions. Cronbach's Alpha statistic in the self-esteem and autonomy dimension was calculated as 0,674. It was determined that the items in the scale were between 4,25 and 4,75. The general average in other words Grand Mean of the autonomy scale was calculated as 4,43. The results obtained are given in Table 15.

Table 15
Self-esteem and Autonomy scale Descriptive statistics and reliability results

Self-esteem and Autonomy	Mean	Std. Deviation
<i>Thanks to Quizlet and Vocabulary.com, I can learn words at my own pace.</i>	4,38	,518
<i>These digital tools improve my classroom performance.</i>	4,50	,535
<i>When these tools are combined with classroom activities, I learn new words more easily</i>	4,75	,463
<i>In this way, the number of English words I learned increased.</i>	4,25	,707
<i>Having experienced these tools, I will continue to use them for developing my vocabulary.</i>	4,25	,707
Cronbach's Alpha	,674	

Cronbach's Alpha statistic for the usability and effectiveness scale was calculated as ,787 and both scales were found to be reliable. it was determined that the averages of the items in the scale ranged from 4,25 to 4,88. The grand mean of the scale was calculated as 4,56. The results obtained are given in Table 16.

Table 16
Usability and Effectiveness scale Descriptive statistics and Reliability results

Usability and effectiveness	Mean	Std. Deviation
<i>Using Quizlet and Vocabulary.com is easy.</i>	4,63	,518
<i>The purpose of using both applications is clearly understood.</i>	4,38	,518
<i>Pictures and sample sentences are effective for me to remember.</i>	4,63	,518
<i>I prefer to learn vocabulary both through digital tools and classroom activities.</i>	4,88	,354
<i>I was able to easily grasp the relevant options of both tools and use them.</i>	4,50	,535
<i>With Edmodo, the weekly tasks my teacher delivered were easy and straightforward.</i>	4,38	,744
<i>Quizlet's smartphone application is useful for accessing words.</i>	4,25	,707
<i>I learned many new words by looking at the sample sentences.</i>	4,75	,463
<i>Such web tools should be used in foreign language teaching.</i>	4,63	,518
Cronbach's Alpha	,787	

4.7. Conclusion

In this chapter, the data gathered quantitatively from the results of the Llama-B pre and post scale measurements, vocabulary pre and post-test scores, and attitude

questionnaire responses towards blended vocabulary instruction were presented. Overall, both Llama-B and vocabulary post test results indicated significant differences on the vocabulary gains and lexical aptitude of the gifted learners. After each two week-period, these gifted learners' vocabulary knowledge was tested by means of vocabulary pre and posttests. These tests have shown that both the blended and traditional group gifted learners increased their scores. Similarly, Llama-B final scores showed that there was a significant increase in both groups' lexical aptitude. However, in both cases the blended group gifted learners outperformed the traditional group gifted learners. Besides, as for the attitude questionnaire, blended group gifted learners revealed positive attitudes towards their instruction type and the digital tools that contributed to the intervention. The analysis of their responses showed that these learners found the tools and the instruction quite effective, accessible and useful. They also considered these supplementary tools as a positive contributor to their self-esteem and autonomy in terms of EFL learning.

Chapter 5

Discussion and Conclusion

The current research study investigated how blended vocabulary instruction tools influenced gifted young learners' lexical aptitude and vocabulary learning. Additionally, students' attitudes regarding blended vocabulary instruction were also explored. Data were gathered from students' Llama-B scores, their pre- and post-vocabulary scores and the attitude questionnaire VITAQ. In the following section, the findings regarding each research question are discussed by referring to the reviewed literature.

5.1 Discussion of Findings for Research Questions

1. What are the effects of blended learning on gifted students' vocabulary learning as compared to traditional methods?
2. Does blended vocabulary instruction help enhance gifted learners' lexical aptitude as measured by Llama-B vocabulary learning task?
3. What are the attitudes of gifted learners towards blended vocabulary instruction?

5.1.1 Discussions of results for RQ1: What are the effects of blended learning on gifted students' vocabulary learning as compared to traditional methods? The first research question aimed at exploring the effect of blended vocabulary instruction on gifted learners' vocabulary learning when compared to traditional methods. In order to seek answers to this question, pre and post test scores were analyzed statistically through Wilcoxon test. The results reached through Wilcoxon test showed that there was a statistically significant difference between the pre- and post-test scores before and after each blended period. However, control group students also developed through traditional vocabulary instruction.

In terms of descriptive statistics, the analysis of both groups' test scores showed that there was a statistically significant difference after each two-week period. Yet, the increase rate between the vocabulary posttest scores of the experimental and the control group was different. The difference test of vocabulary pre- and post-test scores in terms of groups showed that the experimental group was able to better acquire the sets of vocabulary when compared to the control group through blended vocabulary instruction. The findings of the study indicate that blended vocabulary instruction contributed to gifted young learners' vocabulary learning skills in a positive way. There may be several reasons to explain such an outcome;

5.1.1.1. Technology catering for the needs of the gifted. The experimental group students benefited from both Quizlet and Vocabulary.com tools along with the traditional vocabulary instruction. While it allowed them to work at their own pace and enabled individualized learning, it also gave them the chance to be able to connect to similar ability students (Rogers, 2007; VanTassel-Baska & Brown, 2007). The findings of this study were in line with what Merç (2015) stated earlier in terms of adjusting one's own pace. Gifted learners made use of the relevant tools in their free time and after classroom tasks individualising their own pace. In this respect, literature also supports the findings of the study as Asmuje (2016) stated such learners are well capable of adjusting their own pace as they have high cognitive abilities and skills to take control of their own learning. The fact that gifted learners should learn vocabulary in a way beyond the traditional methods such as memorising and drilling, is also supported by the literature in Akçayoğlu's (2015) research where the sample group found such methods boring and inadequate. Besides, the findings of the study are similar to what has been discussed in the literature as blended learning environment provided both engagement and autonomy. (Yunus and Kwan, 2013; Tai & Chen, 2015). Gifted learners who were content with the applications, used them at a high rate and increased their vocabulary scores accordingly. Moreover, as Besnoy (2006) suggests, use of technology promotes student-centered learning for the gifted. Gifted learners not only used the relevant applications at home but also within the classroom not having to wait for the other learners to complete the tasks. In this respect, Kaufman and Stenberg (2008) state gifted learners normally spend one-fourth to one-half of classroom time waiting for others to keep up. Finally, through Quizlet and

Vocabulary.com, gifted learners as digital natives had a higher chance of interaction among each other, content and the instructor. (Prensky, 2001; McLoughlin & Lee, 2008). Students were able to communicate with their peers who had similar abilities and had the chance to cooperate through the LMS system which gave them the full advantage of making up an online community together. All in all, as gifted learners require a differentiated EFL classroom with an instruction that offers exact pace, complexity, and cooperation with like-minded peers, (Adams & Pierce, 2004; Knopfmacher & Kronborg, 2003; Van Tassel-Baska, 1998) these tools could stand as complementary elements for their language learning.

5.1.1.2. Giftedness. There has been a statistically significant difference between the control groups' vocabulary pre and post-test scores, as well. This increase in the control group gifted students' post-test scores also indicate that they improved their vocabulary learning even though they were not exposed to blended vocabulary instruction. As both groups had their individual differences; i.e. their being gifted in common, the attributes of these gifted also need to be taken into account as regards their vocabulary development. When we take Van Tassel Baska's (1998) "individual instruction plan menu" for gifted language learners, we see that the findings of this study are in accordance with her argument. According to Van Tassel Baska (1998) these learners are capable of developing word relationship skills such as analogies, antonyms and homonyms. Even though the control group was not exposed to blended instruction, such attributes still provided them the opportunities for word building, making analogies and schematizing. As both groups were gifted, the progress of the control group may be associated with these children's advanced cognitive skills which allow them to display a high level of performance in a language class (Davis & Rimm, 1998). With reference to the literature (Passet, 2015), gifted language learners in this study similarly made use of their vocabulary acquisition skills such as focusing on the context, paying attention to linking words in the sentence, referring to L1, and using them in new contexts instead of memorizing. As there were enough opportunities to use the target vocabulary items both receptively and productively, gifted students may have activated their advanced skills for vocabulary retention.

5.1.1.3. Amount of exposure. Both the experimental and the control group learned English through intensive hours (16 lessons per week). All the gifted learners in the sample group have studied in the private school for 4 years. This high exposure may explain why both groups' vocabulary test scores showed statistically significant results. As Neufeld (1978) suggests, the skill to shine in L2 depends on classroom experiences rather than innate capacities.

What's more, their speaking foreign languages with their friends and parents at home, their extensive reading habits or their exposure to use of English outside the classroom environment via blogs, YouTube channels, cartoons, games and Netflix series should not be underestimated. As Gagné (2004) describes, gifted learners have gifted knowledge in multiple domains, their exposure through multimodal items might also have activated their verbal, non-verbal, musical and visual-spatial knowledge.

5.1.1.4. The role of other factors. Doubtlessly during this process, both groups were instructed by the same EFL teacher and with the same resources. As Yunus and Kwan (2013) state, it is an undeniable fact that the facilitator has a dual role of providing structure and direction for gifted students' when offering them alternatives for individual learning. Besides, the EFL teacher never relinquished the traditional role within the language learning environment. In this manner, Webb (1994) sees the language teachers as a catalyst saying that gifted learners cannot excel without their assistance despite their exceptional capabilities. In this study, the role of EFL teacher in terms of guidance, monitoring, and encouragement should not be overlooked. Additionally, high motivation of both groups also mattered and led them to faster vocabulary learning. Needless to say, high motivated learners perform better than low motivated learners in vocabulary learning which is aligned with the results of Sadeghi's (2013). As Rumyansteva (2006) defines, gifted learners are individuals with lateral thinking process, creative communicative abilities and sustainable motivation. Hallahan, Kauffman and Pullen (2009) also suggest that giftedness is not about being genius but a combination of being creative and having the right motivation that makes them selective among others. As a result, in reference to Tseng and Schmitt's (2008) study mentioned in the literature, it is important to highlight that motivation is a dynamic factor that affects vocabulary learning process, which is dynamic as well.

5.1.2 Discussions of results for RQ2: Does blended vocabulary instruction help enhance gifted learners' lexical aptitude as measured by Llama-B vocabulary learning task? Aptitude has been a widely studied phenomena to understand the reason why some people learn languages better or at a faster pace. However, as stated earlier, there is a dearth of studies investigating gifted learners' language aptitude. (Bain et al., 2010, Serafeim, 2020). Reports and discussions only pay attention to their psychological aspects. (Dai & Renzulli, 2008; Feldhunsen & Moon, 1992). In this study, 17 gifted young EFL learners were required to remember some lexical items through a vocabulary measurement scale called Llama-B. These learners tried to remember these items which represented some imaginary characters before and after the treatment period. This two-minute task was followed by a subtest which measured their lexical aptitude. In the light of this information, this research tried to seek answers to the RQ2 both within the foreign language classroom and their individual digital learning context. Given the findings, there has been a statistically significant difference between the experimental group students' pre- and post-Llama-B scores. The results indicate that this special population's foreign language aptitude could develop through effective blended vocabulary instruction. Therefore, it is hypothesized that the targeted population, i.e., gifted young EFL learners who are exposed to blended learning instruction have facility for learning vocabulary and hence have higher lexical aptitude.

5.1.2.1. Blended learning promoting lexical aptitude. As mentioned earlier, Gagné (2004) assumes, if given the right conditions and factors, a gifted learner can become experts in wide array of areas. Thus, in this study blended vocabulary instruction tools along with an efficient traditional vocabulary instruction provided them the chance to practice EFL lexical items more frequently and effectively which resulted in their high functioning in L2 vocabulary which resulted in the higher lexical aptitude scores of the blended instruction gifted group. According to the independent double sample T-test results, the blended vocabulary instruction group was slightly better than the control group in terms of post Llama-B scores ($t=5,271$ $p=,000$). This could be explained through many advantages that blended learning offered gifted learners. To begin with, it is essential to integrate learner independence and flexibility aspects of the blended vocabulary instruction as they fulfill the needs of gifted EFL learners. As Stracke (2009) states, blended learning provides a higher degree of learner

independence. As mentioned earlier, gifted learners tend to take responsibility for their own learning. Both blended vocabulary learning tools utilized in this study offered gifted learners automatic and instant feedback facility which gave them a clear sense of progress, achievement and awareness. Therefore it is clear that the findings of this study are similar to what has been discussed in Yunus and Kwan's (2013) research, which revealed the notion of virtual critics in terms of feedback. As explained earlier gifted learners are perfectionists who would rather seem flawless among their peers. Thus, along with the teacher's guidance, these online tools assisted them with self-correcting which may have led them to accelerate and to increase their lexical gains.

Moreover, besides monitoring their own progress and identifying their own strengths and weaknesses, blended learning offered them a rather flexible continuum of various language learning environments. (Hinkelman, 2005). Since gifted learners develop their skills better in their own time and at their own pace, the flexibility notion of blended instruction offered gifted learners a potential environment to learn without any time and place restrictions.

5.1.2.2. The role Giftedness on Language Aptitude. The statistically significant increase in control group gifted learners' lexical aptitude post-test scores may have stemmed from their attributes of giftedness. Bain et al. (2010) say that the reason of success in the gifted population's foreign language learning can be associated with their high performance in their foreign language learning environment. The same scholars also state that gifted learners perform better in an EFL classroom. Besides, gifted learners are capable of creating new products not only in their mother tongue but also in foreign languages through their linguistic creativity and divergent thinking. (Tyuleneva, 2012). Consequently, in this study, gifted young EFL learners may have exhibited talents in their EFL classrooms through their attributes stated earlier as well as their being creative, proficient at language learning and acquiring knowledge in an accelerated pace.

5.1.2.3. Shifting the instruction towards Giftedness. The most significant finding revealed is that the lexical aptitude of gifted learners were malleable as opposed to Carrollian approach of language aptitude. As stated earlier, when instruction type and the learning environment is shifted towards gifted learners' individual differences and meeting their needs, their language learning progress is also

positively influenced. As Kaplan (1999) states, when teaching a gifted ELL, the language instruction should be outlined in terms of gifted attributes without any diminishment as the gifted is not a proficient in the second/foreign language. She adds some principles that need to be in a gifted EFL classroom such as; “questioning and inquiry, decoding words with multiple meanings, using figurative as well as technical language and reinforcing the ability to perceive from different perspectives.” (p.58) Nijakowska (2010) found similar indications that some subcomponents of language aptitude can be altered and developed with the aid of customized instruction which is also in line with this study’s findings. In this study, once again blended learning environment, their experiences and their training (number of intense hours) contributed to the language learning of the gifted which is similar to what Robinson (2002) states. According to the scholar, at least to an extent experience and training may impact on language aptitude.

The participants in this study were private school gifted EFL learners and they attended a variety of foreign language lessons including CLIL, Extension and Inquiry, which made a difference in their aptitude scores. This also supported the argument of Eisenstein (1980) as he states bilinguals and students with FL training may reach higher levels of language aptitude when compared to individuals without such experience. The study of Kormos and Safar (2008) also showed parallel results with the current study as they compared two groups undergoing two different amounts of ESL instruction, one being intense. They concluded that those having intense ESL instruction had significantly higher language aptitude scores. As mentioned in the literature review, Larsen-Freeman and Long (1991) interpreted achievement in language aptitude tests as an emergence of former classroom experience instead of innate linguistic ability. In conclusion, intense exposure and an effective foreign language classroom design can alter gifted learners’ lexical aptitude.

5.1.3 Discussions of results for RQ3: What are the attitudes of gifted learners towards blended vocabulary instruction? Gifted EFL learners in the blended group were given an attitude questionnaire (VITAQ). The data gathered from the questionnaire revealed results concerning gifted learners’ attitudes towards blended vocabulary instruction. The results indicated that almost each gifted learner in

the blended group thought the blended vocabulary learning tools and the blended vocabulary instruction contributed to their self-esteem and autonomy (Grand mean= 4,43). Besides, gifted learners also agreed that using and accessing such tools were quite easy and they found these tools beneficial and effective for their vocabulary learning process. (Grand mean= 4,56)

This study showed that recycling of unknown words in a foreign language and spaced repetition offered by digital vocabulary platforms along with the classroom instruction can increase gifted learners' language and vocabulary learning potential in an entertaining and motivating way. The responses given to the attitude questionnaire revealed the fact that such an instruction method provided them autonomy while freeing them from time, instructor and other constraints. (Ng & Nicholas, 2007). Each student in this study evaluated their experience positively which also supports Wallace's (2005, 2009) claim. While making use of these technologies that enrich learning opportunities for them, they had fun and felt motivated as the tools also provided instant and rewarding feedback.

When participants' achievements are analyzed in terms of their attitudes;

Table 17.

Relation between gifted learners' attitudes towards blended learning and their performance in vocabulary development.

PARTICIPANTS		VITAQ Mean Score	Use of Quizlet (%)	Use of Vocabulary.com (%)	Increase Rate in Llama-B (Lexical Aptitude) Scores (%)	Increase Rate in Vocabulary Pre-Post Test Scores (%)
Experimental	PAR-1	4,00	13.33	13.33	38.5	43
	PAR-2	4,85	33.33	100.	57.1	63
	PAR-3	4,50	20	4.33	33.3	55
	PAR-4	4,55	40	30.33	50.0	48
	PAR-5	4,35	13.33	19.66	28.6	44
	PAR-6	4,70	13.33	50.33	50.0	67
Control	PAR-7	4,70	53.33	100	28.6	53
	PAR-8	4,60	26.67	43.75	43.75	53

Among the blended gifted learner group participants, those with the highest mean scores in VITAQ were Participant-2, Participant-4, Participant-6, Participant-7 and Participant-8. Except for Participant-4, all these participants increased their Vocabulary Post Test scores with a rate higher than %50. Similarly, the aforementioned participants reached the highest rate of increase in terms of Llama-B scores except for Participant-7. Accordingly, both Participant-2 with the mean score of 4,70 and Participant-6 with mean score of 4,60 had the highest Llama-B and Vocabulary Test Score gains within the blended group. Besides, both Participant-2 and Participant-7, made use of Vocabulary.com at a rate of %100. As for the gifted learners with the lowest mean scores, the usage rate of the blended vocabulary learning tools were no more than %20 and both had the lowest rate of increase in terms of Vocabulary Tests.

Overall, it could be inferred from Table-17 that gifted learners who showed the highest positive attitudes towards blended vocabulary instruction ended up with further development both in Llama-B post measurement scale results and in Vocabulary Post-test scores. The exceptions may once again be attributed to other factors.

However, due to the size of the sampling, the table is explored through descriptive statistics and hence does not show any statistically significant difference. Yet, considering gifted learners' highly positive results, we may assume that if instructors can lead gifted learners through unprompted engagement and provide the necessary motivation for them to develop positive attitudes towards blended instruction, such learners may consequently increase their scores. Once again, it could also be hypothesized that language aptitude of gifted learners could alter when the instruction type is shifted towards giftedness.

5.2 Conclusions

This study explored the influence of blended vocabulary instruction on gifted young EFL learners' lexical aptitude. Gifted learners' attitudes towards such instruction was also investigated in this study. It was conducted with 17 gifted learners and one EFL instructor in a private K12 school in the West of Turkey. Data were collected via Llama-B scores and Vocabulary pre- and post-the scores and VITAQ

responses of students. The pre-Llama-B test was aimed to gather information on gifted learners' lexical aptitude before the treatment. Both groups were exposed to traditional vocabulary instruction whereas a group of eight students was given the treatment of blended vocabulary instruction. Each group learned one set of words (10 items) in two weeks-period. The study took six weeks and students were expected to gain a total of 30 items by the end of the study. Before and after each two weeks, students received pre and post vocabulary tests measuring the gains of these lexical items. At the end of 6 weeks, gifted students were given the Llama-B test again in order to measure the difference. All the data were analyzed quantitatively.

This chapter of the study includes pedagogical implications, limitations, and delimitations for further research.

5.3 Pedagogical Implications

According to Bouck and Hunley (2014), when one encounters a study on technology in gifted literature it is often a part of stem education. This view is also supported by Dai et al (2011) who discovered that only 1.3% of 1234 gifted education articles written between 1999 and 2010 referred to the relationship between technology and giftedness. In this respect this study is unique as it not only refers to the relationship between blended education and gifted students' vocabulary learning but also to their language aptitude and technology.

Through this study, both groups demonstrated that they improved their lexical learning with statistically significant differences in terms of their Vocabulary pre-and post test and Llama-B scores. Given the difference in scores, both groups showed development in vocabulary learning in an EFL language in terms of descriptive statistics, however; blended vocabulary instruction was slightly more effective in terms of lexical gains and vocabulary learning in an EFL language. Therefore, in the present study, which explored the effect of blended instruction on primary gifted EFL learners' lexical aptitude and vocabulary learning, both test scores and VITAQ responses showed that foreign language educators can better fulfill vocabulary learning skills of their intellectually gifted learners through blended instruction.

The results of the study are crucial for gifted population's vocabulary development in a foreign language class as they also showed that such population even

without blended exposure but with an effective teaching methodology can demonstrate lexical growth after a period of time (6 weeks). Therefore, individual differences of these learners need to be taken into consideration as they have an exceptional way of learning which can result in rapid improvements in a specific learning area. It has been stated earlier that gifted learners may show high achiever qualities in an EFL context Kaplan just like in any other area with their faster rate of learning and verbal abilities (Renzulli, 2005). As mentioned by Skehan (1991), when learning a second language, individual differences need to be considered. In this study, these learners' gifted attributes contributed both to their foreign language learning and their language aptitude; which is also regarded as another ID. Therefore, as referred in the second chapter, Kormos' (2013) view that certain components of aptitude could alter is also confirmed as regards the results.

Consequently, results of the study lead us to revolve around one of the most essential questions to ask; is it nature or nurture? In this respect, in an EFL class with gifted young learners we need to structure our pedagogical approaches respecting their natural abilities as well as their individual efforts within the learning environment. Thus, giftedness stands out as one of the core reasons that can explain the rapid increase in their lexical aptitude scores. These learners already have superior learning abilities. When these abilities are combined with effective pedagogical methodologies in foreign language learning contexts, they may show great progress as seen in this study. In the light of a restricted range of language aptitude research, it is noteworthy to point out that language aptitude and language experience co-subsist on the same continuum. On the basis of the abovementioned studies, increased amount of input, output opportunities and interaction can alter language aptitude to some extent. Therefore, we hypothesize that foreign language aptitude is influenceable by effective experience and high exposure which is also in parallel with the point of view of Singleton (2014).

All in all, blended vocabulary instruction offers great potential to the language development of gifted learners. However, the existing research is not enough to give sufficient answers for the effect of blended vocabulary instruction in the long run. In this respect, further research would contribute on the effects of blended instruction on gifted EFL learners' lexical learning. Moreover, as this study was restricted with gifted students' vocabulary enhancement and lexical aptitude, further research can reveal the

effects of blended instruction not only for just vocabulary but also for the improvement of their four skills: reading, speaking, writing and listening along with their foreign language aptitude.

5.4 Recommendations

Without doubt blended instruction provides optimal conditions for the language learning of gifted learners. However, the existing research is not enough to give sufficient answers for the effect of blended vocabulary instruction in the long run. In this respect, further research would contribute to the effects of blended instruction on gifted EFL learners' lexical learning. Moreover, as this study was restricted with gifted students' vocabulary enhancement and lexical aptitude, further research can reveal the effects of blended instruction not only for just vocabulary but also for the improvement of their four language learning skills; reading, speaking, writing and listening along with their foreign language aptitude.

5.5 Limitations

This study was carried out only with the gifted population that study in a private K12 school in the West of Turkey. Therefore, regarding the convenience of the sampling, the results cannot be generalized to all contexts thanks to the age group and the grade level. Therefore, it is not possible to generalize the results obtained for all the gifted students in the same age group. In addition, as the school where the study was conducted is a part of corporate private schools, the researcher had to keep up with the curriculum and the treatment was kept six weeks not to cause any exacerbating inequalities. Therefore, this study could be applied to more private and state school gifted learners and hence the treatment could be replicated in other settings to gain more insights on this specific population.

5.6 Delimitations

This study has been limited in terms of its scope through several purposeful boundaries. First of all, this study was conducted with gifted learners only as it tried

to aim at investigating the effectiveness of blended vocabulary instruction specifically on these types of learners' lexical aptitude. In addition, Llama-B was a purposefully chosen as the aptitude measurement scale which was appropriate with their age and level. Moreover, Quizlet and Vocabulary.com were also intentionally selected as they are one of the most widely used digital flash card applications with over millions of active learners. Yet, the digital tasks and Llama-B was intentionally selected in accordance with their age and level taking their daily assignments into account. Gifted learners selected for this study, even though being overloaded with a variety of tasks and assignments by other school subjects, still implied that they considered a blended type of vocabulary learning method effective, usable, and motivating.

In conclusion, the findings of the study revealed that blended instruction appeared to be slightly more effective than traditional instruction in terms of teaching vocabulary to the gifted. The attitudes of the gifted towards blended vocabulary instruction were found to be either positive or highly positive. Bearing the advantages of blended vocabulary tools in mind, gifted foreign language teachers and gifted curriculum planners should seek better ways to promote this special population's lexical learning as well as their language learning through effective teaching strategies with an intensive program, which also ensures their full engagement and motivation. Such population deserve a customized language learning instruction where they can take control of their learning to some extent. According to the findings of this study, lexical aptitude is found to be prone to change with intensive exposure which is also consistent with the results of Kormos' (2013) study as mentioned in the literature. This study adopted a modern approach by utilizing Meara's (2005) Llama aptitude test and suggested that language aptitude is a dynamic construct with malleable abilities which interact with learners' attributes and attitudes, which is similar to the case in Larsen-Freeman's study (2001). To the author's knowledge, this study was the first empirical attempt to explore the lexical aptitude and vocabulary learning of young gifted learners through blended instruction. Still, further empirical research is required in this distinct area to provide useful information for EFL teachers, EFL curriculum designers and gifted education specialists.

REFERENCES

- Abrahamsson, N., & Hyltenstam, K. (2008). The robustness of aptitude effects in near-native second language acquisition. *Studies in second language acquisition*, 30(4), 481-509.
- Adams, C. M., & Pierce, R. L. (2004). Attitudes of American and English preservice teachers toward gifted learners. *Gifted and Talented International*, 19(1), 15-23.
- Ağca, R. K., & Özdemir, S. (2013). Foreign language vocabulary learning with mobile technologies. *Procedia-Social and Behavioral Sciences*, 83, 781-785.
- Akçayoğlu, D. I. (2015). Voices From Magic Brains: Gifted Language Learners And Their Foreign Language Learning Experiences. *International Journal of Arts & Sciences*, 8(6), 639.
- Al Buraiki, M. S. M., & Al-Hamdani, D. (2017). Examining the effectiveness of using online activities in learning english vocabulary. In *2017 6th International Conference on Information and Communication Technology and Accessibility (ICTA)* (pp. 1-4). IEEE.
- Alameh, S. H. A. (2018) The Role of Identifying the Lexical Relations among Target Vocabulary Words through Blended Learning on EFL Students' Mastery in Using Target Vocabulary.
- Alamer, H. (2020). Impact of Using Blackboard on Vocabulary Acquisition: KKU Students' Perspective. *Theory and Practice in Language Studies*. 10. 598. 10.17507/tpls.1005.14.
- Aldera, A. S., & Mohsen, M. A. (2013). Annotations in captioned animation: Effects on vocabulary learning and listening skills. *Computers & Education*, 68, 60-75.
- Al-Khasawneh, F. M., & Al-Omari, M. A. (2015). Motivations towards learning English: The case of Jordanian gifted students. *International Journal of Education*, 7(2), 306-321.

- Alpala, C. A. O., & Flórez, E. E. R. (2011). Blended learning in the teaching of English as a foreign language: An educational challenge. *How*, 18(1), 154-168.
- Alshwiah, A. A. S. (2009). The Effects of a Blended Learning Strategy in Teaching Vocabulary on Premedical Students' Achievement, Satisfaction and Attitude toward English Language. *Online Submission*.
- Altun, F. & Yazıcı, H. (2010). Learning styles of the gifted students in Turkey. *Procedia - Social and Behavioral Sciences*. 9. 198-202. 10.1016/j.sbspro.2010.12.136.
- Anderson, C., Broadbent L., & Etherton S. (2020). *Grow Level 4 Book-B*. İstanbul, Turkey: Mentora Publishing
- Artieda, G., & Muñoz, C. (2016). The LLAMA tests and the underlying structure of language aptitude at two levels of foreign language proficiency. *Learning and Individual Differences*, 50, 42-48.
- Ary, D., Jacobs, L. C., & Sorensen, C. (2010). *Introduction to Research in Education* (8th ed.). Belmont, CA: Wadsworth, Cengage Learning.
- Ashcroft, R. J., & Imrie, A. C. (2014). Learning vocabulary with digital flashcards. In *JALT2013 Conference Proceedings* (pp. 639-645).
- Asmuje, N. (2016). Application Of Student Centeredness Learning In Teaching Practices For Gifted And Talented Muslim Students.
- Aust, R., Kelley, M. J., & Roby, W. (1993). The use of hyper-reference and conventional dictionaries. *Educational Technology Research and Development*, 41(4), 63-74.
- Baddeley, A. (1986). *Oxford psychology series, No. 11. Working memory*. Clarendon Press/Oxford University Press.
- Baddeley, A., & Della Sala, S. (1996). Working memory and executive control. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 351(1346), 1397-1404.
- Baddeley, A., Gathercole, S., & Papagno, C. (1998). The phonological loop as a language learning device. *Psychological Review*, 105(1), 158–173. <https://doi.org/10.1037/0033-295X.105.1.158>

- Bain, S. K., McCallum, R. S., Bell, S. M., Cochran, J. L., & Sawyer, S. C. (2010). Foreign Language Learning Aptitudes, Attitudes, Attributions, and Achievement of Postsecondary Students Identified as Gifted. *Journal of Advanced Academics*, 22(1), 130–156. <https://doi.org/10.1177/1932202X1002200106>
- Baker, S.K., Simons, D.C., & Kamenui, E.J. (1995). *Vocabulary Acquisition: Synthesis of the Research*. (Tech. Rep. No. 13). Eugene: University of Oregon, National Center to Improve the Tools of Educators.
- Bakhtiyar, M. A. (2017). Promoting blended learning in vocabulary teaching through WhatsApp. *Nidhomul Haq: Jurnal Manajemen Pendidikan Islam*, 2(2), 106-112.
- Baser C. , & Kanar N. M. (2014). "How can you “Gift” to Second Language Young Learners" *Procedia - Social and Behavioral Sciences*, vol. 136, 2014. doi:10.1016/j.sbspro.2014.05.322
- Bates, G. W. (1984). Developing reading strategies for the gifted: A research-based approach. *Journal of Reading*, 27(7), 590-593.
- Belcastro, F. P. (2002). Electronic technology and its use with rural gifted students. *Roeper Review*, 25(1), 14-16.
- Bencheva, N. (2010). Learning styles and e-learning face-to-face to the traditional learning. *Научни Трудове На Русенския Университет*, 49, 63-67.
- Besnoy, K. (2006). How do I do that? Integrating web sites into the gifted education classroom. *Gifted Child Today*, 29(1), 28-34.
- Bielawski, L. & Metcalf, D. S. (2003). Blended elearning: Integrating knowledge, performance, support, and online learning. Human Resource Development.
- Bouck, E.C. and Hunley, M., (2014). Technology and giftedness. In *Gifted Education: Current Perspectives and Issues*. Emerald Group Publishing Limited.
- Brett, P. (1998). Using Multimedia: A Descriptive Investigation of Incidental Language Learning. *Computer Assisted Language Learning*, 11(2), 179-200. Retrieved November 29, 2020 from <https://www.learntechlib.org/p/85246/>.

- Bruning, R., & Horn, C. (2000). Developing motivation to write. *Educational psychologist*, 35(1), 25-37.
- Buckley, C. A., Pitt, E., Norton, B., & Owens, T. (2010). Students' approaches to study, conceptions of learning and judgements about the value of networked technologies. *Active Learning in Higher Education*, 11(1), 55-65.
- Bulut, İ. (2010). Türkiye'de üstün zekâlı çocuklar örneğinde erken yaşta yabancı dil olarak ingilizce öğretimi [Teaching English as a foreign language to young learners in Turkey in the case of gifted children]. *İstanbul Üniversitesi, İstanbul, Turkey*.
- Burston, J. (2012). Mobile language learning: Getting IT to work. *Foreign language instructional technology*, 81-99.
- Bylund, E., Abrahamsson, N., & Hyltenstam, K. (2012). Does first language maintenance hamper nativelikeness in a second language? A study of ultimate attainment in early bilinguals. *Studies in second language acquisition*, 34(2), 215-241.
- Bylund, E., & Ramírez-Galan, P. (2016). Language aptitude in first language attrition: A study on late Spanish-Swedish bilinguals. *Applied linguistics*, 37(5), 621-638.
- Carroll, J. B. (1981) 'Twenty five years of research on foreign language learning aptitude' in Diller, K.C. (ed) (1981) *Individual Differences and Universals in Language Learning Aptitude*, Rowley: Newbury House
- Carroll, J. B., & Sapon, S. M. (1959). *Modern language aptitude test*. Psychological Corporation.
- Cartner, H. (2009). Blended learning and the academic word lists. *New Zealand Studies in Applied Linguistics*, 15(2), 30-40.
- Cenoz, J. (2003). The influence of age on the acquisition of English: General proficiency, attitudes and code mixing. *Age and the acquisition of English as a foreign language*, 77-93.

- Chacón-Beltrán, R. (2018). Vocabulary learning strategies outside the classroom context: what adults learn in a technology-based learner-centred environment. *The Language Learning Journal*, 46(5), 583-593.
- Chamot, A. U., & Kupper, L. (1989). Learning strategies in foreign language instruction. *Foreign language annals*, 22(1), 13-22.
- Chapelle, C. A. (2001). *Computer applications in second language acquisition*. Cambridge University Press.
- Cherciov, M. (2011). *Between attrition and acquisition: The dynamics between two languages in adult migrants* (Doctoral dissertation).
- Clark, B. (2002). Growing up gifted: Developing the potential of children at home and at school. Upper Saddle River, N.J: Merrill/Prentice Hall.
- Clark, E. V. (2009). First language acquisition. Cambridge, Uk: Cambridge University Press. <https://doi.org/10.1017/CBO9780511806698>.
- Cohan, S. L. (1987). Teaching Modern Foreign Language to Gifted High School Students: A Study Of Language Learning Giftedness And Teaching Techniques For Foreign Language Programs In Gifted Education (Identification, Defining, Characteristics, Styles).
- Covner-Crockin, T. (1981). The relationship of personality type to vocabulary development. *ERIC Documentation Reproduction Service No. ED*, 228603.
- Cox, J. G., Lynch, J. M., Mendes, N., & Zhai, C. (2019). On bilingual aptitude for learning new languages: The roles of linguistic and nonlinguistic individual differences. *Language Learning*, 69(2), 478-514.
- Curcic, M., Andringa, S., & Kuiken, F. (2019). The role of awareness and cognitive aptitudes in L2 predictive language processing. *Language Learning*, 69, 42-71.
- Çelik, G. Y. (2019). The role of the language aptitude and self-reported strategy use on the achievement of EFL learners (Master's thesis, Balıkesir University Social Sciences Institute).
- Çelik-Şahin, Ç., & Schmidt, O. (2014). Teaching English Activities for the Gifted and Talented Students. *Journal for the Education of the Young Scientist and Giftedness*, 2(1), 53-67.

- Dai, D.Y. and Renzulli, J.S., (2008). Snowflakes, living systems, and the mystery of giftedness. *Gifted child quarterly*, 52(2), pp.114-130.
- Dai, D.Y., Swanson, J.A. and Cheng, H., (2011). State of research on giftedness and gifted education: A survey of empirical studies published during 1998—2010 (April). *Gifted child quarterly*, 55(2), pp.126-138.
- Damaiyanti, M. & Sari, I. (2017). Improving Students' vocabulary Mastery by Using Blended Learning Model in State Polytechnic Padang. *Script Journal: Journal of Linguistic and English Teaching*. 2. 101. 10.24903/sj.v2i1.66.
- Davis, G.A., & Rimm, S.B. (1998) Education of the gifted and talented (4th ed.). Needham Heights, MA: Allyn and Bacon.
- Davis, J. N., & Lyman-Hager, M. A. (1997). Computers and L2 Reading: Student Performance, Student Attitudes 1. *Foreign language annals*, 30(1), 58-72.
- de Bot, K. (2015). Circadian rhythms and second language development. *International Journal of Bilingualism*, 19(2), 142-155.
- Degani, T., & Goldberg, M. (2019). How Individual Differences Affect Learning of Translation-Ambiguous Vocabulary. *Language Learning*, 69(3), 600-651.
- Djiwandono, P. (2013). A blended learning approach to enhance college students' vocabulary learning. *Electronic Journal of Foreign Language Teaching*. 10. 210-220.
- Dörnyei, Z. (2003). Attitudes, orientations, and motivations in language learning: Advances in theory, research, and applications. *Language learning*, 53(S1), 3-32.
- Dörnyei, Z., & Skehan, P. (2003). 18 Individual Differences in Second Language Learning. *The handbook of second language acquisition*, 589.
- Driscoll, M. (2002). Blended learning: Let's get beyond the hype. *E-Learning*, 3(3), 54.
- Drozдова, P., Van Hout, R., & Scharenborg, O. (2017). L2 voice recognition: The role of speaker-, listener-, and stimulus-related factors. *The Journal of the Acoustical Society of America*, 142(5), 3058-3068.
- Dunn, R. S., & Price, G. E. (1980). The learning style characteristics of gifted students. *Gifted Child Quarterly*, 24(1), 33-36.

- Ebadi, S., & Ghuchi, K. D. (2018). Investigating the Effects of Blended Learning Approach on Vocabulary Enhancement from EFL Learners' Perspectives. *Journal on English Language Teaching*, 8(2), 57-68.
- Eckstein, M. (2009). Enrichment 2.0: Gifted and talented education for the 21st century. *Gifted Child Today*, 32(1), 59-63.
- Efstathiadi, L. (2019). Early Foreign Language Learning: Intensive Exposure, Vocabulary Development and the Cognitive Skills Involved. *Belgrade English Language and Literature Studies*, 11(IKEEART-2019-1050), 81-111.
- Eisenstein, M. (1980). Childhood bilingualism and adult language learning aptitude. *International Review of Applied Psychology*.
- Ellis, N. C. (1995). The psychology of foreign language vocabulary acquisition: Implications for CALL. *Computer Assisted Language Learning*, 8(2-3), 103-128.
- Ellis, N. C. (1996). Working memory in the acquisition of vocabulary and syntax: Putting language in good order. *The Quarterly Journal of Experimental Psychology Section A*, 49(1), 234-250.
- Ersoy Özer, Y., & Koçoğlu, Z. (2017). The use of Quizlet flashcard software and its effects on vocabulary learning.
- Erşin, Z. (2011). The Effectiveness Of Commercial Software In Teaching Grammar. MA Thesis, Bilkent University, Ankara.
- Faulkner, H. (2003). Predicting gifted foreign language learning and performance. PhD thesis, University of Nottingham.
- Feldhusen, J., & Sokol, L. (1982). Extra-school programming to meet the needs of gifted youth: Super Saturday. *Gifted Child Quarterly*, 26(2), 51-56.
- Fillmore, L. W. (1979). Individual differences in second language acquisition. In *Individual differences in language ability and language behavior* (pp. 203-228). Academic Press.
- Fontecha, A. F. (2010). Gender and motivation in EFL vocabulary production. In *Gender perspectives on vocabulary in foreign and second languages* (pp. 93-116). Palgrave Macmillan, London.

- Forsberg Lundell, F., & Sandgren, M. (2013). High-level proficiency in late L2 acquisition: Relationships between collocational production, language aptitude and personality.
- Franklin, M. J., & Friedl, B. C. (1973). Teaching Gifted Students Foreign Language in Grades Ten Through Twelve.
- Franks, B., & Dolan, L. (1982). Affective characteristics of gifted children: Educational implications. *Gifted Child Quarterly*, 26(4), 172-178.
- Friedman, T. L. (2005). It's a flat world, after all. *The New York Times*, 3, 33-37.
- Gallagher, S. A. (2017). Exploring the Efficacy of The Word Within the Word for Gifted and Typically Developing Students. *Roeper Review*, 39(2), 96-111.
- Gardner, D. (2004). Vocabulary input through extensive reading: A comparison of words found in children's narrative and expository reading materials. *Applied Linguistics*, 25(1), 1-37.
- Gardner, H. (1992). *Multiple intelligences* (Vol. 5, p. 56). Minnesota Center for Arts Education.
- Gardner, R. C., Lalonde, R. N., & Moorcroft, R. (1985). The role of attitudes and motivation in second language learning: Correlational and experimental considerations. *Language learning*, 35(2), 207-227.
- Gardner, R. C., & Lambert, W. E. (1972). Attitudes and Motivation in Second-Language Learning.
- Gathercole, S. E., & Baddeley, A. D. (1993). Phonological working memory: A critical building block for reading development and vocabulary acquisition. *European Journal of Psychology of Education*, 8(3), 259.
- Genesee, F. (1976). The Role of Intelligence in Second Language Learning 1. *Language Learning*, 26(2), 267-280.
- Gliem, J. & Gliem, R. (2003). Calculating, Interpreting, And Reporting Cronbach's Alpha Reliability Coefficient for Likert-Type Scales. 2003 Midwest Research to Practice Conference in Adult, Continuing, and Community Education.

- Gökaydın, B., Bağlama, B., & Uzunboylu, H. (2017). Language Learning of Gifted Individuals: A Content Analysis Study. *Profile Issues in Teachers Professional Development*, 19, 109-118.
- Grace, C. (1998). Personality type, tolerance of ambiguity, and vocabulary retention in CALL. *CALICO journal*, 19-45.
- Graham, C.R. (2006). Blended learning systems: Definition, current trends, and future directions. In C.J. Bonk & C.R. Graham (Eds.), *Handbook of blended learning: Global perspectives, local designs* (pp. 3-21). San Francisco, CA: Pfeiffer Publishing.
- Granena, G. (2012). Age differences and cognitive aptitudes for implicit and explicit learning in ultimate second language attainment (Doctoral dissertation).
- Granena, G. (2013). Individual differences in sequence learning ability and second language acquisition in early childhood and adulthood. *Language Learning*, 63(4), 665-703.
- Granena, G. (2014). Language Aptitude and Long-term Achievement in Early Childhood L2 Learners. *Applied Linguistics*. 35. 483-503. 10.1093/applin/amu013.
- Granena, G., & Long, M. (Eds.). (2013a). *Sensitive periods, language aptitude, and ultimate L2 attainment* (Vol. 35). John Benjamins Publishing.
- Granena, G., & Long, M. (2013b). Age of onset, length of residence, language aptitude, and ultimate L2 attainment in three linguistic domains. *Second Language Research*, 29(3), 311-343.
- Granena, G., Jackson, D. O., & Yılmaz, Y. (Eds.). (2016). *Cognitive individual differences in second language processing and acquisition* (Vol. 3). John Benjamins Publishing Company.
- Granena, G., & Yılmaz, Y. (2018). Aptitude-treatment interaction in L2 learning: A research synthesis. *Studies in English Education*, 4, 803-830.
- Greenes, C. (1981). Identifying the gifted student in mathematics. *The Arithmetic Teacher*, 28(6), 14-17.
- Hallahan, D. J., Kauffman, J. M., & Pullen, P. C. (2009). *Exceptional Learners* Boston.

- Hamarat, B. (2017). SPSS ve MINITAB Uygulamalı İstatistik, Paradigma Yayınevi. Çanakkale.
- Harley, B., & Hart, D. (1997). Language aptitude and second language proficiency in classroom learners of different starting ages. *Studies in second language acquisition*, 379-400.
- Harris, B., Rapp, K. E., Martínez, R. S., & Plucker, J. A. (2007). Identifying English language learners for gifted and talented programs: Current practices and recommendations for improvement. *Roeper Review*, 29(5), 26-29.
- Hassan, R.E. (2010). Software application for computer aided vocabulary learning in a blended learning environment. <https://www.semanticscholar.org/paper/Software-application-for-computer-aided-vocabulary-Hassan/61c16d44e3c985280938cfe3207dcb42ce8a12f8>
- Hayes, P.A., Norris, J., Flaitz J.R. (1998): A comparison of the oral narrative abilities of underachieving and high achieving gifted adolescents: a preliminary investigation. In: language, speech and hearing services in school. 29. 158-171.
- Hinkelman, D. (2005). Blended learning: Issues driving an end to laboratory-based CALL. *JALT Hokkaido journal*, 9(2005), 17-31.
- Horak, A. K., & Galluzzo, G. R. (2017). Gifted middle school students' achievement and perceptions of science classroom quality during problem-based learning. *Journal of Advanced Academics*, 28(1), 28-50.
- Hsu, C. K., Hwang, G. J., Chang, Y. T., & Chang, C. K. (2013). Effects of video caption modes on English listening comprehension and vocabulary acquisition using handheld devices. *Educational Technology & Society*, 16(1).
- Hulstijn, J. H., & Laufer, B. (2001). Some empirical evidence for the involvement load hypothesis in vocabulary acquisition. *Language learning*, 51(3), 539-558. <http://dx.doi.org/10.1111/0023-8333.00164>
- Hummel, K. M., & French, L. M. (2010). Phonological memory and implications for the second language classroom. *Canadian Modern Language Review*, 66(3), 371-391.

- İbrahim, A. R., Yusoff, N. M. R. N., bin Zakaria, Z., bin Ahmad Hilmi, A. B., & bin Spawi, M. (2017). Teaching Foreign Languages To Gifted And Talented Students Using Tablets.
- Ismail, A. M., & Abdel-Majeed, U. M. (2006). Predicting gifted EFL students' goal orientation, cognitive engagement, perceived linguistic competence, and achievement with epistemological beliefs. In Regional Scientific Conference on Giftedness, Jeddah, Saudi Arabia(pp. 26-29).
- Juffs, A. & M. Harrington (2011). Aspects of working memory in L2 learning. *Language Teaching* 44.2, 137–166.
- Kallergi, S. G. (2015). Memory and Vocabulary Development In Children.
- Kalyuga, M., Mantai, L., & Marrone, M. (2013). Efficient vocabulary learning through online activities. *Procedia-Social and Behavioral Sciences*, 83, 35-38.
- Kaplan, S. N. (1999). Teaching up to the needs of the gifted English language learner. *Tempo*, 14(2), 20.
- Kaplan Sayı, A. & Emir, S. (2016). Farklılaştırılmış Yabancı Dil Öğretiminin Üstün Zekâlı Öğrencilerde Eleştirel Düşünmeye Etkisi 3. *The Journal Of International Education Science/Uluslararası Eğitim Bilimleri Dergisi*. 3. 13-31.
- Karaaslan, H., & Kılıç, N. (2019). Students' attitudes towards blended language courses: A case study. *Dil ve Dilbilimi Çalışmaları Dergisi*, 15(1), 174-199.
- Karataş, Y., & Sarıçam, H. (2016). The relationship between moral maturity and sense and behaviors of responsibility in gifted children. *Global Journal of Psychology Research: New Trends and Issues*, 6(1), 10-19.
- Kaufman, S. B., & Sternberg, R. J. (2008). Conceptions of giftedness. In *Handbook of giftedness in children* (pp. 71-91). Springer, Boston, MA.
- Kepinska, O., de Rover, M., Caspers, J., & Schiller, N. O. (2017). On neural correlates of individual differences in novel grammar learning: an fMRI study. *Neuropsychologia*, 98, 156-168.
- Khatena, J. (2000) Enhancing creativity of gifted children: a guide for parents and teachers. New Jersey: Hampton Press

- Khazaei, S., Dastjerdi, H.V. (2011). An Investigation into the Impact of Traditional vs. Blended Teaching on EFL Learners' Vocabulary Acquisition: M-learning in Focus. *International Journal of Humanities and Social Science*, 1(15), 202-207
- Kim, J. R., & Kim, Y. H. (2019). The effects of input/output enhanced instructions on vocabulary and grammar gains in blended learning. *언어연구*, 36, 107-122.
- Kitade, K. (2008). The role of offline metalanguage talk in asynchronous computer-mediated communication. *Language Learning & Technology*, 12(1), 64-84.
- Knopfmacher, S., Kronborg, L., Knopfmacher, S., & Kronborg, L. G. (2003). Characteristics, competencies and classroom strategies of effective teachers of gifted and talented students. In Australian Association for the Education of the Gifted and Talented (AAEGT).
- Kormos, J. (2013). New conceptualizations of language aptitude in second language attainment. In G. Granena & M. Long (Eds.), *Sensitive periods, language aptitude and ultimate attainment* (pp. 131-152). Amsterdam: John Benjamins.
- Krashen, S. D. (1985). *Inquiries & insights: second language teaching: immersion & bilingual education, literacy*. Alemany Press.
- Krashen, S. (1989). We acquire vocabulary and spelling by reading: Additional evidence for the input hypothesis. *The modern language journal*, 73(4), 440-464.
- Krashen, S., Long, M., & Scarcella, R. (1982). Accounting for child-adult differences in second language rate and attainment. *Child-adult differences in second language acquisition*, 2, 202.
- Krishnan, D. P., & Yunus, M. (2019). Blended CEFR in Enhancing Vocabulary among Low Proficiency Students. *Arab World English Journal (AWEJ) Special Issue on CALL*, (5).
- Kronborg, L., & Plunkett, M. (2015). Providing an optimal school context for talent development: An extended curriculum program in practice. *Australasian Journal of Gifted Education*, 24(2), 61.

- Larsen-Freeman, D. (1991). Second language acquisition research: Staking out the territory. *TESOL quarterly*, 25(2), 315-350.
- Larsen-Freeman, D. (2001). Individual cognitive/affective learner contributions and differential success in second language acquisition. *Learner contributions to language learning*, 12-24.
- Larsen-Freeman, D., & Long, M. H. (2014). *An introduction to second language acquisition research*. Routledge.
- Larson-Hall, J., & Dewey, D. (2012). An examination of the effects of input, aptitude, and motivation on the language proficiency of missionaries learning Japanese as a second language. *Second language acquisition abroad: The LDS missionary experience*, 45(51).
- Lecumberri, M. L. G., & Gallardo, F. (2003). English FL sounds in school learners of different ages. *Age and the acquisition of English as a foreign language*, 4, 115.
- Lee, Y. H., Ko, C. H., & Chou, C. (2015). Re-visiting Internet addiction among Taiwanese students: A cross-sectional comparison of students' expectations, online gaming, and online social interaction. *Journal of abnormal child psychology*, 43(3), 589-599.
- Lewis, G. (2009). *Bringing technology into the classroom*. New York: Oxford University Press.
- Lewis, M. (1993). *The lexical approach: The state of ELT and a way forward*. Hove, UK: Language Teaching Publications.
- Lightbown, P. M., & Spada, N. (2013). *How languages are learned 4th edition-Oxford Handbooks for Language Teachers*. Oxford university press.
- Lindo, M. (2018). "Differences in English Language Proficiency Growth: A Possible Indicator of Giftedness for English Learners" *Graduate Theses and Dissertations*.
<https://scholarcommons.usf.edu/etd/7330>

- Long, M., & Granena, G. (2013). Maturational constraints on child and adult SLA. *Sensitive periods, language aptitude, and ultimate L2 attainment*, 35, 3-41.
- Long, M. H., Granena, G., & Montero, F. (2018). What Does Critical Period Research Reveal about Advanced L2 Proficiency. *The Handbook of advanced proficiency in second language acquisition*, 51.
- MacIntyre, P. D. (1995). How does anxiety affect second language learning? A reply to Sparks and Ganschow. *The modern language journal*, 79(1), 90-99.
- MacIntyre, P. D., & Gardner, R. C. (1991). Methods and results in the study of anxiety and language learning: A review of the literature. *Language learning*, 41(1), 85-117.
- Mahdi, H. S. (2017). The use of keyword video captioning on vocabulary learning through mobile-assisted language learning. *International journal of English linguistics*, 7(4), 1-7.
- Markanastasakis, C. (2019). 3Vocabulary Kingdom: gamified EAP vocabulary acquisition using blended learning. *New educational landscapes: innovative perspectives in language learning and technology*, 19.
- Marsh, D. (2012) *Blended Learning. Creating Learning Opportunities for language learners* Cambridge: Cambridge University Press.
- Martens, P., Nakatsukasa, K., & Percival, H. (2016). Music training correlated with visual but not phonological foreign language learning skills. In *Proceedings of 14th International Conference on Music Perception and Cognition* (pp. 352-354). San Francisco, CA: Causal Productions.
- Mashhadi, A., & Jalilifar, A. (2016). The impact of podcasts on English vocabulary development in a blended educational model. *Applied Research on English Language*, 5(2), 145-172.
- Masita, M. (2020). Teaching Vocabulary Using Blended Learning Method. *Ethical Lingua: Journal of Language Teaching and Literature*, 7(1), 128-135. <https://doi.org/10.30605/25409190.143>

- McLoughlin, C., & Lee, M. J. (2008). The three p's of pedagogy for the networked society: Personalization, participation, and productivity. *International Journal of Teaching and Learning in Higher Education*, 20(1), 10-27.
- Meara, P. (1980). Vocabulary Acquisition: A Neglected Aspect of Language Learning. *Language Teaching*, 13(3-4), 221-246. doi:10.1017/S0261444800008879
- Meara, P. (2005). LLAMA language aptitude tests: The manual. *Swansea: Lognostics*.
- Mercer, S. (2012). Dispelling the myth of the natural-born linguist. *ELT Journal* 66.1, 22–29.
- Merç, A. (2015). Perceptual Learning Style Preferences of Gifted Vs. Non-Gifted Turkish Efl Learners.
- Mikan, K. (2013). Verbal short-term memory and vocabulary learning. http://sro.sussex.ac.uk/id/eprint/44799/1/Mikan_Kathrin_Angela_Maria.pdf
- Mohsen, M. A. (2016). The use of help options in multimedia listening environments to aid language learning: a review. *British Journal of Educational Technology*, 47(6), 1232-1242.
- Morra, Sergio & Camba, Roberta. (2009). Vocabulary learning in primary school children: Working memory and long-term memory components. *Journal of Experimental Child Psychology*. 104. 156-178. 10.1016/j.jecp.2009.03.007.
- Morris, N. P. (2010). Blended learning approaches enhance student academic performance. In *Proceedings of Enhancing Learning Experiences in Higher Education: International Conference*. Hong Kong University.
- Muñoz, C. (2003). Variation in Oral Skills Development and Age of Onset. *Age and the acquisition of English as a foreign language*, 4, 161.
- Muñoz, C. (2010). On how age affects foreign language learning. *Advances in research on language acquisition and teaching*, 39-49.
- Nagy, A. (2005). The impact of e-learning. In *E-Content* (pp. 79-96). Springer, Berlin, Heidelberg.
- Naiman, N., Frohlich, M., Stern, H. H., & Todesco, A. (1978). The good language learner: Research in education. *Toronto, Ontario, Canada: Institute for Studies in Education*.

- Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge: Cambridge University Press. <http://dx.doi.org/10.1017/CBO9781139524759>
- Neufeld, G. G. (1978). A theoretical perspective on the nature of linguistic aptitude. *IRAL: International Review of Applied Linguistics in Language Teaching*, 16(1), 15.
- Ng, W., & Nicholas, H. (2007). Conceptualizing the use of online technologies for gifted secondary students. *Roeper Review*, 29(3), 190-196.
- Nijakowska, J. (2010). Dyslexia in the foreign language classroom. *Multilingual Matters*.
- O'Brien, M. G., & Levy, R. M. (2008). Exploration through virtual reality: Encounters with the target culture. *Canadian modern language review*, 64(4), 663-691.
- Oh, S., Hailey, E., Azano, A., Callahan, C., & Moon, T. (2012). What Works in Gifted Education-Documenting the Model-Based Curriculum for Gifted Students. *Society for Research on Educational Effectiveness*.
- Oliver, M. and Trigwell, K. (2005). Can blended learning be redeemed? *E-Learning*, 2(1), 17-26.
- Opitz, C. (2011). *First language attrition and second language acquisition in a second language environment* (Doctoral dissertation, Trinity College Dublin).
- Ortega, L. (2013). SLA for the 21st century: Disciplinary progress, transdisciplinary relevance, and the bi/multilingual turn. *Language learning*, 63, 1-24.
- Osguthorpe, R. T., & Graham, C. R. (2003). Blended learning environments: Definitions and directions. *Quarterly review of distance education*, 4(3), 227-33.
- Oxford, R. L. (1989). Use of language learning strategies: A synthesis of studies with implications for strategy training. *System*, 17(2), 235-247.
- Oxford, R., & Crookall, D. (1990). Vocabulary learning: A critical analysis of techniques. *TESL Canada journal*, 09-30.
- Özcan, D. & Biçen, H. (2016). Giftedness and Technology. *Procedia Computer Science*. 102. 630-634. 10.1016/j.procs.2016.09.453.

- Özcan, D., & Katlav, S. (2016). Encountered problems by parents having children needing special education. *Global Journal of Guidance and Counseling in Schools: Current Perspectives*, 6(2), 30-34.
- Özmen, F., & Kömürlü, F. (2013). Türkiye’de Üstün Zekâlı Ve Yetenekli Öğrencilerineğitimine İlişkin Politika Ve Uygulamalar. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*, 14(2), 35-56.
- Paradis, J. (2011). Individual differences in child English second language acquisition: Comparing child-internal and child-external factors. *Linguistic approaches to bilingualism*, 1(3), 213-237.
- Passet, M. (2015). Giftedness and language learning. M.A Thesis. University of Leiden Department of English. Unpublished Thesis.
- Passow, A. H., & Frasier, M. M. (1996). Toward improving identification of talent potential among minority and disadvantaged students. *Roeper Review*, 18(3), 198-202.
- Pazio, M. (2010). Blended learning and its potential in expanding vocabulary knowledge: A case study. Teaching English with Technology. cejsh.icm.edu.pl
- Periathiruvadi, S. & Rinn, A. (2012) Technology in Gifted Education: A Review of Best Practices and Empirical Research. *Journal of Research on Technology in Education*, v45 n2 p153-169 Win 2012-2013
- Pimsleur, P. (1966). *Pimsleur Language Aptitude Battery (form S)*. Harcourt, Brace and world, Incorporated.
- Pinter, A. (2006) Teaching Young Language Learners. Oxford University Press.
- Pishghadam, R., & Khajavy, G. H. (2013). Intelligence and metacognition as predictors of foreign language achievement: A structural equation modeling approach. *Learning and Individual Differences*, 24, 176-181.
- Pişgin, G. (2014) A primary School 2nd grade gifted students’ motivation in learning English as a second language. Master’s thesis. Graduate School of educational Sciences, Bahçeşehir University.

- Plass, J. L., Chun, D. M., Mayer, R. E., & Leutner, D. (1998). Supporting visual and verbal learning preferences in a second-language multimedia learning environment. *Journal of educational psychology*, 90(1), 25.
- Prensky, M. (2001). Digital natives, digital immigrants. Part 2. Do they really think differently? *On Horizon*, 9(6), 1–6.
- Ragatz, C. M. (2015). *Playing vocabulary games and learning academic language with gifted elementary students*. Arizona State University.
- Reis, S.M. and Renzulli, J.S., (2009). Myth 1: The gifted and talented constitute one single homogeneous group and giftedness is a way of being that stays in the person over time and experiences. *Gifted Child Quarterly*, 53(4), pp.233-235.
- Reiterer, S. M. (Ed.). (2018). *Exploring language aptitude: Views from psychology, the language sciences, and cognitive neuroscience* (Vol. 16). Springer.
- Renzulli, J. (1979). What Makes Giftedness: A Reexamination of the Definition. *Science and Children*.
- Renzulli, J. S. (2005). The Three-Ring Conception of Giftedness: A Developmental Model for Promoting Creative Productivity. In R. J. Sternberg, & J. E. Davidson (Eds.), *Conceptions of Giftedness* (pp. 246-279). New York: Cambridge University Press.
<http://dx.doi.org/10.1017/CBO9780511610455.015>
- Renzulli, J. S., & Reis, S. M. (1985). *The Schoolwide Enrichment Model*. Mansfield Center: Creative Learning.
- Ricca, J. (1984). Learning styles and preferred instructional strategies of gifted students. *Gifted Child Quarterly*, 28(3), 121-126.
- Rogers, J., (2007). *Adults learning*. McGraw-Hill Education (UK).
- Rogers, V., Meara, P., Barnett-Legh, T., Curry, C., & Davie, E. (2017). Examining the LLAMA aptitude tests. *Journal of the European Second Language Association*, 1(1).
- Ross, S., Yoshinaga, N., & Sasaki, M. (2002). Aptitude-exposure interaction effects on Wh-movement violation detection by pre-and-post-critical period. *Individual differences and instructed language learning*, 2, 267.

- Rumyansteva, M. V. (2006). Teaching a foreign language of linguistically gifted schoolchildren in the context of additional education (Doctoral dissertation). St. Petersburg.
- S. Y. Song, H. Murphy, & A. Farley, H. (2013). Mobile devices for learning in Malaysia: Then and now. Electronic Dreams 30th ASCILITE Conference. 1-4 December 2013, Macquarie University, Sydney.
- Sadeghi, M. (2013). The impact of achievement motivation on vocabulary learning in intermediate EFL learners. *Journal of Basic and Applied Scientific Research*, 3(10), 206-213.
- Šafranĵ, J. (2019). The effect of meta-cognitive strategies on self-efficacy and locus of control of gifted in foreign language learning. *Research in Pedagogy*, 9(1), 40-51.
- Saito, K. (2017). Effects of sound, vocabulary, and grammar learning aptitude on adult second language speech attainment in foreign language classrooms. *Language Learning*, 67(3), 665-693.
- Saito, K. & Hanzawa, K. (2015). Developing second language oral ability in foreign language classrooms: The role of the length and focus of instruction and individual differences. *Applied Psycholinguistics*. 1. 10.1017/S0142716415000259.
- Saito, K., Tierney, A., & Sun, H. (2019). Explicit and implicit aptitude effects on second language speech learning: Scrutinizing segmental, prosodic and temporal sensitivity and performance via behavioral and neurophysiological measures. *Bilingualism: Language and Cognition*.
- Saito, K., Tran, M., Suzukida, Y., Sun, H., Magne, V., & Ilkan, M. (2019). How do second language listeners perceive the comprehensibility of foreign-accented speech?: Roles of first language profiles, second language proficiency, age, experience, familiarity, and metacognition. *Studies in Second Language Acquisition*, 41(5), 1133-1149.
- Sak, U. (2016). EPTS curriculum model in the education of gifted students. *Anales De Psicología/Annals of Psychology*, 32(3), 683-694.

- Salaberry, M. R. (2001). The use of technology for second language learning and teaching: A retrospective. *The modern language journal*, 85(1), 39-56.
- Sasaki, M. (1993). Relationships among second language proficiency, foreign language aptitude, and intelligence: A structural equation modeling approach. *Language learning*, 43(3), 313-344.
- Schmitt, N. (2000). *Vocabulary in language teaching*. Cambridge: Cambridge University Press.
- Schmitt, N. (2010). *Researching Vocabulary: A Vocabulary Research Manual*. New York: Palgrave Macmillan. <http://dx.doi.org/10.1057/9780230293977>
- Scruggs, T. E., & Cohn, S. J. (1983). Learning characteristics of verbally gifted students. *Gifted Child Quarterly*, 27(4), 169-172.
- Serafeim, M., (2020). Measuring foreign language learning aptitude of intellectually gifted students with a newly devised test [Unpublished master's dissertation]. *Aristotle University of Thessaloniki*.
- Serrano, R., & Llanes, À. (2015). An exploratory study of the role of age and language learning aptitude in a short stay abroad. *Vigo International Journal of Applied Linguistics*, 2015, vol. 12, p. 107-126.
- Sherli, S., Talis, N., Akib, E., & Baso, F. A. (2018). The Students' Perception Toward Implementing Blended Learning Method in English Language Teaching (ELT) at the 5th Semester Students of English Education Department (A descriptive Qualitative Research). *Jurnal Keguruan Dan Ilmu Pendidikan (JKIP)*, 5(1), 37-51.
- Siegle, D. (2004). The merging of literacy and technology in the 21st century: A bonus for gifted education. *Gifted Child Today*, 27(2), 32-35.
- Singleton, D. (2017). Language aptitude: Desirable trait or acquirable attribute? *Studies in second language learning and teaching*, 7(1), 89-103.
- Singleton, D. M., & Ryan, L. (2004). *Language acquisition: The age factor* (Vol. 9). Multilingual Matters.

- Skehan, P. (1986). The role of foreign language aptitude in a model of school learning. *Language testing*, 3(2), 188-221.
- Skehan, P. (1991). Individual Differences in Second Language Learning. *Studies in Second Language Acquisition*. 13. 275 - 298. 10.1017/S0272263100009979.
- Skehan, P. (2002). Theorising and updating aptitude. *Individual differences and instructed language learning*, 2, 69-94.
- Smeds, H. (2015). *Blindness and second language acquisition: studies of cognitive advantages in blind L1 and L2 speakers* (Doctoral dissertation, Department of Swedish Language and Multilingualism, Stockholm University).
- Smidt, E. & Hegelheimer, V. (2004). Effects of Online Academic Lectures on ESL Listening Comprehension, Incidental Vocabulary Acquisition, and Strategy Use. *Computer Assisted Language Learning - COMPUT ASSIST LANG LEARN*. 17. 517-556. 10.1080/0958822042000319692.
- Song, Y., & Fox, R. (2005). Integrating m-technology into Web-based ESL vocabulary learning for working adult learners. In *IEEE International Workshop on Wireless and Mobile Technologies in Education (WMTE'05)*(pp. 5-pp). IEEE.
- Stansfield, C. W. (1989). Language Aptitude Reconsidered. *ERIC Digest*.
- Sternberg, R. J. (1981). A componential theory of intellectual giftedness. *Gifted Child Quarterly*, 25(2), 86-93.
- Sternberg, R. J. (2002). The theory of Successful Intelligence and its implications for language aptitude testing. In P. Robinson (ed.), *Individual differences and instructed language learning*. Philadelphia, PA: John Benjamins, 13-43.
- Stewart, M. A., & Pertusa, I. (2004). Gains to language learners from viewing target language closed-captioned films. *Foreign language annals*, 37(3), 438-442.
- Stracke, E. (2009). Spotlight on blended language learning: A frontier beyond learner autonomy and computer assisted language learning. In *ILA (Independent Learning Association) Japan 2007 Conference* (pp. 1-13). Association for Academic Language and Learning.

- Suzuki, Y., & DeKeyser, R. (2017). The interface of explicit and implicit knowledge in a second language: Insights from individual differences in cognitive aptitudes. *Language Learning*, 67(4), 747-790.
- Swicord, B., Chancey, J. M., & Bruce-Davis, M. N. (2013). "Just What I Need" Gifted Students' Perceptions of One Online Learning System. *SAGE Open*, 3(2), 2158244013484914.
- Taghizadeh, M., & Porkar, P. (2018). Tablet, Flashcard and SMS and their Effects on EFL Learners' Attitudes and Vocabulary Knowledge. *way*, 6(01).
- Tai, S & Chen, H.J. (2015) A Comparative Study of the Effect of CALL on Gifted and Non-Gifted Adolescents' English Proficiency 2015 EUROCALL Conference (22nd, Padova, Italy, Aug 26-29, 2015)
- Taj, I. H., Ali, F., Sipra, M. A., & Ahmad, W. (2017). Effect of technology enhanced language learning on vocabulary acquisition of EFL learners. *International Journal of Applied Linguistics and English Literature*, 6(3), 262-272.
- Taniş, A., & Dikilitaş, K. (2019). Exploring CLIL in Turkish context: Teacher and student voices. *AJAL*, 144.
- Taylor, C. W. (1985). Cultivating multiple creative talents in students. *Journal for the Education of the Gifted*, 8(3), 187-198
- Thompson, A. S. (2013). The interface of language aptitude and multilingualism: Reconsidering the bilingual/multilingual dichotomy. *The Modern Language Journal*, 97(3), 685-701.
- Thornton, P., & Houser, C. (2005). Using mobile phones in English education in Japan. *Journal of computer assisted learning*, 21(3), 217-228.
- Torras M.R., E. Tragant and M.L. García (1997). Croyances populaires sur l'apprentissage précoce d'une langue étrangère. In C. Muñoz, L. Nussbaum and M. Pujol (eds), *Acquisition et interaction en langue étrangère* 10: 127-158.
- Tosun, S. (2015) The Effects of Blended Learning on EFL Students' Vocabulary Enhancement, *Procedia - Social and Behavioral Sciences*, Volume 199, 2015, Pages 641-647, ISSN 1877-0428, <https://doi.org/10.1016/j.sbspro.2015.07.592>.

- Tozcu, A., & Coady, J. (2004). Successful learning of frequent vocabulary through CALL also benefits reading comprehension and speed. *Computer assisted language learning*, 17(5), 473-495.
- Tseng, W. T., & Schmitt, N. (2008). Toward a model of motivated vocabulary learning: A structural equation modeling approach. *Language Learning*, 58(2), 357-400.
- Turbill, J., & Murray, J. (2006). Early Literacy and New Technologies in Australian. *International Handbook of Literacy and Technology: Volume two*, 2, 93.
- Tüysüz, C. (2013). Üstün yetenekli öğrencilerin problem çözme becerisine yönelik üstbilgi düzeylerinin belirlenmesi.
- Tyuleneva, T. V. (2012). Formation of linguistic creativity of students of non-linguistic specialties (Doctoral dissertation).
- Umar, Ç , Ayvaz Reis, Z . (2017). The Effects of Differentiated Curriculum with Blended Learning Method On Gifted Students' Critical Thinking Abilities. *İnformal Ortamlarda Araştırmalar Dergisi* , 2 (1) , 34-58 . Retrieved from <https://dergipark.org.tr/tr/pub/jrinen/issue/30340/296711>
- Uzunboylu, H., Hürsen, Ç., Özütürk, G., & Demirok, M. (2015). Determination of Turkish University Students' Attitudes for Mobile Integrated EFL Classrooms in North Cyprus and Scale Development: ELLMTAS. *J. UCS*, 21(10), 1283-1296.
- VanTassel-Baska, J. (1998). *Excellence in educating gifted & talented learners*. Love Publishing Company, PO Box 22353, Denver, CO 80222.
- VanTassel-Baska, J. (2002). Curriculum Planning & Instructional Design for Gifted Learners.
- VanTassel-Baska, J., & Brown, E. F. (2007). Toward best practice: An analysis of the efficacy of curriculum models in gifted education. *Gifted child quarterly*, 51(4), 342-358.
- VanTassel-Baska, J., Johnson, D. T., Hughes, C. E., & Boyce, L. N. (1996). A study of language arts curriculum effectiveness with gifted learners. *Journal for the Education of the Gifted*, 19(4), 461-480.

- VanTassel-Baska, J., Quek, C., & Feng, A. (2005). Classroom Observation Scale—Revised: User’s manual. Williamsburg, VA: *The Center for Gifted Education, College of William and Mary*.
- Vasbieva, D. G., Klimova, I. I., Agibalova, E. L., Karzhanova, N. V., & Bírová, J. (2016). Enhancement of students' vocabulary learning through a blended learning approach. *International Electronic Journal of Mathematics Education*, 11(5), 1195-1203.
- Vinkhuyzen, A. A., Van der Sluis, S., Posthuma, D., & Boomsma, D. I. (2009). The heritability of aptitude and exceptional talent across different domains in adolescents and young adults. *Behavior genetics*, 39(4), 380-392.
- Vygotsky, L. (1962) Thought and language. Cambridge: MIT Press
- Vygotsky, L. (1978) Mind in Society: The development of Higher Psychological Processes. Cambridge: Harvard University Press
- Wallace, P., (2005). Distance education for gifted students: Leveraging technology to expand academic options. *High Ability Studies*, 16(1), pp.77-86.
- Wallace, P., (2009). Distance learning for gifted students: Outcomes for elementary, middle, and high school aged students. *Journal for the Education of the Gifted*, 32(3), pp.295-320.
- Webb, J. T. (1994). Nurturing social emotional development of gifted children. Reston, VA: ERIC Clearinghouse.
- Wei, C. S., & Ismail, Z. (2011). Contemporary issues on using information technology for mathematically gifted students. In *2011 IEEE International Symposium on IT in Medicine and Education* (Vol. 2, pp. 122-126). IEEE.
- Wesche, M. (1981). Language aptitude measures in streaming, matching students with methods, and diagnosis of learning problems. *Individual differences and universals in language learning aptitude*, 119-154.
- Whitelock, D. & Jelfs, A. (2003). Editorial. Special issue on blended learning. *Journal of Educational Media*, 28(2-3), 99-100.
- Wilkins, D. (1972). *Linguistics in language teaching*. London: Arnold.

- Winke, P., Gass S., & Sydorenko, T. (2010). The Effects of Captioning Videos Used for Foreign Language Listening Activities. *Language Learning and Technology*, 14.
- Wu, T. T., & Huang, Y. M. (2017). A mobile game-based English vocabulary practice system based on portfolio analysis. *Journal of Educational Technology & Society*, 20(2), 265-277.
- Yalçın, Ş., Çeçen, S., & Erçetin, G. (2016). The relationship between aptitude and working memory: an instructed SLA context. *Language Awareness*, 25(1-2), 144-158.
- Yalçın, Ş. & Spada, N. (2016). Language Aptitude and Grammatical Difficulty. *Studies in Second Language Acquisition*. -1. 1-25. 10.1017/S0272263115000509.
- Yıldırım, R., & Akçayoğlu, D. I. (2015). Strategy-based English language instruction: the impact on the language proficiency of young gifted learners. *Education 3-13*, 43(2), 97-114.
- Yılmaz, Y. (2012). Relative Effects of Explicit and Implicit Feedback: The Role of Working Memory Capacity and Language Analytic Ability. *Applied Linguistics*. 34. 344-368. 10.1093/applin/ams044.
- Yılmaz, Y., & Granena, G. (2016). The role of cognitive aptitudes for explicit language learning in the relative effects of explicit and implicit feedback. *Bilingualism*, 19(1), 147.
- Yılmaz, Y., Granena, G., & Meyer, Z. S. (2016). The role of explicit language aptitude in implicit, explicit, and mixed feedback conditions. *Cognitive individual differences in second language processing and acquisition*, 327-349.
- Yi, W. (2018). Statistical sensitivity, cognitive aptitudes, and processing of collocations. *Studies in Second Language Acquisition*, 40(4), 831-856.
- Yunus, M. M., & Kwan, L. S. L. (2013). Gifted students' use of Web 2.0 technologies for English language learning. *International Journal of Computers*, 7(1), 22-30.
- Yunus, M. M., Sulaiman, A., & Embi, M. A. (2013). Malaysian Gifted Students' Use of English Language Learning Strategies. *English Language Teaching*, 6(4), 97-109.

- Yükselir, C. (2017). A Meta-synthesis of Qualitative Research about Mobile Assisted Language Learning (MALL) in Foreign Language Teaching. *Arab World English Journal (AWEJ) Volume, 8*.
- Zeidner, M., & Matthews, G. (2017). Emotional intelligence in gifted students. *Gifted Education International, 33*(2), 163-182.
- Zhang, H., Song, W., & Burston, J. (2011). Reexamining the effectiveness of vocabulary learning via mobile phones. *Turkish Online Journal of Educational Technology-TOJET, 10*(3), 203-214.
- Zhao, Y. (2003). Recent developments in technology and language learning: A literature review and meta-analysis. *CALICO journal, 7*-27.
- Zimlich, S. L. (2015). Using technology in gifted and talented education classrooms: The teachers' perspective. *Journal of Information Technology Education: Innovations in Practice, 14*, 101-124. Retrieved from <http://www.jite.org/documents/Vol14/JITEv14IIPp101-124Zimlich0846.pdf>

APPENDICES

