

**THE IMPACT OF DIGITAL STORYTELLING ON ENGLISH
AS A FOREIGN LANGUAGE LEARNERS' WRITING
SKILLS**

**DİJİTAL ÖYKÜLEMENİN İNGİLİZCEYİ YABANCI DİL
OLARAK ÖĞRENEREN ÖĞRENCİLERİN YAZMA
BECERİLERİNE OLAN ETKİSİ**

Sevda BALAMAN UÇAR

Submitted to the Graduate School of Educational Sciences of Hacettepe
University in Partial Fulfillment of the Requirement for the Doctoral Degree

In English Language Teaching

2016

To the Graduate School of Educational Sciences

This work named "The Impact of Digital Storytelling on English as a Foreign Language Learners' Writing Skills" by Sevda Balaman Uçar has been approved as a dissertation for the **Ph.D. Degree** in the division of **English Language Teaching** by the below mentioned Examining Committee Members.

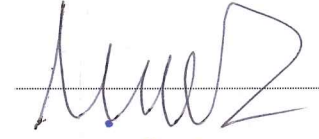
Head

Assoc. Prof. Dr. Paşa Tevfik CEPHE



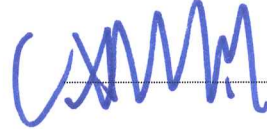
Member
(Supervisor)

Prof. Dr. Mehmet DEMİREZEN



Member

Assoc. Prof. Dr. Arif SARIÇOBAN



Member

Assoc. Prof. Dr. Cem BALÇIKANLI



Member

Asst. Prof. Dr. Didem KOBAN KOÇ



APPROVAL

This dissertation was approved by the aforementioned Examining Committee Members on 13 June 2016 in accordance with the relevant articles of the Rules and Regulations of Hacettepe University Graduate Education, and accepted as a dissertation for the Degree of Doctor of Philosophy in the Program of English Language Teaching by the Board of Directors of the Graduate School of Educational Sciences on/...../2016.

Prof. Dr. Berrin AKMAN
Director of Graduate School of Educational Sciences

DİJİTAL ÖYKÜLEMENİN İNGİLİZCEYİ YABANCI DİL OLARAK ÖĞRENEN ÖĞRENCİLERİN YAZMA BECERİLERİNE OLAN ETKİSİ

Sevda BALAMAN UÇAR

ÖZ

Bu çalışma, dijital öykülemenin üniversite düzeyinde İngilizcenin yabancı dil olarak öğretildiği bir bağlamda yazma dersine olan etkisini araştırmayı hedeflemiştir. Bu çalışma, ayrıca, dijital öykülemenin öğrencilerin motivasyon ve ilgilerine olan etkisini araştırmıştır. Buna ek olarak, dijital öyküleme projesine katılımları sonucunda öğrencilerin eğitimsel teknolojinin kullanılmasına karşı tutum ve öz yeterliklerinde bir değişiklik olup olmadığı da araştırılmıştır. Son olarak, katılımcıların bu çalışmaya dair algıları da incelenmiştir.

Bu çalışma, Cumhuriyet Üniversitesi Yabancı Diller Yüksekokulundan İngilizce alanındaki 43 hazırlık öğrencisinin iki grup (kontrol ve deney grubu) halinde katılımıyla gerçekleştirilmiştir. 14 haftalık bu uygulamada, deney grubuna dijital öykülemeye dayalı bir yazma eğitimi, kontrol grubuna da geleneksel kağıt kaleme dayalı bir eğitim verilmiştir.

Bu araştırma, hem nitel hem de nicel verilere dayanan karışık desen tipine sahiptir. Nicel veri, araştırma öncesi ve sonrası uygulanan yazma örneklerinden, ve bu yazma örneklerini değerlendirmede kullanılan ölçekten, araştırma öncesi ve sonrası uygulanan anketlerden, dijital öyküleri değerlendirmede kullanılan ölçekten ve bu çalışmayı değerlendirme anketinden toplanmıştır. Nitel veri ise, yarı yapılandırılmış görüşmelerden ve açık uçlu sorulardan oluşturulmuştur.

Toplanan nicel veri, her iki yazma yönteminin öyküsel yazma becerilerini geliştirmede etkili olduğunu, ancak dijital öykülemeye dayalı yöntemin söz konusu becerileri geliştirmede diğer yöntemle göre istatistiksel olarak daha etkili olduğunu göstermiştir. Ayrıca bulgular, araştırma başında her iki grubun da motivasyon düzeylerinin eşit olduğunu, fakat araştırma sonucunda her iki grubun motivasyon düzeylerinde deneysel grup lehine istatistiksel bir farklılık olduğunu göstermiştir. Deneysel grup motivasyon değerlerini artırırken, kontrol grubu söz konusu değerlerini azaltmıştır. Bu, dijital öyküleme yönteminin diğer yöntemle göre motivasyon değişkenindeki üstünlüğü şeklinde yorumlanabilir.

Buna ek olarak, dijital öykülemeye dayanan bu çalışmaya karşı öğrencilerin ne kadar ilgili oldukları da araştırılmıştır ve tüm süreç boyunca öğrencilerin ilgilerinin yüksek olduğu ve baştan sona artarak devam ettiği bulunmuştur. Ayrıca, hem nicel hem de nitel veriler, dijital öyküleme yönteminin diğer geleneksel yöntemlere göre, öğrencilerin eğitimsel teknolojiye karşı öz yeterlik algılarını daha olumlu yönde etkilediğini ve öğrencilerin daha pozitif tutumlar sergilemelerine yol açtığını göstermiştir. Son olarak, deney grubu öğrencilerinin, dijital öykülemeye dayanan yazma dersine karşı düşünceleri de araştırılmış ve öğrencilerin bu yöntemle dair olumlu düşüncelere sahip oldukları bulunmuştur.

Özetle, bulunan bu bilgiler, 21. yüzyıl dünyasıyla uyumlu, motive edici ve ilgi çekici çok biçimli yazma müfredatı hazırlamak isteyenlere yardımcı olacaktır.

Anahtar kelimeler: Bilgi okuryazarlığı, bilgisayar kullanma öz yeterliliği, çok biçimli yazma, dijital öyküleme, film şeridi, gerginlik, görsel okuryazarlık, okuryazarlık, öyküsel yazma, ilgi, medya okuryazarlığı, motivasyon, öz –yeterlik, teknoloji okuryazarlığı, ürün/ler, WeVideo, yeni okuryazarlık, ve 21. yüzyıl becerileri

Danışman: Prof. Dr. Mehmet DEMİREZEN, Hacettepe Üniversitesi, Yabancı Diller Eğitimi Bölümü, İngiliz Dili Eğitimi A.B.D.

THE IMPACT OF DIGITAL STORYTELLING ON ENGLISH AS A FOREIGN LANGUAGE LEARNERS' WRITING SKILLS

Sevda BALAMAN UÇAR

ABSTRACT

This study sought to investigate whether a digital storytelling- (DS) integrated pedagogy was effective to enhance the (narrative) writing performance in a university level EFL context. The study also explored the effects of DS on learners' motivation and its sub-components. It also researched to what extent the experimental group students were engaged throughout this implementation. Whether students' attitudes toward and their self-efficacy beliefs for the integration of educational technology were affected as a result of the participation in the DS intervention was also explored. Lastly, the participants' perceptions of the implementation were also focused on in this study.

The study was conducted at School of Foreign Languages at Cumhuriyet University with the participation of 43 EFL (English-major) students in two groups (experimental and control groups). The study was carried out within a 14-week-period of time in which the experimental group was exposed to DS-integrated writing instruction while the control group dealt with traditional writing practices.

This research had a mixed-research type in which both qualitative and quantitative data were yielded. The quantitative data were obtained by using pre-and post-writing tests, an evaluation grid to assess writing samples, pre-/posttest survey, a digital story analysis rubric, and a perception survey. On the other hand, for the qualitative data, semi-structured interviews and open-ended questions were utilized.

The collected quantitative data from both groups' pre and posttest writing samples showed that although both instruction types were effective in developing (narrative) writing skills, the DS-integrated writing instruction type was more effective than its traditional counterpart. Moreover, the findings of the study indicated that the motivation scores of the two groups were nearly the same at outset, but at the end, statistical differences existed between the two groups in favor of the experimental group. While the experimental group increased its score,

the control group decreased its score, suggesting the superiority of the DS-integrated writing instruction over the traditional writing instruction in enhancing motivation.

In addition to this, the effect of the DS-integrated instruction on the participants' engagement levels was also analyzed and it was revealed that the students were highly engaged throughout the implementation. Additionally, both qualitative and quantitative data indicated that DS led to a more heightened level of self-efficacy beliefs for and more positive attitudes toward the use of educational technology, compared to traditional writing practices. Lastly, the experimental group students' perceptions of the DS-integrated writing instruction were also investigated and the collected data showed that they had favorable opinions of the implementation.

Overall, the resulting information from these findings can be helpful for those who are interested in designing a motivating and engaging multimodal writing curriculum relevant to the 21st century context.

Key Words: Anxiety, artifact/s, computer self-efficacy, digital storytelling, engagement, information literacy, literacy, media literacy, motivation, multimodal composition, narrative writing, new literacy, self-efficacy, storyboarding, technology literacy, 21st century skills, visual literacy, and WeVideo

Advisor: Prof. Dr. Mehmet DEMİREZEN, Hacettepe University, Department of Foreign Language Education, Division of English Language Teaching

DECLARATION OF ETHICAL CONDUCT

I declare that I have prepared this dissertation in accordance with the dissertation writing rules, regulations, and conventions of the Graduate School of Educational Sciences of Hacettepe University, and thereby I would like to announce that:

- All of information and documents have been obtained on the basis of academic rules,
- All visual and written information and results have been presented according to the rules of scientific standards,
- In the case of using other works, related studies have been cited in accordance with the scientific standards,
- All cited studies have been fully referenced,
- No distortion has been done regarding the data set, and
- Any part of the dissertation has not been presented as any other thesis study at this or any other university.

Sincerely
Sevda BALAMAN UÇAR
Signature:

ACKNOWLEDGEMENTS

First and foremost, I would like to express my deepest gratitude to my advisor, Prof. Dr. Mehmet Demirezen for his help, guidance and encouragement throughout this process. Without his continuous support, I would have never ensured my dream of completing a PhD degree.

I would also like to thank Assoc. Prof. Dr. Arif Sariçoban for his invaluable help, support and feedback. His friendly and understanding attitude helped me to survive in this demanding program.

I would also like to express my heartfelt thanks to the members of the Examining Committee, Prof. Dr. Mehmet Demirezen, Assoc. Prof. Dr. Arif Sariçoban, Assoc. Prof. Dr. Paşa Tefvik Cephe, Assoc. Prof. Dr. Cem Balçıkanlı, and Asst. Prof. Dr. Diden Koban Koç, for their professional friendship and academic expertise.

Special thanks to Asst. Prof. Dr. Philip Lee Durrant, my former thesis advisor, for his invaluable guidance and support in statistical procedures.

My heartfelt thanks also go to my dear friend, Nurcihan, for her genuine friendship and support in this stressful situation. I wish we could have defended our dissertations on the same day.

I also owe much to my family who supported me throughout this process.

Last but not least, I would like to thank my husband and my little daughter for their patience and understanding.

'And thanks God for giving me the strength to complete this dissertation'.



*To the memory of my beloved father,
Salih Balaman*

TABLE OF CONTENTS

DECLARATION OF ETHICAL CONDUCT	vii
ACKNOWLEDGEMENTS.....	viii
TABLE OF CONTENTS	x
LIST OF TABLES	xiii
LIST OF FIGURES.....	xvii
LIST OF ABBREVIATIONS	xviii
1. INTRODUCTION.....	3
1.1. Introduction.....	1
1.2. Background of the Study	2
1.3. Statement of the Problem	7
1.4. Research Questions	10
1.5. Significance of the Study	10
1.6. Definition of Key Terms	12
1.7. Conclusion.....	13
2. LITERATURE REVIEW.....	14
2.1. Introduction.....	14
2.2. Web 2.0 Tools.....	14
2.2.1. DS	15
2.2.1.1. The History and Definition(s) of DS.....	15
2.2.1.2 Types of Digital Stories	16
2.2.1.3. The Process of Creating a Digital Story	17
2.2.1.4. The Use of DS in Education.....	19
2.2.1.4.1. Theoretical Foundation of the DS Use in Education	20
2.2.1.5. The Use of DS in Language Education.....	24
2.2.1.5.1. 21st Century Skills	26
2.2.1.5.2. Motivation and Engagement	32
2.2.1.5.3. DS Helps Identity Construction	36
2.2.1.5.4. Linguistic Skills	38
2.3. Writing	42
2.3.1. Major Trends in Writing	43
2.3.2. Multimodal Composition	44
2.3.2.1. Benefits of MMC	45
2.3.2.2. Challenges of MMC	48
2.3.2.3. The Use of DS as a Multimodal Narrative Practice	49
2.3.2.3.1. Related studies	54
2.4. Conclusion.....	61
3. METHODOLOGY	62
3.1. Introduction.....	62
3.2. Setting	63
3.3. Participants.....	63
3.4. Materials	64
3.5. Instruments.....	65
3.5.1. Pre- and Post-writing Tests Writing Tests	66

3.5.2. Questionnaires	66
3.5.2.1. The Pre-/Posttest Survey	66
3.5.2.2. The Perception Questionnaire	69
3.5.3. Digital Storytelling Analysis Rubric	70
3.5.4. Interviews	71
3.6. Data Collection Procedures	72
3.7. Data Analysis	78
3.8. Conclusion	80
4. DATA ANALYSIS	81
4.1. Introduction	81
4.2. Results	82
4.2.1. Analysis of the Data for Research Question 1	82
4.2.2. Analysis of the Data for Research Question 2	90
4.2.3. Analysis of the Data for Research Question 3	110
4.2.4. Analysis of the Data for Research Question 4	116
4.2.4.1. The Effects of the Treatment on Self-efficacy Judgments of Technology Integration	118
4.2.4.2. The Effects of the Treatment on the Participants' Attitudes toward Technology Integration	124
4.2.5. Analysis of the Data for Research Question 5	129
4.2.5.1. Quantitative Findings	129
4.2.5.2. Qualitative Findings	140
4.2.5.2.1. General Impression Related to the Implementation	140
4.2.5.2.2. Evaluation of the Effectiveness of the Implementation	142
4.2.5.2.3. Suggestions for the Implementation	153
4.3. Conclusion	159
5. CONCLUSION	160
5.1. Introduction	160
5.2. Discussion of the Findings	160
5.2.1. Discussion on the Findings Related to Research Question 1	160
5.2.2. Discussion on the Findings Related to Research Question 2	166
5.2.3. Discussion on the Findings Related to Research Question 3	173
5.2.4. Discussion on the Findings Related to Research Question 4	176
5.2.4.1. Discussion on the Findings Related to the Students' Self- efficacy of Educational Technology	176
5.2.4.2. Discussion on the Findings Related to the Students' Attitudes toward Educational Technology	178
5.2.5. Discussion on the Findings Related to Research Question 5	178
5.3. Pedagogical Implications	187
5.4. Limitations of the Study	190
5.5. Suggestions for Further Study	190
5.6. Conclusion	191
REFERENCES	192
APPENDICES	211
APPENDIX 1. APPROVAL OF THE COMMITTEE ON ETHICS	212
APPENDIX 2. PRETEST / POSTTEST	213

APPENDIX 3. NARRATIVE WRITING OUTCOME RUBRIC	214
APPENDIX 4. DIGITAL STORYTELLING EVALUATION RUBRIC	216
APPENDIX 5. PRE-/POSTTEST SURVEY (ENGLISH VERSION)	218
APPENDIX 6. PRE-/POSTTEST SURVEY (TURKISH VERSION)	223
APPENDIX 7. THE PERCEPTION QUESTIONNAIRE (ENGLISH VERSION) ...	228
APPENDIX 8. THE PERCEPTION QUESTIONNAIRE (TURKISH VERSION) ...	231
APPENDIX 9. INTERVIEW QUESTIONS (ENGLISH VERSION)	234
APPENDIX 10. INTERVIEW QUESTIONS (TURKISH VERSION)	235
APPENDIX 11. A STORYBOARD EXAMPLE	236
APPENDIX 12. SAMPLE DIGITAL STORIES	240
APPENDIX 13. SAMPLE COMMENTS MADE FOR DIGITAL STORIES VIA FACEBOOK	243
APPENDIX 14. ORIGINALITY REPORT	246
CURRICULUM VITAE	247

LIST OF TABLES

Table 2.1. Seven Elements of DS	16
Table 2.2. The Steps of Making a Digital Story	18
Table 3.1. The Distribution of Participants by Gender	64
Table 3.2. Components of Motivation	68
Table 3.3. Subsections of the Perception Questionnaire	69
Table 3.4. Instruments Used in the Study	72
Table 3.5. The Procedures Followed in the Study	76
Table 4.1. The Normality Test Results for the Writing Test Scores across Time Point by Group Type	83
Table 4.2. Levene's Test for Writing Pre and Posttests	83
Table 4.3. The Within-Group Mixed ANOVA (and interaction) Results for Writing Performance	84
Table 4.4. The Between-Subjects Mixed ANOVA Results for Writing Performance	84
Table 4.5. The Between-Subjects Univariate ANOVA Results for Pretest Writing Performance	85
Table 4.6. The Between-Subjects Univariate ANOVA Results for Posttest Writing Performance	86
Table 4.7. The Within-Subjects Univariate ANOVA Results for Control Group's Writing Performance	86
Table 4.8. The Within-Subjects Univariate ANOVA Results for Experimental Group's Writing Performance	86
Table 4.9. Wilcoxon Signed-Rank Test Results for the Control Group's Writing Sub-Components	87
Table 4.10. Wilcoxon Signed-Rank Test Results for the Experimental Group's Writing Sub-Components	88
Table 4.11. Mann Whitney U Test Results for the Pretest Writing Sub- Components	89
Table 4.12. Mann Whitney U Test Results for the Posttest Writing Sub- Components	90
Table 4.13. The Normality Test Results for the Motivation Scores across Time Point by Group Type	91
Table 4.14. Levene's Test for Pre and Posttest Motivation Scores	92
Table 4.15. The Within-Subjects Mixed ANOVA (and interaction) Results for the Motivation Scores	92
Table 4.16. The Between-Subjects Mixed ANOVA Results for the Motivation Score	92

Table 4.17. The Between-Subjects Univariate ANOVA Results for Pretest Motivation Scores.....	94
Table 4.18. The Between-Subjects Univariate ANOVA Results for Post-Test Motivation Scores.....	94
Table 4.19. The Within-Subjects Univariate ANOVA Results for Control Group's Motivation Scores	94
Table 4.20. The Within-Subjects Univariate ANOVA Results for Experimental Group's Motivation Scores	95
Table 4.21. The Normality Test Results for Motivation Sub-Components across Time Points by Group Types	96
Table 4.22. Levene's Test for Motivation Sub-components.....	97
Table 4.23. The Multivariate MANOVA Results for the Combined Motivation Sub-Components	97
Table 4.24. Descriptive Statistics for the Motivation Sub-Components across Groups	98
Table 4.25. The Between-Group Univariate ANOVA Results for the Motivation Sub-Components	99
Table 4.26. Descriptive Statistics for the Motivation Sub-Components at Two Time Points	100
Table 4.27. The Within-Group Univariate ANOVA (and interaction) Results for Motivation Sub-Components.....	100
Table 4.28. Independent Sample <i>t</i> Test Results for Pre and Posttest Anxiety Scores.....	102
Table 4.29. Paired Sample <i>t</i> Test Results for Anxiety Scores across Time Points by Group Types.....	102
Table 4.30. Independent Sample <i>t</i> Test Results for Pre and Posttest Intrinsic Motivation Scores.....	104
Table 4.31. Paired Sample <i>t</i> Test Results for Intrinsic Motivation Scores across Time Points by Group Types	104
Table 4.32. Independent Sample <i>t</i> Test Results for Pre and Post-Test Task Value Scores.....	105
Table 4.33. Paired Sample <i>t</i> Test Results for Task Value Scores across Time Points by Group Types.....	106
Table 4.34. Independent Sample <i>t</i> Test Results for Pre and Post-Test Control of Learning Scores	107
Table 4.35. Paired Sample <i>t</i> Test Results for Control of Learning Scores across Time Points by Group Types	107
Table 4.36. Independent Sample <i>t</i> Test Results for Pre and Posttest Self-Efficacy Scores.....	108
Table 4.37. Paired Sample <i>t</i> Test Results for Self-efficacy Scores across Time Points by Group Types.....	109

Table 4.38. Descriptive Statistics for the Engagement Construct.....	114
Table 4.39. Normality Test Results for Engagement Scores across Time Points	114
Table 4.40. The Repeated Measures ANOVA Results for Engagement Scores	115
Table 4.41. Computer and Internet Experience Statistics of the Participants	117
Table 4.42. Normality Test Results for Self-Efficacy Scores across Time Points by Group Types	119
Table 4.43. Levene's Test for Self-efficacy Beliefs for Educational Technology.....	119
Table 4.44. The Within-Group Mixed ANOVA (and interaction) Results for Self-Efficacy Scores	120
Table 4.45. The Between-Group Mixed ANOVA Results for Self-Efficacy Scores	120
Table 4.46: The Between-Subjects Univariate ANOVA Results for Pre-Test Self-Efficacy Scores	121
Table 4.47. The Between-Subjects Univariate ANOVA Results for Post-Test Self-Efficacy Scores	122
Table 4.48: The Within-Subjects Univariate ANOVA Results for the Control Group's Self-Efficacy Scores.....	122
Table 4.50. The Within-Subjects Univariate ANOVA Results for the Experimental Group's Self-Efficacy Scores.....	122
Table 4.51. Normality Test Results for Attitude Scores across Time Points by Group Types	125
Table 4.52. Levene's Test for Attitudes toward Educational Technology	125
Table 4.53. The Within-Group Mixed ANOVA (and interaction) Results for Attitude Scores	126
Table 4.54. The Between-Group Mixed ANOVA Results for Attitude Scores	126
Table 4.55. The Between-Subjects Univariate ANOVA Results for Pretest Attitude Scores	127
Table 4.56. The Between-Subjects Univariate ANOVA Results for Posttest Attitude Scores	127
Table 4.57. The Within-Subjects Univariate ANOVA Results for the Control Group's Attitude Scores	128
Table 4.58. The Within-Subjects Univariate ANOVA Results for the Experimental Group's Attitude Scores.....	128
Table 4.59. Descriptive Statistics Results for the Perception Questionnaire Scales	130
Table 4.60. Descriptive Statistics and Frequency Scores of the Items in the 21 st Century Skills Subscale.....	131

Table 4.61. Descriptive Statistics and Frequency Scores of the Items in the Self- correction Subscale	133
Table 4.62. Descriptive Statistics and Frequency Scores of the Items in the DS-integrated vs Traditional Writing Subscale	134
Table 4.63. Descriptive Statistics and Frequency Scores of the Items in Motivation Subscale	137
Table 4.64. Descriptive Statistics and Frequency Scores of the Items in Suggestions Subscale.....	139
Table 4.65. The Categories of the Interview Questions.....	140
Table 4.66. The Summary of the Findings Obtained in the Interviews	157



LIST OF FIGURES

Figure 2.1. 21 st -century Skills	27
Figure 3.1. WeVideo Screenshot.....	65
Figure 4.1. Estimated Marginal Means of Writing.....	85
Figure 4.2. Estimated Marginal Means of the Motivation Construct	93
Figure 4.3. Estimated Marginal Means of the Anxiety Dimension	101
Figure 4.4. Estimated Marginal Means of the Intrinsic Motivation Dimension.....	103
Figure 4.5. Estimated Marginal Means of the Task Value Dimension	105
Figure 4.6. Estimated Marginal Means of the Control of Learning Dimension.....	106
Figure 4.7. Estimated Marginal Means of the Self-efficacy Dimension.....	108
Figure 4.8. Estimated Marginal Means of the Extrinsic Motivation Dimension	109
Figure 4.9. Estimated Marginal Means of the Engagement Component	115
Figure 4.10. Estimated Marginal Means of the Self-efficacy Component	121
Figure 4.11. Estimated Marginal Means of the Attitudes Component.....	127

LIST OF ABBREVIATIONS

ANOVA	: Analysis of Variance
CDS	: Center for Digital Storytelling
CU	: Cumhuriyet University
DS	: Digital Storytelling
DRA	: Directed Reading Activity
GLM	: General Linear Model
EFL	: English as a Foreign Language
ESL	: English as a Second Language
ELT	: English Language Teaching
FL	: Foreign Language
ICT	: Information Communication Technologies
L1	: First Language
L2	: Second Language
MANOVA	: Multi-analysis of Variance
MSLQ	: Motivated Strategies for Learning Questionnaire
MMC	: Multimodal Composition
NCTE	: National Council of Teachers of English
PBL	: Project Based Learning
SFL	: School of Foreign Languages
SpFL	: Spanish as a Foreign Language
SPSS	: Statistics Package for Social Sciences

1. INTRODUCTION

1.1. Introduction

The recent developments in technology have drastically shifted the educational system populated by the “digital natives” who were born into the digital world and grew up with technology naturally (Prensky, 2001, p. 1). Educators are now aware of the fact that “today’s students are no longer the people our educational system was designed to teach” (Prensky, 2001, p. 1) because they are part of a digital age.

Communicating (instant messaging), sharing (blogs), buying and selling (eBay), exchanging (peer-to-peer technology), creating (Flash), meeting (3D worlds), collecting (downloads), coordinating (wikis), evaluating (reputation systems), searching (Google), analyzing (SETI), reporting (camera phones), programming (modding), socializing (chat rooms), and even learning (Web surfing) (Prensky, 2005, p. 10)

are the general characteristics of students. As a result, the new education system is no more based on the traditional instructional practices; rather, teachers have started to employ technology-rich applications in their classrooms in order not to fall behind their digitized students for whom such technologies are a natural part of their everyday lives (Keleş, 2013).

In fact, language learning and teaching is no exception to the phenomenon since “these changes affect the way we use language as well as the ways we learn languages. They also challenge our understanding of literacy, which goes well beyond” (Kern & Schultz, 2005, p. 382) print-based texts, but includes multimodal forms of texts. In other words, with the introduction of new literacies in the late 20th and in the early 21st century, traditional literacy no longer merely means the ability to read and write print-based texts; rather, its meaning has also encompassed reading and producing multimodal ones.

Depending on the changing definition of literacy, researchers are (re)defining writing and writing instruction in accordance with the needs and expectations of today’s learners and seeking for new ways to incorporate multimodality into the writing instruction. One such modern tool which allows for students to write in different modalities to make meaning, to communicate, and to persuade is digital storytelling (DS henceforth) referring to the combination of traditional storytelling with multimedia tools such as music, photographs, graphs or videos (Robin, 2006;

Thang, Lin, Mahmud, Ismail, & Zabidi, 2014). In the literature, there exist very few research studies exploring DS and its applications to writing curriculum (e.g. Abdel-hack & Helwa, 2014; Elola & Oskoz, 2010; Kulla-Abbott, 2006; Yamaç, 2015); therefore, more research is needed to examine the effectiveness of DS in the writing curriculum in different contexts.

With the initiative to improve foreign language (FL henceforth) writing proficiency, the present study aimed to find out whether there were any effects of using DS on English as a foreign language (EFL henceforth) learners' (narrative) writing skills and whether these learners were more motivated to write as a result of participating into DS-integrated activities in writing instruction. In addition to this, this study attempted to find out to what extent these learners were engaged in such an authentic learning task and to what extent the DS implementation impacted these learners' attitudes toward and self-efficacy beliefs for technology integration into their learning practices. Lastly, the learners' perceptions of the current DS implementation were also investigated.

1.2. Background of the Study

The rapid growth in computer technology has given rise to its possible uses as an instructional tool in educational settings, thus becoming an important aid for teachers (Topkaya, 2010). Therefore, in an effort to make good use of this trend, teachers have been trying to integrate computer technology, namely new digital technologies, into the teaching situation. However, in practice, integrating technology into teaching is not as straightforward as it seems; it requires much more than simply installing technology (hardware and/or software) into a classroom (Krueger, 2007). Attaining a realistic and meaningful technology instalment and integration is inevitably based on authentic learning activities empowering learners to take on more responsibility for their own learning by enabling them to construct their own meaning from thinking about experiences, to integrate multiple content areas and multiple skills holistically (Jonassen, Peck, & Wilson, 1999; Maina, 2004). Among the current techniques promoting authentic learning experiences, DS is a promising one (Heo, 2009; Sadik, 2008).

Researchers have come up with various different definitions of "DS," but in general, it is defined as the new version of the ancient storytelling that uses digital media to tell a story (Heo, 2009). DS, in its most common sense, is the process of

creating a short purposeful movie lasting almost 2-to-5 minutes by means of various multimedia components (Rance-Roney, 2008; Robin, 2008a; Sadik, 2008) such as images, music, recorded audio narration and voice, thereby giving dimension and vividness to characters, situations and insights (Digital Storytelling Association, 2002).

With the turn of the 21st century, this application has gained momentum in so many different disciplines such as business, media, and art (Gakhar, 2007). In line with the mentioned-above fields making use of DS, this trend has also gained popularity particularly in education, perhaps because scholars have obtained an increasing body of evidence on how significant it is to effectively integrate technology into the learning process through which students are engaged into meaningful learning and knowledge-construction processes (Dexter, Anderson, & Becher, 1999; Sadik, 2008).

Many readily advantages of integrating DS in educational settings have been reported: (1) providing more variation than traditional methods in current practice; (2) personalizing learning experience slowly or quickly; (3) making the explanation or the practicing of certain topics more compelling; (4) creating real life situations in an easier and cheaper way; and (5) improving the involvement of students in the process of learning (Van Gils, 2005). As a result of the recognition of these advantages, DS is increasingly being used for educational purposes and notably for language learning (e.g. Baghdasaryan, 2012; Hafner & Miller, 2011; Oskoz & Elola, 2014; Ramirez-Verdugo & Belmonte, 2007; Tsou, Tzeng, & Wang, 2006).

The evidence obtained from the research investigating the use of technology in language classes clearly supports the expectation that technology utilization has the potential to enhance language teaching and learning (Dellicarpini & College, 2012), by providing EFL/ESL learners with more authentic input and by creating an ample environment promoting situations that stimulate interest, allow communication, foster a sense of personal worth, facilitate collaborative and cooperative work, and most importantly permit rich learning experiences.

DS is one of the means of providing a supportive environment reinforcing language learning by successfully integrating digital technology into language classrooms (Baghdasaryan, 2012). In many situations, students are not given a

chance to express their emotions and opinions in the target language; as a result, when they are expected to do so, they feel a great difficulty in creating such realistic expressions. But making digital stories which combine image and text is a perfect self-expression tool allowing for creating the tales 'from the heart'; that is, purely individual. DS encourages students to tell their personal stories by empowering them to express their own emotions and opinions vividly, creatively, and effectively (Hayes, 2011).

Nikitina (2009) also draws our attention to various additional benefits of DS in a language classroom by stating that digital story-making projects promote a more learner-centered attitude and provide the necessary foundations for the transition to the communicative approach due to its great emphasis on meaning-making activities in the classroom setting that demand collaboration between learners and autonomous learning.

Despite the afore-mentioned benefits of DS, there is not much research in the related literature which explores the effectiveness of the digital story creation in language instruction. The evidence gathered from the limited previous studies supports that this innovative way is likely to provide invaluable benefits to language learners in terms of its positive reinforcement to many different aspects: increasing language learners' motivation (Yoon, 2012) and engagement (Sadik, 2008), fostering the 21st century literacy skills (Niemi, Harju, Vivitsou, Viitanen, & Multisilta, 2014), helping learners in identity construction (Skinner & Hagood, 2008), enhancing critical and problem solving skills (Yang & Wu, 2012), and improving learners' linguistic skills (Yoon, 2014). It is also revealed that DS enhances language learners' communication skills in accordance with its potential to open up a new channel for them to communicate and convey the intended message in different modalities. That is to say, learners can expand their repertoire of expression in the target language through this application because of its characteristic use as a multi-modal communication medium.

In this vein, scholars (Alameen, 2011; Oskoz & Elola, 2014; e.g. Takayoshi & Selfe, 2007; Vinogradova, 2014; Yancey, 2006) who are calling for a change in the writing skills are willing to include this new genre in the writing curriculum as a new communication and expression tool. These researchers acknowledge that with the technological advancements, writing cannot be confined to a mere mechanical

process as in the previous centuries; rather, writers should find themselves in situations in which they make use of various technological tools in an attempt to support their ability to transmit a given message (Hicks, Turner, & Stratton, 2013). In other words, in line with the unprecedented applications emerging in the 21st century, writing is no longer “mono-modal” but “multimodal” (Shin & Cimasko, 2008, p. 377); that is, people inevitably need to utilize different channels for expression and meaning-making such as text, visuals, music, video or graphs, etc. At this point, DS, which allows for the writer to express himself/herself in different modes, is certainly a good alternative for writing practices in the 21st century.

Moreover, through DS, grounded on a multimodal design, it is highly possible to bridge the gap between students’ everyday writing and in-school writing. Thus, a great number of students who are not truly motivated by and thus unenthusiastic about exerting their best possible efforts into traditional writing projects can voluntarily involve in these authentic writing processes by producing high quality pieces (Miller, 2010; Ohler, 2008).

Although the ultimate purpose of DS is to create an artefact to be presented to the audience, the script writing process is in fact considered as the most essential part of the DS application. This is because a good script makes the digital story more effective and successful (Xu, Park, & Baek, 2011). The saying “if it ain’t on the page, then it ain’t on the stage” is true for DS because if the script is not effective, the other components such as special effects, music or images will not compensate the inefficiency of the script (Ohler, 2008). Therefore, in the digital story making, the *writing element* is of such significance that cannot be ignored in order to attain a creative and successful story (Banaszewski, 2002).

In fact, DS is a true example of traditional writing practices since this application does not negate the traditional writing process but reinforces it by following *the process writing steps* such as drafting, editing, revising, and sharing steps. In the digital-story production, first of all, students provide multiple drafts of the scripts and then they revise those scripts in multiple times by consulting opinions of their peers. Thus, through collaboration, students are expected to finalize their scripts. Students collaborate not only in the script writing phase but also in the other steps such as incorporating the multimedia devices into the story or sharing the story online with the others.

As seen, DS goes through the same writing procedure as the traditional pen-paper writing practices in which students write in a single mode, but unlike traditional methods, it expands the repertoire of expression with its allowance for producing a variety of texts in a variety of modes of communication relevant to today's world (Connolly, 2008; Harrison, 2011). Many of the writing conventions used in traditional writing classes will still be learned while students will also have an opportunity to make use of multimedia devices enabling them to express themselves in different modalities in addition to the language-only mode.

Writing in different modalities is important because it makes in-school writing more motivating and engaging. Students' out-of-school writing is generally based on writing in multimodal modes and this "real" writing can be successfully incorporated into the EFL/ESL settings through proper application of DS because in creating a digital story, students deal with an authentic writing task which will be presented to a real audience. That is to say, DS is a "real-life" pedagogy validating and incorporating student's out-of-school involvement into the classroom setting (Connolly, 2008). By means of the correct application of DS, students are provided with a chance to gain an awareness of and confidence in their ability to tell a worthy story that will attract the attention of a real audience (Ware, 2006) and they, whose previous pieces of writing most probably lacked detail, voice, or creativity, can emerge with digital stories that display their writing abilities in a whole new light (Miller, 2009).

Moreover, DS also enables learners to construct their real identities by telling their true stories, which gives learners the opportunity to self-actualize themselves by facilitating them to know "who they really are" or "who they want to become". Because DS is largely based on telling a "story", this new pedagogy is highly suitable for narrative writing that allows learners to reflect on their personal experiences and accordingly helps learners to form their identities.

Despite these numerous benefits of using such an approach in writing, in the related literature, there are very few studies which have investigated the role of DS in the writing instruction across various contexts including L1, L2 or FL settings. This limited research shows that DS heightens learners' motivation and engagement in the writing skill (Campbell, 2012; LoBello, 2015; Xu et al., 2011) and positively affects learners' perspectives toward writing (Huang, 2014; Huang,

2012; Oskoz & Elola, 2014; Timuçin & Irgin, 2015). In addition to these studies, there are also other ones exploring the effectiveness of DS on writing performance. But these studies were notably conducted in L1 or ESL contexts (Baki, 2015; Ballast, Stephens, & Radcliffe, 2008; Flihan, 2013; Foley, 2013; Kulla-Abbott, 2006; Yamaç, 2015). In the EFL setting there is a dearth of research; therefore, more research is needed to gauge the effectiveness of adopting a DS-integrated pedagogy on the writing performance in the EFL context.

1.3. Statement of the Problem

Inspired by 21st century technologies (Young, Long, & Myers, 2010), Information and communication technologies (ICT) are redefining the ways we read, write, think, and learn (Young et al., 2010). Depending on the influences of this movement, National Council of Teachers of English (NCTE) (1996) is calling for instruction of English language that focuses on multimodal texts and a multi-literacy approach. Parallel to this, Yancey (2006), who is NCTE former president, and Takayoshi and Selfe (2007) suggest that since we never write before, accordingly writing instruction of English language should change in a way that directs students to be the composers of multimodal texts in which meaning is created through the interaction between verbal and non-verbal elements (visual, audio or spatial etc.) by using multimedia devices. As a response to this call, providing instruction that meets the Standards for the English Language presented by NCTE that emphasizes multimodality and multimedia meaning-making as the core elements of standard writing instruction is a must in the 21st century context.

Given this growing interest in helping students to become proficient writers in this millennium and develop learners' new literacy practices, there is a growing body of research which investigates the use of technology in language writing instruction. Depending on this, research has already looked at the effectiveness of social networking (Boellstorff, 2010), online journaling (Guzzetti, Elliott, & Welsch, 2010), webpage composing (Tardy, 2010), WebQuest writing (Castillo, 2007; Chuo, 2004), blog writing (Armstrong & Retterer, 2008; Chang & Sun, 2012; Higginson, 2009), Microsoft PowerPoint presentation crafting (Tardy, 2005), Microsoft Word processing (AbuSeileek, 2006; Yılmaz & Erkol, 2015), electronic portfolio designing (Erice & Ertaş, 2011), and wikis (Aydin, 2011; Chao & Lo, 2011; Elola & Oskoz, 2010; Kost, 2011; Kuteeva, 2011; Lee, 2010) on writing instruction.

However, the potential of DS for language writing instruction has not yet been adequately explored. Although there are a few studies in the literature which have examined the effectiveness of DS as a collaborative writing tool (Herrera-Ramirez, 2012), in building identity in writing (Nelson, 2006; Shin & Cimasko, 2008; Yang, 2012), in heightening learners' motivation and engagement in writing (Campbell, 2012; LoBello, 2015; Xu et al., 2011), and in changing learners' perspectives toward writing positively (Huang, 2014; Huang, 2012; Oskoz & Elola, 2014), the number of the studies investigating whether DS is effective for developing writing performance is rare. Moreover, most of these studies were conducted notably in first language acquisition (Baki, 2015; Foley, Guzzetti, Agnello, & Lesley, 2014; Kulla-Abbott, 2006; Salpeter, 2005; Sylvester & Greenidge, 2009; Yamaç, 2015) or ESL contexts (Alameen, 2011; Bandi-Rao & Sepp, 2015; Flihan, 2013). But less is known about the uses of DS to improve learners' writing performance in the EFL setting. In the literature, there is only one such empirical study (Abdel-hack & Helwa, 2014) examining the possible effects of using DS on EFL writing in a one-group pretest/posttest research design. Although this study has yielded conclusive data on the efficacy of DS for developing EFL learners' writing performance, as it is not a comparative study in which both experimental and controls groups are included, it is not that clear to estimate the degree that DS has affected the learners' writing performance positively because of the possibility of extraneous factors that can have an impact on the results of the procedure. Therefore, there seems to be an urgent need for an empirical research study which will investigate any possible impacts of a DS based intervention in developing FL writing skill in a pre-/posttest quasi-experimental design. This study aims to fill the gap in the literature in that sense.

As for the local gap, the present researcher's impression, based on experience as an instructor at a Turkish university, is that students generally have difficulty in FL writing because it is known that writing in a target language requires years of practice (National Commission of Writing, 2006) and it is a non-linear process through which the writer has to rethink, review and revise many times. Moreover, a good writer has to develop many sub-skills for a good writing piece such as producing grammatical sentences, punctuating correctly, choosing appropriate style or register, achieving unity or coherence, etc. (Thornbury, 1997). And for

language learners who have limited knowledge in the target language, developing all those skills is surely a difficult task to tackle with and therefore, they have not generally gained a complete ability to accurately express themselves in a target language (Angay-Crowder, 2013; Shin & Cimasko, 2008). In this respect, adopting multimodal pedagogies allowing them to compensate learners' weakness by expressing themselves in multimodal modes rather than confining them to a single mode and using non-verbal elements to convey the intended messages is highly needed by those struggling writers.

Moreover, university students generally find traditional-print based writing activities inauthentic because in most traditional writing classes, students have few chances to use the target language as in the real life settings. Although these students are digitally competent in terms of both the necessary hardware and knowledge to efficiently use the tools, traditional writing activities do not challenge and require them to use their 21st century skills such as interactive communication skills, interpersonal skills, technology literacy skills as well as language skills (Thang, Sim, et al., 2014). Instead, most of the class time in writing instruction is allotted on presenting information in two modalities-words and visual elements (e.g. layout, font, font size, white space). But these texts do not resemble the ones in the real life composed in the digital environments by using multiple modalities for meaning-making such as images, music, graphs or animation etc. (Takayoshi & Selfe, 2007). Therefore, there seems to be a huge gap between out-of-school and in-school writings (Connolly, 2008). By doing so, as Selfe (2004) mentions, composition teachers "run the risk of making composition studies increasingly irrelevant to students engaging in contemporary practices of communicating" (p. 72) and thus students can become demotivated and disengaged in the writing process if they do not find the writing activities relevant (Pop, 2012). Therefore, given the proliferation of the networked technologies in the 21st century, there is a need for "an interesting, novel, meaningful and engaging" (Pop, 2012, p. 454) vehicle that enables combination of out-of-school activities with in-school ones by allowing EFL learners to write in a real life environment by using 21st century literacies.

Additionally, in most cases, traditional print-based writing courses mostly have a physical audience of two: the writer and the teacher (Sylvester & Greenidge,

2009). However, having a wider audience, students can feel that their writing will be a communicative act between the learner and the audience, which may in turn promote the quality of their writings (Oskoz & Elola, 2014). Moreover, the presence of a wider audience can enhance a strong sense of authorship. But, because of lack of such a real audience in most traditional writing assignments, students can seem to be less motivated to write in the target language. Therefore, it is clear that instructors, teachers or curriculum designers of English language need a concrete way which allows students to write for an authentic audience and accordingly motivates and engages students in the writing process.

1.4. Research Questions

This study addresses the following research questions:

1. Are there any effects of using DS on EFL English-major-students' (narrative) writing skills?
 - 1.1. Does the treatment type (DS-integrated or traditional writing instruction) differentially affect these students' (narrative) writing skills?
2. Are there any effects of using DS in writing on EFL English-major-students' motivational profiles?
 - 2.1. Does the treatment type (DS-integrated or traditional writing instruction) differentially affect these students' motivational profiles?
3. To what extent are EFL English-major-students engaged in DS-integrated activities?
4. Does a DS implementation experience have an impact on these students' judgments of self-efficacy for and attitudes toward and technology integration into their learning practices?
5. What are the perceptions of students about the effectiveness of using DS in writing after a DS implementation experience?

1.5. Significance of the Study

To the researcher's knowledge, there are yet no studies in the related literature which empirically test the impacts of DS on writing performance in the university level EFL context in Turkey. Therefore, the current study, which will be the first of its kind, will fill in the gap in the related literature by indicating the possible uses of

DS to enhance EFL learners' (narrative) writing skills in the Turkish EFL higher education context. Moreover, this study will shed light on whether this new way of teaching will be effective to promote students' motivational profiles and engagement level in writing in the target language. Moreover, the study will show the possible effect of DS on students' self-efficacy beliefs for and attitudes toward technology integration into their learning. Lastly, this study will add to the literature by showing the learners' perceptions of the DS implementation aiming to promote FL writing.

This study will contribute locally in the following ways: DS, with its multimodal affordances allowing learners to compose multimedia stories, is one of the few such forms in this respect to be incorporated into English composition instruction to meet the standards of multimodal writing instruction. Thus, the findings of this study could be utilized by the ones who want to enhance standard writing instruction by employing multimodality through using a DS-integrated pedagogy relevant to 21st century literacies and fosters language learners' both traditional and non-traditional literacy practices within the same context.

Additionally, since via DS students have a real purpose and audience to write for, English language teachers can use the findings of this study to motivate and engage learners to write in the target language. Furthermore, since learners' life experiences are valued and validated in the digital stories that they, themselves, create (Gregori-Signes, 2014), they can build their identities as an author and are more engaged in the writing process. Thus, in forming learners' identities, this method can be helpful.

Lastly, although we are in the digital age, learners may not be "using digital technologies in the ways they are characterized as doing so in much of the professional literature and in the mainstream media" (Amicucci, 2013, p. 17). That is, "these students are often portrayed uniformly as comfortable with and frequently using digital technologies" (Amicucci, 2013, p. 17). But not all the learners in this context may be comfortable enough to use technology meaningfully and in line with the requirements of their learning practices. Therefore, this current study, emphasizing the use of a technology-rich application, can provide an alternative for language educators who want to enhance their

learners' efficacy for and positively change their attitudes toward educational technology.

1.6. Definition of Key Terms

In this part, the most frequently encountered words/terms are described below:

Anxiety: This term refers to an unhealthy situation associated with the feelings of worry, fear, nervousness, and apprehension (Horwitz, Horwitz, & Cope, 1986).

Artefact/s: This term refers to “[i]tems used to construct the digital story (i.e., a photo, document, or the digital story itself)” (Kulla-Abbott, 2006, p. 15).

Computer self-efficacy: It can be defined as “a judgment of one’s capability to use a computer” (Compeau & Higgins, 1995, p. 192)

Digital storytelling: This term is based on the combination of traditional storytelling and new media tools such as images, graphics, music, sound and the author’s voice to tell and share a story which generally lasts for 2-5 minutes.

Engagement: It is conceptualized as the willingness to actively participate into an educational activity (Skinner & Belmont, 1993) and its level is determined by assessing the quality of efforts and the time invested on a particular task.

Information literacy: This term refers to the ability to find, assess and synthesize the knowledge (Sylvester & Greenidge, 2009).

Literacy: It means being able to read and write texts.

Media literacy: This term includes the skills in creating and evaluating both written and oral information in the digital media (Sylvester & Greenidge, 2009).

Motivation: This construct can be defined as the will and skills to learn (Dörnyei, 1998) resulting in learners’ purposeful endeavors toward a goal (Snow & Farr, 1983).

Multimodal composition: This composition type is related to producing multimodal texts by using multiple modes of representations as ways of communication through technology, indicating a seismic shift from producing print-based texts to the incorporation of images, music, video or sound into the texts.

Narrative writing: It “tells a story, describes feelings and personal experiences, contains personal reflections, interpretations, tells autobiographical stories, and

describes people, places, and things using devices and techniques that evoke clear images” (Abdel-hack & Helwa, 2014, p. 11).

New literacy: This term is based on being able to read and write print-based texts as well as multimodal texts.

Self-efficacy: This construct refers to one’s judgements of his/her abilities to accomplish a task.

Storyboarding: It is the step of brainstorming and outlining the digital story by planning “what media to use and how they might best work together to depict an important engaging and informative story” (Chung, 2007, p. 18).

Technology literacy: It refers to being able to use the computer or the other digital technologies effectively (Sylvester & Greenidge, 2009).

21st century skills: These skills refer to the concepts of (1) learner-driven knowledge, (2) collaboration, (3) networking, and (4) digital literacy skills.

Visual literacy: This term refers to decoding and encoding the images in digital media tools (Sylvester & Greenidge, 2009).

WeVideo: It is cloud-based software which allows digital storytellers to compose and store their stories online.

1.7. Conclusion

The overall structure of this study includes five chapters. This first introductory chapter has provided information about the background of the study, the statement of the problem, research questions and the significance of the study. The following chapter, the literature review part, will present the theoretical dimensions of the research and the existing studies related to the current study. Then, the methodology part will be included in the third chapter. The fourth chapter will provide the findings of the study and the last chapter will be about how these findings are related to the existing literature.

2. LITERATURE REVIEW

2.1. Introduction

This study aims at analyzing the effects of using DS on EFL English-major students' (a) writing skills, (b) motivation, (c) engagement, (d) self-efficacy beliefs for and attitudes toward educational technology, and (e) perceptions of the implementation. In this chapter, firstly, a description of DS with its basic properties and types will be provided. Following this, the use of DS in education, specifically in FL education, will be presented. Lastly, the use of DS in the writing skill will be focused on in this chapter.

2.2. Web 2.0 Tools

The term Web 2.0, coined by Dale Dougherty in 1994 (O'Reilly, 2007), refers to the "read-write Web" unlike the term "Web 1.0" meaning the "read-only Web" (West & West, 2009). In the Web 1.0 era, people largely used the Internet to search for, read and retrieve information (Wang, & Vasquez, 2012). People made use of the materials on the Web in a passive way (e.g. by reading the online materials); that is; they were not active content creators on the Web. Moreover, the interaction through computers was not widespread (West & West, 2009). People could only produce materials on the textual levels but not interactive contents.

However, Web 2.0 "facilitates, participatory, collaborative, and distributed practices" (Greenhow, Robelia, & Hughes, 2009, p. 247), which enables users not to be passive consumers of online contents but to be the creators of online materials. Unlike Web 1.0 tools, "[a]t the core of Web 2.0 tools is control of data by users, architectures of participation, remixable data and the ability to transform data, and the harnessing of collective intelligence" (Glassman & Kang, 2011, p. 94). Butler (2012, p. 139) also defines Web 2.0 as "a wide array of web-based applications which allow users to collaboratively build content and communicate with others across the world". That is, Web technologies allow for computer-human interaction through authoring and spreading the contents. Nowadays, millions of people use these innovative tools to communicate with each other in a faster and more collaborative way. Some sample Web 2.0 technologies can be listed as wikis, blogs, social networks, virtually reality zones, podcasting, and DS.

2.2.1. DS

DS and its uses in FL education are presented in the next sections.

2.2.1.1. The History and Definition(s) of DS

Throughout the history, storytelling has become an important communication tool in sharing knowledge, experiences and values (Heo, 2009; Smeda, Dakich, & Sharda, 2014) with the next generation (Harrison, 2011), acting as a bridge between communities' past and present (Hull & Katz, 2006). Storytelling is also a powerful learning instrument (Pop, 2012); however, as a result of the technological developments over the last decades, the way how the story is created and shared has changed dramatically (Smeda et al., 2014) and stories have started to be told in electronic (Reinders, 2011, p. 2) or digital (Simpson, 2011) forms but not in the forms of oral, pictorial or written (M. Heo, 2009). This newest form of the storytelling is called as DS.

At its basic core, DS is based on using digital tools to tell a story. There are lots of terms used to describe DS such as digital documentaries, computer-based storytelling, digital essays, interactive storytelling (Robin, 2008b), multimedia storytelling (Smeda et al., 2014; Tsou et al., 2006), web-based stories (Smeda, 2014) or Web 2.0 storytelling (Alexander & Levine, 2008), but in general they all revolve around the idea of combining traditional storytelling with new media tools such as images, graphics, music, sound and the author's voice (Frazel, 2010; Gakhar, 2007; Gregori-Signes, 2014) to tell and share a story which generally lasts for 2-5 minutes (Rance-Roney, 2008). It is the "modern expression of the ancient art of storytelling ... using digital media to create media-rich stories to tell, to share, and to preserve" (Digital Storytelling Association, 2002) and a very powerful way of expression because multimedia elements surround the written and narrated content and thus adding a deep dimension and vivid colors to characters, situations or insights (Digital Storytelling Association, 2002; Frazel, 2010). This newest form of storytelling has "the same engaging and emotional impact of in-person storytelling using digital images, audio, and video" (Lowenthal & Dunlap, 2010, p. 71).

As mentioned above, storytelling is not of course new, but the idea of adding multimedia elements to the ancient story is a new element, resulting in the new version of the storytelling, namely DS (Robin, 2008b). DS emerged in the 1990s

with the supports of Dana Atchley and Joe Lambert, who co-founded the Center for Digital Storytelling (CDS) at U.C. Berkley in 1993 (Harrison, 2011; Robin, 2008a). The CDS has assisted people to create and share their personal digital stories by providing professional training (Robin, 2008a). Moreover, the CDS has also helped the spread of this notion (Robin, 2008a). With the help of this, the practice of DS has spread rapidly and a lot of people from different fields of study including education have become interested in developing and sharing their personal digital stories. Today, the Center assists educators in the US by providing workshops as to how to create a digital story (Bandi-Rao & Sepp, 2015) and how to use these stories as an educational tool. The CDS has also indicated the seven elements of effective digital stories shown below in Table 2.1.:

Table 2.1. Seven Elements of DS

<i>Elements</i>	<i>Description</i>
Point of View	is the main point of the story
A Dramatic Question	is the question that captures the audience's attention and will be answered at the end of the story
Emotional Content	is the element that connects the audience to the story in a personal and powerful way
Gift of Your Voice	is surrounding the narration with the voice of the author to make the story more effective and personal
The Power of Soundtrack	is the music corresponding the story in the background and thus supporting the storyline
Economy	is telling the content as economically as possible
Pacing	is the rhythm of the story

(Robin, 2008a, p. 223)

These basic elements are vital for a typical digital story (Robin, 2008a); however, in order to include these elements in a digital story properly, first of all, it is needed to determine the type of the story to be created since different story types will include different elements and accordingly affect the process to follow. Therefore, in the next section, firstly, the types of digital stories and then the process of the implementation will be indicated.

2.2.1.2. Types of Digital Stories

According to Robin (2006, 2008a, 2008b), digital stories can be categorized into three: (1) personal or narrative stories, (2) stories that inform or instruct, and (3) stories that retell the historical events. The first type (personal or narrative stories), the most popular one, is based on the authors' personal experiences, memories, events or autobiographies (Dogan, 2008). This type of stories has numerous

benefits in education. For example, this story type can be used to understand others' lives coming from different backgrounds in a classroom setting; thus helping learners to appreciate other people's lives and have empathy for others. Moreover, this type of stories can create class discussion on diverse issues such as globalism, multiculturalism or racism (Robin, 2006, 2008a, 2008b).

Although all types of digital stories can be used as instructional tools, the second type of the digital stories based on *informing* or *instructing* are the ones intentionally created for pedagogical aims to be used in different content areas in education including math, science, history or language arts.

The last type of digital stories refers to the ones that re-examine historical events. These stories are created by digitally retelling the events from the past by using photographs, newspaper headlines and other important materials from the past.

Determining the type of the digital stories to be used for instructional purposes is vital for educators because as stated by Kapp (2014, p. 10) "different [learning] goals demand different types of stories. Matching the type of story with...instructional goals can help a learning designer craft the right story". However, it is highly agreed on that whatever the type of the digital stories is, there are some commonalties shared by all story types such as following a process to create a digital story.

2.2.1.3. The Process of Creating a Digital Story

Although the same sequential route is not needed for creating a digital story, it is important to include more or less the same common steps in the DS creating process (Flihan, 2013). According to Frazel (2010, p. 23), there are three stages to create a digital story, namely preparation, production and presentation stages. Table 2.2. will show the steps categorized in each stage:

Table 2.2. The Steps of Making a Digital Story

Preparation stage
<ul style="list-style-type: none">• Topic selection• Determine the audience• Storyboard• Write the script• Discuss and edit the script
Production stage
<ul style="list-style-type: none">• Select or create music/sound effects• Select or create images, video• Select transition special effects• Render into video file format• Conduct peer review
Presentation stage
<ul style="list-style-type: none">• Play for classroom• Post to the web

As seen from Table 2.2., in the DS preparation stage, this process starts with finding a topic and determining the audience whom the digital story is intended for. In the storyboarding step, it is expected to brainstorm and outline the digital story by planning “what media to use and how they might best work together to depict an important engaging and informative story” (Chung, 2007, p. 18). Following this, the author starts to write his/her story and when it is needed, s/he seeks for feedback from the teacher or classmates to make necessary changes (Dogan, 2008). In fact, all these steps at the preparation stage are more or less the same steps followed in a traditional story writing process including topic selection, outlining, drafting or editing steps (Baghdasaryan, 2012).

However, as for the production stage, the technology-integration stage, the differences between digital story production and traditional pen-paper based writing activities can easily be seen. At this second stage, the necessary multimedia elements including music, voice or images are selected and incorporated into the narration to visualize the story. The necessary technological equipment to be used at this stage is computers, image capture devices such as digital cameras and scanners, audio capture devices including microphones or audio recorders (Robin, 2008a, p. 223) and video editing tools such as PhotoStory, iMovie, MovieMaker (Foelske, 2014; Lowenthal, 2009) or Web 2.0 applications like Animoto, StoryBird, StoryKit, Toontastic, VoiceThread, or WeVideo (Lowenthal, 2009).

The last one is the publishing stage in which the digitally-prepared story is presented to the audience (Frazel, 2010) which can be the classmates or the ones from the Web such as Facebook or Youtube.

In these three stages, there can be variations in the sequence of these steps; that is, there is not a unique, unchanging process to create a digital story (Frazel, 2010) because a DS process is creative and recursive and it is expected to have overlapping steps such as drafting or editing a story several times in the preparation process (Castaneda, 2013b; Flihan, 2013). What is important is to have a clear sequential route to follow.

These steps also show that in the digital story implementation, the emphasis is not on the *product* but on the *process* (Banaszewski, 2002; Rance-Roney, 2008). In other words, the first aim in this implementation is not having an end-product but internalizing the story creation process (Castaneda, 2013b; Flihan, 2013) in which students can develop a number of skills that educators aim at improving (Robin, 2008a) such as technical skills, problem solving skills or collaborative learning skills, etc. In the next section, these benefits of using a DS approach in education will be shown.

2.2.1.4. The Use of DS in Education

With the proliferation of technology in the last decades, educators are seeking for new methods to integrate technology into the curriculum in a meaningful way. DS is among such few forms that allow for educators to meaningfully integrate multimedia devices into the classroom (Sadik, 2008). Meaningful technology integration is achieved when students select, analyze and use the technology tools in a systematic and professional manner (Harris, 2005) and DS allows for this as being an authentic task that engages learners to construct their own meanings from thinking, analyzing and synthesizing their experiences in project-based instruction (Jonassen et al., 1999; Jonassen, 1999).

DS can be used both as a teaching and learning tool (Wang & Zhan, 2010) in a number of disciplines in education such as history, literature, writing, science (Dupain & Maguire, 2005), teacher training, ESL/EFL, gender study or American studies (Clarke & Adam, 2012) across grade levels. The teacher can benefit from DS as an instructional technique in order to introduce and teach the content, to

provoke discussion on a certain topic or to illustrate a procedure (Robin, 2008a). For this aim, the teacher can create his digital story/ies or can use already-created ones by others (Dogan, 2008). Moreover, student-produced digital stories can also be utilized by teachers as a learner-centered activity (Barrett, 2006).

Whether constructed by the teacher or constructed by the learners, the fact that DS as an instructional method has offered a number of benefits in education is supported by research findings. Researchers have identified that DS provides meaningful technology integration (Sadik, 2008; Xu et al., 2011) and learner-centeredness (Van Gils, 2005), builds personalized learning experience, enhances authorship (Bandi-Rao & Sepp, 2015), gives an opportunity to access to a real audience (Salpeter, 2005), creates agentive sense of self (Hull & Katz, 2006) by amplifying student's voice (Bull, Kajder, & Albaugh, 2005), helps identity construction (Ross, 2011; Vinogradova, 2011), increases engagement and motivation (Dogan, 2008; Dupain & Maguire, 2005; Malin, 2010; Sadik, 2008), fosters creativity (Vinogradova, 2014), academic achievement (Yang & Wu, 2012), promotes critical thinking (Yang & Wu, 2012), self-reflection and deep learning (Barrett, 2006), develops 21st century literacies (Bull & Kajder, 2004; Joseph, 2006; Robin, 2006), positively affects self-efficacy beliefs for technology integration (Heo, 2009), and facilitates collaboration (Alameen, 2011; Vinogradova, Linville, & Bickel, 2011).

Because of these numerous educational benefits that DS has offered, educators have acknowledged DS as a promising strategy to incorporate into instruction. In fact, it is not surprising that DS can provide such benefits for education despite being a new learning tool since it has grounded on the basic learning theories. These theories are presented in the next section.

2.2.1.4.1. Theoretical Foundation of the DS Use in Education

According to Wang & Zhan (2010), the *constructivist approach* to learning and the *narrative paradigm* can be called as the underlying theories behind DS. In this section, these two theories will be examined in detail, respectively.

Constructivism, one of the most influential learning theories, is based on the importance of social dimensions of learning and authentic learning environments (Smeda et al., 2014; Smeda, 2014). The two fundamental figures in the

constructivist learning theory are Piaget (1950) and Vygotsky (1978); the former is the proponent of the cognitive developmental theory stating that learners construct meanings with active involvement in making sense of information that comes to them, and the latter is the proponent of the social construction theory claiming that knowledge is constructed by the interaction with the environment. “Constructivism proposes that knowledge is actively constructed by individual minds and formed by interaction with the environment” (Hung, Hwang, & Huang, 2012, p. 370).

According to Good and Brophy (1994), there are four aspects underlying the constructivist learning theory: (1) Learners construct their own meanings, (2) new learning builds on prior knowledge, (3) learning is formed by social interaction and (4) meaningful learning develops through authentic tasks. In fact, these principles can be best met in a technology-rich learning environment because of the synergy between technological advancements and constructivist learning principles (Okojie, Okojie-Boulder, & Boulder, 2008; Wu & Yang, 2006). Therefore, in order to attain current educational objectives, scholars describe an ideal learning environment as the combination of technology integrated learning and constructivism (Neo & Neo, 2010; Sadik, 2008) and DS has such a potential for bringing technology-based learning and these four guiding principles of constructivism together (Nikitina, 2009).

In the digital story implementation, learners are not passive information receivers but knowledge constructors (Dong, 2015; Hur & Suh, 2012), that is, creating a digital story promotes active and creative learning which enables learners to use technological tools meaningfully to manipulate information, to construct knowledge and to produce an end-product (e.g. a digital story) (Sadik, 2008) by promoting higher-order skills such as analysis, synthesis and evaluation of the learning materials (Okojie et al., 2008). DS is a “self-access learning” model in which learners self-regulate their learning by taking responsibility over their learning practice (Gardner, 1994). “Instead of being passive recipients of knowledge in the familiar and somewhat ritualized proceedings of the formal classroom” (Nikitina, 2009, p. 173) such as watching others’ stories (Christopher, 2011), in creating a digital story, learner will authorize their stories by telling their narrative and accompanying it with suitable multimedia devices in a non-linear process through

which learners control their stories by constructing the knowledge with an active involvement in the process.

In addition to this, according to Okojie et al. (2008), active engagement in the learning process is partly dependent on the “others” in the environment, that is, the interaction with the others in the social context allows for the active learning practice in which learners construct and reconstruct their knowledge and the belief system. Learning is a social activity and learners construct knowledge with collaborating with others. In fact, as mentioned before, this assumption (*learning is formed by social interaction*) is one of the guiding principles of constructivism (*especially social constructivism*) and DS creates an ideal synergy for this (Banzato, 2014) by providing a learning environment in which learners reflect and evaluate what they have created by interacting with others. By creating story circles, learners are encouraged to share their ‘personal’ stories with each other and to give comments to the others’ stories. With the help of these comments, the creator can make changes in his/her story by revising the story upon the responses of the audience (Nguyen, 2011).

In addition to this, DS is admitted as a “two-fold socialized activity” (Nguyen, 2011, p. 19) in which both the creator of the story and the audience of the story are important. The experiences of the story creator are perhaps the most important part of the DS process since these experiences are narrated in the story but the audience of the story gains importance because sharing stories is an important step of the DS implementation process (Digital Storytelling Association, 2002) and therefore, most of the digital stories are created “in order to be widely shared” (Nguyen, 2011, p. 17) with others.

The other assumption of the constructivist learning theory is that new meaning is built on prior knowledge and this assumption is also met in the DS implementation. In creating a digital story, learners make meanings by activating their prior knowledge to attach new learning to the existing schemata. Learners are already familiar with ancient storytelling and in the digital story implementation process they use this existing knowledge to create the modern version of it by using the necessary technological tools.

The last assumption of the constructivist learning theory is the promotion of the use of authentic tasks in which technology is meaningfully integrated to instruction by helping learners to practice the language in technology-rich real life settings. Sadik (2008) suggests that authenticity is only achieved with learning practices that are designed from a constructivist approach and DS is one of the few activities that provide authenticity in the learning process. According to Kearney (2009b), there are a lot of reasons why educators should call DS as an authentic task. First of all, digital story production is one of the real-life activities that students deal with outside of the class. In other words, digital video production provides learners with a real context that they are already familiar with. In this context, since creating a video is an open-ended task, learners have multiple choices of expression as in the real life (Kearney & Schuck, 2006). Moreover, the activity is student-driven and therefore, it fosters autonomy, which are the two elements of authentic learning. Additionally, in the digital story implementation, students collaborate and interact in their groups by reflecting on their stories and giving feedback to each other as a real-life task. Lastly, the presence of a real audience apart from the teacher makes the task real and encourages students to produce a realistic work.

As seen from the all, DS can be stated as an ideal way to enhance the constructivist learning practices (Banzato, 2014; Smeda, 2014) by meeting the four guiding principles of the constructivism suggested by Good and Brophy (1994).

The second theory which advocates the use of DS in education is the *narrative theory* (Nguyen, 2011) based on the idea that humans learn through the narrative and stories are the only forms of the communication (Fisher, 1985). In this theory, narration means “symbolic actions-words and/or deeds – that have sequence and meaning for those who live, create, or interpret them” (Fisher, 1985, p. 2). According to Fisher (1985, 1987, 1989), human life is a sequence of stories and these stories form the basis of our experiences and shape our value and belief system. By selecting these stories, humans can create or recreate their world.

As for the educational aspect of the narrative theory, since this theory underlines the importance of the storytelling, narrative stories can be used as instructional practices to learn from, about and through the stories. At this point, DS, grounded

on the theoretical framework of narrative learning (Clark & Rossiter, 2008), seems to be the best way to integrate narrative stories into the instruction (Nguyen, 2011). In a digital story, the most important component is not the use of multimedia devices; rather, it is the story itself that makes DS powerful (Ohler, 2008).

As suggested by Fisher (1985, 1989), humans are storytellers and storytelling is the human nature and storytelling is and has always been at the core of human activity. In fact, this assumption is resounded in the saying of CDS that “[e]veryone has many powerful stories to tell” and therefore, “when a teacher brings DS into her classroom, she encourages her students to return to their natural selves of storyteller” (Nguyen, 2011, p. 25); thus naturally increasing motivation and engagement (Rance-Roney, 2008; Sadik, 2008).

Finally, as seen from the above, these two theories (*constructivism* and the *narrative paradigm*) form the basis of DS and support the use of DS across various curriculum and grade levels in the education sphere. Language education is not the exception to this phenomenon (Yoon, 2012). In the next section, the use of DS in the language teaching and learning is focused on in detail.

2.2.1.5. The Use of DS in Language Education

With technological advancements, language educators face with the challenge of searching for the new ways to incorporate into the curriculum which meet the demands of contemporary language education, and DS seems to be a promising way in that respect. Digital stories are:

interactive since they are shared with others (e.g. classmates) in class.

authentic in which students can create their personal meaningful stories as a real-life activity.

meaningful since these stories are based on students’ personal experiences.

technological by allowing students to use different multimedia devices such as computers, scanners, recorders, or video editing software, etc.

organized since students must follow a process to create a digital story such as planning, storyboarding, writing the script or sharing.

productive because students can make their own voice, and produce their desired outcome, through their juxtaposition with visuals, recorded narratives and sounds which deliver their intended message.

collaborative because it allows learners to create their personal stories together by getting feedback from each other in different phases of the preparation from the topic selection to the sharing phase.

appealing because DS is a novel task to deal with and therefore it is interesting and engaging.

motivating since technology is often regarded as motivating and engaging for students in the 21st century.

personalized because personal experiences are reflected on each digital story.

As seen from these principles described by Yoon (2012, pp. 27–28), digital stories are multifaceted practices which provide learners with a number of educational benefits and for this reason, they are highly suggested by educators to be incorporated into the language education field.

In all language learning settings including L1, L2, FL or heritage language education, digital stories seem to be beneficial since they (1) provide project based learning, (2) attach learning to learners' experiences, lives or interests, (3) add multimodality into the classroom activities, (4) foster a multi-literacy approach, (5) allow learners to experience multimodal meaning-making and (6) expose learners to meaningful communication by combining in-school and out-of-school literacy practices (Vinogradova, 2014).

Despite the scarcity of research in the literature investigating the efficiency of DS as a main language-learning tool, the very few studies revealed conclusive evidence for supporting the fact that overall DS is a viable pedagogy to enhance language learning. For example, Yoon (2014) explored the efficiency of the DS technique in improving learners' four language skills and at the same time promoting their motivation with the participating EFL elementary learners in the Korean context. The researcher used a mixed-method research study which utilizes pre-/posttests to investigate the possible changes in the four language skills at the end of the implementation, a survey questionnaire asking students'

attitudes toward the implementation, classroom observations and interviews to collect data. The findings of the study that lasted for 12 weeks indicated that DS improved learners' four language skills. Moreover, it was found that making a digital story was a motivating tool. Lastly, the data highlighted that the teacher and the students were satisfied with their experience in this tool.

Thang, Mahmud, and Tng (2015) also examined the role of DS as a main language learning and teaching tool by asking participants' perceptions of the DS implementation that lasted for twelve weeks. The participants of the study were one teacher and his ten students who study Mandarin a second language in a Malaysian context. The data were derived from the teacher's personal reflections, a student questionnaire and interviews conducted with students. The findings of this present study gathered from the teacher's reflections and students' views shared in the questionnaires and interviews demonstrated that composing a digital story in a twelve-month-period enabled the learners to enhance their language skills specifically reading and writing skills. Moreover, DS proved to be an effective tool to promote ICT skills, motivation, and collaboration and provided learners with new learning experiences which "move away from traditional approach of chalk and talk and repetition and memorization" (p.172).

Other than exploring the significance of DS as a main learning-teaching tool utilized in language learning, the effects of using DS on specific language skills or features were also addressed in the previous research studies which were very limited in number. These studies will be mentioned following section in detail.

2.2.1.5.1. 21st Century Skills

With the effects of globalization and ubiquitous technological advancements, meeting 21st century skills is seen as a must for students to "survive" and "thrive" in the digital age (Afrilyasanti & Basthomi, 2011a). Parallel to this, some professional associations such as International Reading Association (2001) and the National Council of Teachers of English (NCTE) (2008), North Central Regional Educational Laboratory along with Metiri group and consortia such as the Partnership for 21st Century Skills (2004) have started to develop 21st-century skills frameworks and curriculum maps and described the so-called 21st-century skills as needed ones for successful participation into the modern work, society, school and the other contemporary contexts including virtual platforms (Black,

2009). Figure 2.1. shows the skills, competencies and literacies categorized in the enGauge 21st-century skills framework:

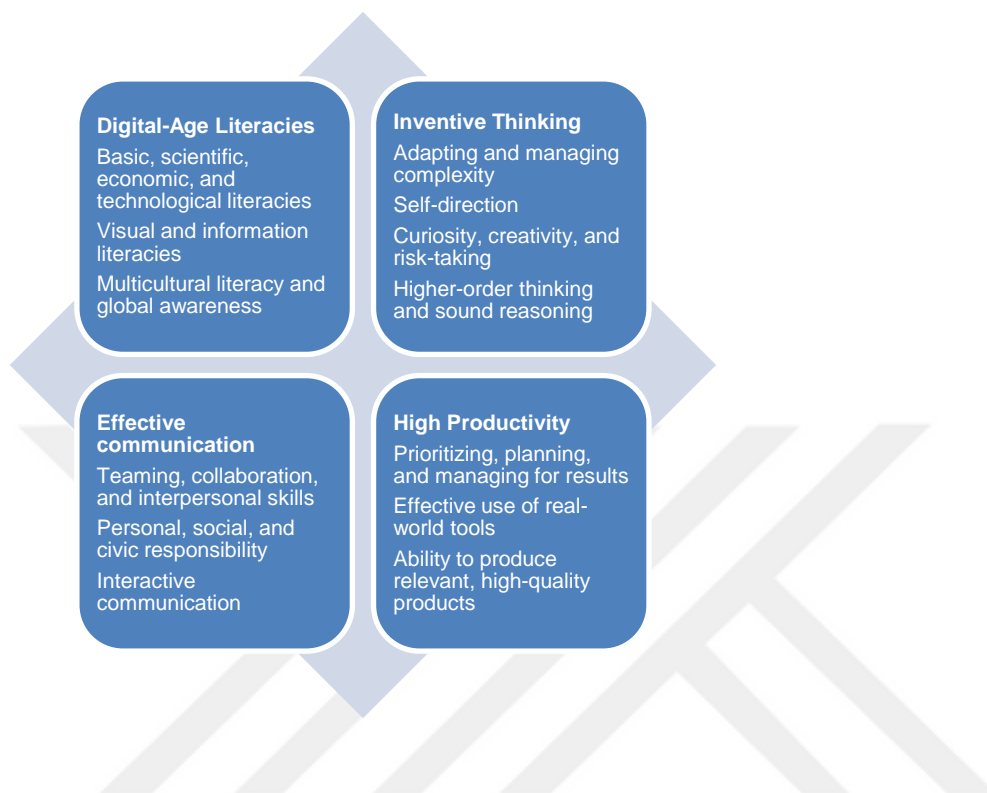


Figure 2.1. 21st-century Skills

Digital age literacies refer to the effective use of technological and communication tools to produce, analyze, and synthesize information in order to participate into the changing society. The second dimension, *inventive thinking*, is based on the activation of higher-order skills to process information in compelling contexts by using the necessary digital-age tools. The third dimension is about being able to use today's multimedia tools in order for communication and writing. Finally, *high productivity* covers abilities to prioritize, plan and manage for relevant and high quality products and results (Fandiño Parra, 2013).

As suggested by these literacies, though 21st century literate persons have a wide range of skills and literacies beyond print-based literacy including using technological tools effectively, producing and sharing information via multimedia texts, analyzing and synthesizing multimedia texts, interacting people from different contexts, using higher-order skills etc. With the introduction of 21st-century skills, traditional literacy skills such as reading, writing, speaking and

listening can only be seen as a starting point to successfully participate into a technologically based digital society (Black, 2009).

Parallel to this, associations like the International Society for Technology in Education are calling for updating the educational standards in a way that promotes meaningful technology integration, creativity, critical thinking, (Clemens & Kreider, 2011), problem solving, and communication skills. As a response to this call, formal learning institutions have started to re-consider the roles and responsibilities in this new era (Black, 2009) and highlighted the importance of adopting a multi-literacy approach which takes the advantage of 21st-century skills to meet the contemporary standards for curriculum development; thus enabling learners to become multi-literate persons (Gakhar, 2007).

EFL/ESL instruction is not the exception in that globalization and digitization necessitate the inclusion of multiple literacies in EFL/ESL classrooms by addressing technology, multimedia, relationships and culture (Fandiño Parra, 2013). Therefore, scholars (Fandiño Parra, 2013; Warschuer, 2001) underline the importance of using technology-enhanced, learner-centered authentic projects in which learners collaborate with each other creatively in the language education setting. Among technology-rich learning practices, DS is a promising strategy to develop language learners' 21st-century skills by involving them in the process of meaning making in different modes, negotiation, collaboration, activating higher-order skills, managing complexity, and networking.

It is suggested by some researchers (Castaneda, 2013a; Niemi et al., 2014; Vinogradova et al., 2011) that DS provides a virtual learning environment which builds 21st century literacies in the language learning settings by integrating the concepts of (1) learner-driven knowledge, (2) collaboration, (3) networking, and (4) digital literacy into the instruction (Niemi et al., 2014, p. 657). Additionally, Gakhar (2007) also suggests that, DS, admitted as an innovative instructional strategy, can enhance 21st century skills in the language learning context, as in the following ways:

Visual literacy. Students accompany the pure narrative with appropriate images.

Information literacy. Students research their topic by gathering the necessary information to tell their stories and analyze and synthesize the gathered information.

Technical literacy. To depict their story, students select the necessary images, sound, music or graphs and apply these multimedia tools to the narrative using video editing programs.

Creativity and inventive thinking. Each artefact is the own production of the students and how effectively the narrative is depicted using multimedia devices is subject to the students' creativity.

Higher-order skills. Students analyze, synthesize and evaluate the researched and existing information, and personalize the information in the depiction of the story. Moreover, content creation involving the narrative and accompanied multimedia tools necessitate critical thinking. "In the process of making digital stories, a student has to locate and order images and artefacts that meaningfully support the message of the text. This requires critical awareness by the story maker of the meaning he or she wishes to convey" (Boase, 2008, p. 6).

Interactive communication. The presence and awareness of a wider audience makes the digital story implementation an interactive process.

Collaboration. In the process of DS production, students work together by seeking help from and giving help to each other in the steps of script writing, digitizing the story and finally evaluating the story.

The previous research also supports the infusion of DS into language learning contexts to meet 21st century skills. For example, Vinogradova et al. (2011) examined learners' experiences regarding the infusion of DS in the ESL context as a 21st century tool. The researchers used the followings as data collection instruments in three semesters of research and practice: students' digital stories, journal entries, final essays, and interviews. The qualitative data showed that DS as "student-centered collaborative projects" (p.173) enhanced ESL learners' 21st century skills by developing their multi-literacy skills as "they learn how culturally rich messages can be produced, distributed, and variously interpreted by different audiences" (p. 194), meaning-making processes in multiple modes, cross-cultural collaboration, and high-order skills since learners are required to make a critical

analysis for the combination of the multimedia elements and the narration to convey the intended meaning.

As for the FL contexts, Castaneda (2013a) conducted a study to test if the execution of DS could build 21st-century literacy skills in a Spanish-as-a-Foreign-Language (SpFL) classroom. The study was carried out with the participation of high school students in the US. The findings revealed that since students created a multi-media text using technological tools, the study gave them the opportunity to enhance learners' technology literacy skills.

In another FL context but this time in an EFL setting, the feasibility of using DS to develop 21st century skills was examined in the Malaysian context. The researchers (Thang, Sim, et al., 2014) collected the data from the interviews with five teachers and the student questionnaire survey. The results indicated that the implementation promoted 21st-century skills by developing learners' "interactive communication skills, interpersonal skills, technology literacy skills as well as language skills" (p.489).

These above-mentioned studies suggest that DS is "a viable modern teaching tool" (Castaneda, 2013a, p. 55) which has the potential to build 21st century skills and encompass multiple literacy skills (Robin, 2008b) by engaging students in using old and new literacies (Sylvester & Greenidge, 2009). But DS can provide more than these benefits; composing a digital story not only promotes learners' digital literacies but also positively affects learners' self-efficacy beliefs for and their attitudes toward computer use and the technology integration into their education. Self-efficacy is described as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3) and it is suggested that these beliefs influence many aspects of learners' behaviors, including the choice of a course of action, the amount and duration of effort put forth, and the emotional response to the success of an endeavor (Bandura, 1997, p. 3). Learners with a high level of self-efficacy along with positive attitudes toward technology integration can be more likely to be motivated for and engaged in the subsequent technology-rich projects as what the 21st century demands.

The researchers, Wilson, Stone, and Krause (2014), conducted an action research study with similar expectations in an English-as-an-additional-language environment with pre-service teachers from the College of Education at the University of Saskatchewan. It was a-year-long implementation intended to examine how a technology-rich application, namely multimedia storytelling, affected pre-service teachers' confidence with using technology and perceptions of the implementation through using interviews as a primary source of data. Findings of the study indicated that all participants expressed an overall sense of an increase in their abilities in technology literacy skills and they "became more confident accessing unfamiliar tools or locating and applying online resources. This increase in ability led to a greater level of technology familiarity and raised the students' confidence level with technologies" (p.132). Lastly, the participants reported having positive attitudes toward engaging in such technology-enabled projects more in their education.

Heo (2009) also researched the effects of a DS-supported approach on learners' self-efficacy beliefs for and dispositions toward educational technology in a pretest and posttest survey. The number of the participants was 98 pre-service teachers including the ones whose major was English language teaching and they were exposed to a DS-integrated approach in which they were required to construct a digital story within the given period of time. Before and after the implementation, a Likert scale was administered to test the possible changes in the variables mentioned. The results of the study showed that "participants' technology competency and openness to change towards educational technology improved" (p. 405) as a result of participating into this study.

The above-mentioned studies indicate that digital story making helps learners gain "hands-on computer experience and in-depth knowledge of software programs" (Zastrow & Generoso, 2012, p. 2), which may heighten learners' self-efficacy beliefs and their attitudes towards the use of technology in education. Heightened efficacy and holding positive attitudes toward technology infusion can increase their likelihood of more participation into such projects in their education. In the next section, the effects of making digital stories on the other cognitive-affective variables that lead to successful learning, namely motivation and engagement (Rouxel, 1999) will be examined in the language learning contexts.

2.2.1.5.2. Motivation and Engagement

Motivation and engagement are two important factors that lead to successful learning (Ainley, 2004; Yang & Wu, 2012). There are lots of definitions of the two, but put simply, motivation is the will and skills to learn (Dörnyei, 1998) resulting in learners' purposeful endeavors toward a goal (Snow & Farr, 1983). Motivation is not action itself, but "a psychological process that cause arousal, direction, and persistence of voluntary actions that are goal-related" (Mitchell, 1982, p. 81). As for engagement, it is conceptualized as the willingness to actively participate into an educational activity (Skinner & Belmont, 1993) and its level is determined by assessing the quality of efforts and the time invested on a particular task. Although these two terms are being used interchangeably, they are not identical.

According to Russell, Ainley, and Frydenberg (2005), students can be motivated for learning but at the same they can be disengaged for dealing with some activities. In other words, having a heightened level of motivation does not guarantee showing high levels of engagement in performing in the activities which students find uninteresting and "if students are motivated but not engaged, then they will not channel energy into learning that does not stimulate them" (Generation Ready, p. 15). Motivation is needed for the engagement but it is not the only pre-requisite for engagement (Appleton, Christenson, Kim, & Reschly, 2006). Therefore, educators need to understand the roots of motivation and engagement as distinct constructs in order to properly water these roots in the education system.

Motivation which is based on values (intentions, plans or goals, etc.), expectancy of success and affective domains (self-efficacy and anxiety, etc.) is largely internally driven but engagement based on energized interactions is more related to observable behaviors such as active involvement in the task (Generation Ready). "Where motivation is about *energy* and *direction*, engagement describes *energy in action*, the interaction between the person and the activity or context" (Russell et al., 2005, p. 1). Motivation, which cannot be a directly observable construct (Pintrich & Schunk, 1996), deals with the "whys of behavior (Wigfield, 1997, p. 14) and accordingly is related to the cognitive processes underlying *involvement* in the learning such as one's positive attitudes toward a particular task, perceived value of the task or perceived ability of accomplishing a task

(Ryan, 2000); whereas, engagement based on “hows of a behavior” is about the actual *involvement* in the learning practice (Ryan, 2000) and includes observable behaviors (Lee, 2012). Depending on this, “engagement can be perceived as an indicator of students’ motivation” (Hijzen, Boekaerts, & Vedder, 2007, p. 674).

If educators want students both motivated and engaged, it is needed to design goal-oriented and meaning-based classroom activities (Nunan, 1991) which will firstly provide the cognitive basis of the involvement by shaping students’ internal beliefs or expectations and then it can be expected from students to channel their directed energy to these activities. As an authentic activity, digital story production activities which have meaning and interest to them and offer opportunities for social interaction and self-expression (Lo & Hyland, 2007) can help those who want to motivate and engage students within the process.

There are a number of implications of DS for motivating and engaging learners as follows: First of all, storytelling is a motivating and engaging instructional tool in itself (Foelske, 2014; Schank, 1990) since students have the opportunity to express the self by reflecting on their personal experiences and evaluating the deeper meanings of their experiences; thus knowing who they are and what their experiences really mean to them. Moreover, students can have the chance to learn about the others’ lives by watching or listening to others’ stories which students find more appealing than reading printed stories because of the power of voice (Lowenthal, 2009).

Second, today, students are surrounded by technology outside of the class, and multimedia has always become appealing for them (Afrilyasanti & Basthomi, 2011b; Kajder, 2004). Therefore, DS’s interactive and multimedia functionality attracts today’s generation who grows up with technology (Afrilyasanti & Basthomi, 2011b; Dong, 2015; LoBello, 2015) and accordingly motivates and engages them in the practice.

Third, as Dexter and Riedel (2003) point out, the level of efficiency of technology integration into education relies mainly on its ability to embrace students into learning activities and DS adopts a learner-centered approach in which students actively take ownership of their own learning (Tahriri, Tous, & MovahedFar, 2015) and create the content based on their expectations, experiences, needs and

interests (Harmer, 2003). Therefore, learners' motivation and engagement can be enhanced by this (Norton, 2014; Yang & Wu, 2012).

In addition to this, a sense of authentic audience can be motivating (Lo & Hyland, 2007) and this motivation can manifest itself in higher quality works and thus increasing learner engagement (Norton, 2014, p. 30). In traditional writing classes, students generally write for the teacher or classmates; however, in the DS implementation, the audience is beyond the classroom and students can share their digital stories on YouTube or various other social networking sites (Frazel, 2010). Even the reluctant learners appreciate this by spending more efforts on the end-product which is to be viewed by the global audience which in turn increases motivation and engagement (Sylvester & Greenidge, 2009).

Given the above, it can be clearly stated that DS is a both motivating and engaging instructional tool and therefore it has been researched in the studies to validate if it really motivates and engages students across content areas and grade levels. In the next section, the previous studies which have investigated the impact of DS on the constructs of motivation and engagement in different language learning contexts are indicated, respectively.

Yang and Wu (2012) conducted a year-long experimental study with the participation of high school EFL students by investigating whether DS had an impact on EFL learners' academic achievement, critical thinking and motivation. The researchers adopted a pre-test and post-test quasi-experimental study design into which two groups of the students participated as experimental and comparison groups. The two groups were provided with technology-supported instruction on two different levels. The experimental group was exposed to the instruction based on DS; whereas, the comparison group had another type of technology-integrated instruction. The researchers used the following data collection measures: English achievement and critical thinking scores, questionnaires exploring motivation levels, students' DS recordings and interviews conducted to ask the opinions of the teachers in terms of the effectiveness of the DS implementation. Both qualitative and quantitative data showed that the experimental group exposed to DS performed better in terms of English academic scores, critical thinking and motivation than the comparison group. Depending on

this, the researchers highlighted the importance of using DS in the EFL context to develop the above-mentioned foci.

DS also proved to be beneficial to university level EFL learners. In a pre- and posttest research design, Ono (2014) explored the effectiveness of DS on Japanese university level EFL learners on the awareness of project-based learning (PBL) skills and their motivational behaviors. The study conducted with two groups of different proficiency levels that followed the same syllabus; thus enabling the researcher to compare the results between the groups. The results suggested the use of DS to foster motivation by reducing foreign language anxiety, and to enhance PBL skills such as deeper thinking and reflectivity. As for the effects of using DS on different proficiency levels, the researcher concluded that less proficient learners were motivated more.

Sever (2014) also explored the effects of DS on learners' motivation for overall language learning in a pre-/posttest research design. But unlike Yoon's (2012) study, in which two different proficiency levels were taken into account, the current researcher investigated this by using two different groups, namely experimental and control groups. The participants were university level EFL students in the Turkish context. As for the data collection instruments, the researcher used pre-/post-surveys and semi-structured interviews and the collected data showed that DS was an effective method for fostering motivation in language learning.

As for researching engagement and motivation in the same context, Sadik (2008) conducted a mixed-methods study to explore the effectiveness of using DS on learners' engagement and motivation in different subjects in the Egyptian EFL setting. The study was carried out with the participants within the age group 6-15 years from four different subject matters including a group of EFL learners. The researcher used both qualitative and quantitative data collection methods, namely a grid to evaluate student-generated stories, observation and interviews made with teachers as to their perceptions of the process. The findings of the study showed that students met the pedagogical and technical standards of digital stories and they stayed on the task by actively involving in it, indicating that DS was an engaging and motivating tool for the participants in the study context.

These two foci, namely motivation and engagement, were also investigated together in another study conducted by Norton (2014) researching the effects of DS on L2 learners' communicative experience, motivation and engagement qualitatively. The participants from a wide range of ages were upper intermediate L2 learners of English coming from different cultural and linguistic backgrounds. The researcher used interviews, observation and analysis of student-created digital stories to collect data. The findings of the study showed that DS had a positive impact on L2 learners' communicative performance, motivation and engagement.

As seen from the above, previous research yielded conclusive results in the sense that the use of DS led to the heightened level of motivation and engagement for language learning in different contexts. In the next section, the impact of DS on identity construction is discussed with evidence from the previous studies.

2.2.1.5.3. DS Helps Identity Construction

Narrative, formerly used as a psychological therapy, is a "reflecting upon experience" which portrays the self and self-in-community (Davis & Weinshenker, 2012, p. 7) by telling others "who they are but more importantly, they tell themselves and they try to act as though they are who they say they are. These self-understandings ... are what we refer to as identities" (Holland, Lachicotte, Skinner, & Cain, 1998, p. 3) which mean "the enduring, sincere, and significant first-person accounts of who we are, that we tell ourselves and to others" (Davis & Weinshenker, 2012, p. 8).

As seen from the above, the concept of narrative understands, explores and shapes the identity and since digital stories possess narrative qualities (Vinogradova, 2011) by including characters and objects in the story plot developed in a logical or chronological order (Lambert, 2006), it is safe to say that DS helps identity representation and construction (Banaszewski, 2005; Davis & Weinshenker, 2012; Vinogradova, 2011) because these stories are "intensive acts of self-articulation and self-construction" (Hull & Katz, 2006, p. 56). Backed up by technological tools and therefore appealing and motivating for 21st century learners, DS as a multimodal narrative genre (Vinogradova, 2014) engages learners in the making meanings out of their personal stories in different modes (Grigsby, Theard-Griggs, & Christopher, 2015) and thus enabling learners to self-

reflect by using different channels and accordingly build their identities as creators instead of consumers (Rodríguez Illera & Londoño Monroy, 2009), as well as authors, designers (Skinner & Hagood, 2008), screenwriters, artists, directors (Kajder, 2004), and doers (Ross, 2011). In the light of this, educators can benefit from DS to make learners more visible and have literate identities. Especially for language learners who have dynamic, fluid, multi-layered and nonlinear identities changing across contexts or discourses, DS adopting a pedagogy of multiliteracies which addresses “the multiplicity of communications channels and media, and the increasing saliency of cultural and linguistic diversity” (New London Group, 1996, p. 63) has the potential to enable these learners to “explore their multiple literacies and identities using multiple semiotic modes and resources (e.g., visuals, sound, gesture, gaze, and spatial concepts)” (Angay-Crowder, Choi, & Yi, 2013, p. 37).

Previous research also advocated the incorporation of DS into the language education for identity negotiation by revealing conclusive results. Skinner and Hagood’s (2008) case study of two English language learners, one of whom was a male Mexican-American kindergartener and the other of whom was a female Chinese-American junior in high school explored “the intersection of cultural identities, foundational literacies, and new literacies practices of these two English language learners” (p. 14) by collecting qualitative data through interviews with the two learners and analysis of their digital stories. The collected data revealed that through the digital story making, these two participants developed many possible foundational literacies (writing process, fluency, or vocabulary, etc.) that constructed their cultural identities. On the basis of the findings, “the power of reflecting on one’s own autobiography, the compilation of a person’s *stories*, in both words and images, to make sense of the often blurred mirror that simultaneously absorbs language learning and reflects identity construction” (p. 29) was highlighted in the study.

Vinogradova (2011) also researched how a pedagogy of multiliteracies using the narrative modality of digital stories affected ESL learners’ identity negotiation. The study was conducted with the participation of 20 ESL students by gathering data from different resources: observations, students’ essays, weekly journals, interviews, students’ digital stories, and digital storyboards. The data showed that the multimodality of communication extended the literacy practices and affected

ESL learners' diverse, multi-layered, and dynamic identities. The students negotiated their identities as storytellers and producers, mothers and sons, daughters and sisters, granddaughters and world travelers, etc. creating "a multicultural community of practice conducive to the recognition and respect of diverse identities and social roles present in the current educational setting" (n.d.).

Given the two studies, it can be noted that because of its multimodal narrative quality, DS benefits language learners to form their identities in multiple modalities. In addition to this, DS is also beneficial for language learners to develop their linguistic skills, which will be examined in the next section.

2.2.1.5.4. Linguistic Skills

Although DS is gaining popularity as an instructional strategy in language education with the introduction of low-cost but highly effective video programs such as PhotoStory, there is little investigation examining the effectiveness of DS on four language skills, namely reading (including vocabulary comprehension), listening, speaking, and writing (including grammar). In this part, the previous research studies that look at the use of DS in developing specific language skills will be mentioned here.

Reading. Traditionally, to scaffold reading in ESL/EFL classrooms, language educators utilize the activities addressing the whole classroom including graphic organizer, pre-reading questions, showing visuals, activating background knowledge or asking prediction questions before students read the text in order to make them familiar with the content (Echevarria, Short, & Vogt, 2004). As noted by Choi (2012, p. 4)

[A]lthough these instructional strategies are effective in assisting students in gaining entrance to the reading, traditional reading scaffolding is not sufficient to prepare ESL/EFL learners for challenging readings. ...; the integration of voice and word within meaningful contexts is necessary for ESL/EFL learners, especially those who are new to the target language culture, in order to understand the connotations of cultural images.

This suggests that rather than using traditional reading activities, other innovative alternatives are needed to assist in reading comprehension. According to Choi (2012), one such method is DS, which enables language learners to develop a schema before reading a passage. In addition to this, DS can also be applied to reading classes as a post-reading activity to scaffold reading comprehension. The

following studies support the use of DS in different phases of reading with ample evidence:

Tatum (2009) investigated whether participating into a directed-reading activity (DRA) modified to include DS circles in the post-reading phase had a significant effect on learners' reading comprehension. DRA was described by the researcher as "a continually evolving reading instruction framework used to engage students in reading both narrative and information texts" (p. 23). 80 six-graders from a private 6-12 educational institution in the US participated into the study and data were gathered by using an experimental-control group design to explore the effects of participation in DS activities on the reading comprehension. The study showed that there was no significant difference resulting from the treatment. But it *did* reveal that students were motivated for and engaged in the process.

As regards the EFL setting, Yoon (2012) designed a mixed-methods study investigating the effects of DS on Korean EFL learners' reading ability and their motivation for and attitudes toward the use of implementation. The participants were elementary level EFL learners from two classes of a public school in Korea. The researcher used pre-/posttests to determine if DS affected learners' reading abilities. In addition to this, pre and post survey was also utilized to figure out the motivational effects resulting from the DS implementation. The results of the study were as follows: (1) DS made a positive impact on learners' reading ability and (2) DS was an engaging and motivating instructional tool by attracting learners' interests in the project and allowing for an active class involvement.

Not reading comprehension but reading motivation was also examined by another researcher, Zorigian (2009), with the participation of 46 students in K-12 exceptional student education programs in the US from three different grade levels (elementary, middle, and high). Data were gathered through a 20-item reading motivation survey used to determine the quantitative effects of the 12-week-instruction based on a video-conferencing program on the reading motivation in a pre-/posttest research design and conversational interviews conducted to reveal the perceived benefits of the implementation on the learners' reading motivation. The finding showed that this type of instruction was effective to increase learners' reading motivation in this context.

Oral reading fluency was also investigated in a Japanese EFL setting by Kimura (2012). The researcher tested the effectiveness of DS on the mentioned focus with 35 Japanese EFL learners in a reading class. The study indicated that DS enabled “the participants to learn to read deeply, visualize the story, and enjoy verbalizing their interpretation of the context, which is a skill lacking in most Japanese students due to the reading/translation teaching method” (p.1).

Given the available evidence, it can be stated that DS supports the reading skill in various language education settings. In the next section, the effectiveness of DS on language learners’ listening skill is presented.

Listening skill. With the proliferation of technological developments, in the language education, the strategies which utilize visuals as a complementary tool to scaffold listening comprehension have gained interest by scholars (Brett, 1995; Felix, 1995). One such tool is DS, which gives listeners the opportunity to listen to the narrative accompanied with visuals; thus enabling learners to better understand the conveyed message. Previous research also confirmed that DS facilitated listening comprehension in the language education setting. Ramirez-Verdugo and Belmonte (2007) investigated the impact of DS on listening comprehension of a group of 6-year-old learners of English in the Spanish context. The researchers used a pre-/posttest quasi-experimental research design that allowed them to compare the results of the two groups, namely control and the experimental groups, after the implementation. The findings revealed that the experimental group outperformed the control group in the posttest results, showing that DS had a significant effect on developing learners’ listening. The researchers also stated that the development in listening comprehension could lead to the improvement in speaking; therefore, they suggested testing the impact of DS on learners’ speaking skills in different contexts.

Speaking. Because of its nature, DS, based on the ancient storytelling which is used as a communicative tool, can be utilized as an authentic speaking activity (Baghdasaryan, 2012) in which students become “storytellers” who tell their personal stories to the audience using multimedia devices (Kajder, 2004). Additionally, it has a potential to enable learners to collaborate with each other by receiving and giving feedback in the digital-story making process. In addition to this, by recording the narrative using the storytellers’ own voice, learners can

develop themselves in pronunciation, grammar (Baghdasaryan, 2012), sentence complexity, vocabulary (Kim, 2014), and prosodic features such as rhythm, stress, intonation, and tone of voice, etc. (Dong, 2015).

The findings of the related previous studies also confirmed the positive impact of DS on improving language learners' speaking skills. Kim (2014) conducted a study which sought to investigate the effect of DS on developing oral proficiency and on learners' motivation and self-assessment. The participants were five ESL advanced or high-intermediate learners in the US. Both qualitative and quantitative data collection instruments were employed including survey questionnaires, a speaking-evaluation rubric, and interviews. The results showed that the learners improved their oral proficiency at the end of the experiment and built self-confidence and autonomy. Moreover, the application of DS affected the learners' motivation for speaking positively.

The other study in the EFL context was reported by Baghdasaryan (2012) in the American University in Armenia. The study aimed to explore (a) the effect of DS on the speaking ability, (b) learners' attitudes toward the implementation, and (c) the learning behaviors reported in the process. 24 adolescent EFL students participated into the study in two groups (experimental and control groups). Pre-/posttests, a questionnaire, and semi-structured interviews were used for data collection instruments. The findings of the study showed that the treatment positively affected oral production of the learners and students had positive attitudes toward the DS implementation.

Beyond the middle school, in the high school EFL context, Afrilyasanti and Basthomi (2011b) explored the impact of DS in developing learners' speaking skill. This case study was conducted with 5 junior high school students in Indonesia by gathering qualitative data from questionnaires, records of students' participation, researcher's journal, lesson plans, and photographs. The data indicated that using DS approach in the speaking class reinforced learners' oral production.

In another high school FL context but this time in a SpFL environment, Dunn (2012) conducted a research study to gauge the effects of DS on third year Spanish learners' oral proficiency and anxiety level. The researcher used a quasi-experimental research design to determine if there existed a difference depending

on the type of instruction. The experimental group was exposed to DS instruction to improve oral proficiency while the control group dealt with the traditional oral speaking practices. The results of the study indicated that between two groups, there were “statistically significant differences for the subscales of task completion, comprehensibility, level of discourse and fluency” (p. abstract) in favor of the experimental group. But for the subscales of vocabulary and language control, no differences were measured. As for the anxiety level, again no significant differences were found between the two groups at the end of the implementation.

In the university level Iranian EFL context, two similar studies were conducted by Abdolmanafi-Rokni and Qarajeh (2014) and Razmi, Pourali and Nozad (2014) to test the effectiveness of DS on language learners’ oral proficiency. Both studies were carried out in a pre/post-test quasi-experimental research design with the participation of the two groups, experimental and control groups. The results of these two studies revealed that participants in the experimental group outperformed the control group in the oral proficiency at the end of the implementation, indicating that the use of DS developed better oral skills.

The aforementioned studies suggest that DS is an effective strategy to be employed in the language education contexts to improve learners’ oral proficiency. In the next section, the impact of DS on learners’ writing proficiency is presented with the research evidence.

2.3. Writing

Writing, whether in one’s L1 or in a L2 or FL, maintains its importance as a topic pertaining to the curriculum design in various educational circles (Ali & Kalajahi, 2012, p. 140). Writing necessitates the analysis and various layers of thinking as it is a highly complex behavior (Graves, 1984). That is to say, “writing is far from being a simple matter of transcribing language into written symbols. It is a thinking process and it demands conscious intellectual effort which usually has to be sustained over a considerable period of time” (White & Arnt, 1995, p. 3). It can be also defined as “a problem solving process in which writers employ a range of cognitive and linguistic skills to enable them to identify a purpose, to produce and shape ideas, and to refine expression” (White & Arnt, 1995, p. 3). In addition to this, writing develops initiative. In reading, everything is provided but in writing, the learner must supply everything. A piece of writing is the end-product of a good

combination of a wide range of aspects such as organization, meaning, content, unity or form. Irrespective of whether the writer produces the text in L1 or L2 contexts, he/she must go through several steps in order to produce a piece of text such as finding a topic, brainstorming the ideas, drafting, editing, or sharing (White & Arnt, 1995).

Therefore, writing is acknowledged as the most difficult skill for learners of first, second or foreign languages since it requires writers to meet the afore-mentioned features in a single writing act (Tabatabaei & Assefi, 2012). Especially for ESL or EFL learners, it is defined as a “heavy burden” because it requires learners not only to cope with difficult linguistic structures, vocabulary, meaning, organization, and content but also to manage various other possible challenges such as distractors within the physical environment, time restrictions, and stress (Turgut, 2010, p. 1). For this reason, educators, practitioners and researchers have been seeking ways to help students in the writing process and influence their writing performance language education contexts.

2.3.1. Major Trends in Writing

Major trends in the composing process encompass two basic approaches: The product-oriented approach and the process-oriented approach. The former is based on the emphasis given to the *correctness* of the end-product in terms of mechanical aspects such as grammatical or lexical correctness, yet the latter gives importance to *steps* of the writing process such as brainstorming, revising, editing, or sharing.

Following the transformation in beliefs in language education with the influence of learner-centered approaches alongside with communicative competence, the process-oriented approach has gained importance in L2 or FL learning contexts as a response to the product-oriented approach (Matsuda, 2003). Unlike the product-oriented approach, the process-oriented act focuses on the *process* of writing but not on the final product. It is “the process of helping students discover their own voice, of recognizing that students have something important to say, of allowing students to choose their own topics, of providing teacher and peer feedback, of encouraging revision, and of using student writing as the primary text of the course” (Matsuda, 2003, p. 1). Compared to the product-oriented counterpart, the previous research has yielded conclusive results by indicating that process-

oriented writing benefits the writer in a number of ways such as better writing performance (Gallego de Blibeche, 1993; Khabiri & Rouhani-Tonekaboni, 2009), a heightened level of motivation and engagement in the process, and fostering self-discovery and self-expression (Anastasiaduo, 2011; Uçar, 2013).

By such aspects, the process-oriented approach is highly suggested to develop writing by the scholars (e.g. Matsuda, 2003; Scott, 1996), but in today's world, following such an approach based on producing plain texts in a linear fashion may not be simply enough to meet the demands of the millennials' writing act (Huang, 2014). Therefore, there is a need for a new pedagogy which takes the advantage of using technology with an aim for developing *new literacies* (New London Group, 1996) through a process-oriented approach.

2.3.2. Multimodal Composition

As a result of the affordances of the ever-changing technologies, literacy is no longer confined to being able to read and write print texts but refers to the possession of multiple and multimodal literacies (Grabill & Hicks, 2005). Therefore, definitions of literacy and literacy pedagogy are expanded in a way that challenges literacies that are traditionally "restricted to formalized, monolingual, monocultural, and rule-governed forms of language" (New London Group, 1996, p. 61) and *new literacies* are grounded on the notion of multi-literacies which is based on communication through a variety of representational modes by asserting the presence of "multiple languages, multiple Englishes, and communication channels" (New London Group, 1996, p. 64).

In the same vein, *writing* no longer means producing print-based texts; it has a broader view of writing (Angay-Crowder, 2013) which goes beyond the limits of texts primarily based on words (Takayoshi & Selfe, 2007) by altering "processes, products, and contexts for writing and the teaching of writing" (McKee & DeVoss, 2007, p. 11). The changing views of writing revolve around the notions of *multimodal design* (Jewitt, 2006, p. 8) or *multimodality* in which a mixture of linguistic, audio, spatial, gestural and visual modes is used to convey the intended message (Lutkewitte, 2014) and "multimodality is inextricably linked with multiliteracies", implying that "literacy is semiotic and not limited to a print-linguistic mode of social meaning-making" (Werner, 2013, p. n.d.). Depending on this, the new understanding of teaching writing centers on the pedagogy of multiliteracies in

which students can “access, evaluate, search, sort, gather, and read information from a variety of multimedia and multimodal sources and ... collaborate in real and virtual spaces to produce and publish multimedia and multimodal texts for a variety of audiences and purposes” (Borsheim, Merritt, & Reed, 2008, p. 87). These new writing practices are defined as *multimodal composition (MMC)*, *new media writing* (Lutkewitte, 2010; National Council of Teachers of English, 2008) or *multimedia writing* (Huang, 2014); all these terms center on producing multimodal texts by using multiple modes of representations as ways of communication through technology (Lutkewitte, 2010), indicating a seismic shift from producing print-based texts to the incorporation of images, music, video or sound into the texts (Christensen, 2012). MMC does not deal with teaching traditional writing practices through multiple methods but is related to producing “texts students produce that combine multiple modes appropriately and purposely to communicate an idea to a particular audience” (Lutkewitte, 2010, p. 16).

A mode can include “any system of representation that provides elements that can be used to make signs and principles for their organization” (Jewitt, 2006, p. 40) such as “image, writing, layout, music, gesture, speech, moving image, soundtrack, and 3D objects” (Kress, 2010, p. 79) and each mode possessing different affordances and uses has different potentials for meaning-making. No mode is more important than the other modes and language is the only one form of the modes. Different modes work together and complement each other in differing ways in various contexts to create meanings (Lutkewitte, 2010) and these “mixed modes” are non-linear, hyper-textual, interactive (Lauer, 2009), and purposeful (Lutkewitte, 2010) with profound implications for MMC (Jung, 2015).

2.3.2.1. Benefits of MMC

MMC benefits learners by helping them:

understand the power and affordances of different modalities –and to combine modalities in effective and appropriate ways– multiplying the modalities students can use to communicate effectively with different audiences, and helping students employ modalities to make meaningful change in their own lives and the lives of others (Takayoshi & Selfe, 2007).

As noted by Takayoshi and Selfe (2007) above, in today’s world, effective communication necessitates one’s expression herself/himself in different modalities and “texts must be able to carry meaning across geo-political, linguistic,

and cultural borders, and so texts must take advantage of multiple semiotic channels” (Takayoshi & Selfe, 2007, p. 6). MMC possesses this property by allowing learners to communicate through multiple channels and accordingly to see “the increasing complexity and inter-relationship of different modes of meaning” (New London Group, 1996, p. 78). We make use of our senses to make meaning of the world around us. In the same vein, MMC which is based on a pedagogy on “how the senses (modes) work together to create meaning when composing with sound, image, movement, and text” (Christensen, 2012, p. nd) gives learners choices for meaning-making by blending and refashioning the available modes (Brzoska, 2009). With these semiotic resources, “writers design and redesign all the modes of representation that they draw upon in the production of multimodal texts in order to convey their intended meanings (Shin & Cimasko, 2008, p. 377). With this, MMC develops both creative and critical thinking (Foley, 2013) as being an “effective rhetorical decision-making” process (Christensen, 2012, p. nd) requiring learners to play with a variety of modes in order to create a text with layers which provides both writers and audience with a number of directions to make meaning. Multimodality not only affects “how students write” (Foley, 2013, p. 10) by allowing learners to think and compose “linearly as well as non-linearly” with a careful analysis of the available media to transmit ideas successfully (Foley, 2013, p. 13), but also affects “what students write” by expanding “students’ avenues for expression, analyzing, and persuading with writing” (Christensen, 2012, p. 2).

Since it is in line with a creative and critical thinking process, MMC can also be considered as a brain-based learning pedagogy (Lutkewitte, 2010, pp. 27–28) which has a connection with neuroscience (Murray, 2009). Neuroscientific studies of the brain support the idea that digital natives tend to be more responsive to digital resources than to print format (Morgan, 2014, p. 21) and to be more engaged in the technology-enhanced activities.

The brain-based aspect of MMC is also extended by Christensen (2012) by explaining how the brain makes meaning in (modes) senses. She contends that “our senses do not function discretely in the brain but work together, synergistically, to make meaning” (Christensen, 2012, p. 29). She also adds by saying that “using new brain imaging technology, such as PET (positron emission

tomography) scans and fMRI (functional Magnetic Resonance Imaging), scientists are now able to map the specific parts of the brain where different functions occur” (Christensen, 2012, p. 29) and important implications can be derived from these studies. In these studies, scientists specifically underline the importance of image to construct meaning because they assert that “not only do we perceive and think in images, but these images are necessary even for our own consciousness, self-awareness, and learning” (Christensen, 2012, p. 30), which points to a new possibility for meaning-making in the composition. Similarly, Murray (2009, pp. 6–7) reveals that “image is not only a basic unit of thought in the brain...but image also shapes the brain” and that “the connection between image and thought is not representational but cognitive”. Additionally, it is also claimed that “[r]etention is improved through words and pictures rather than through words alone (Metiri Group, 2008, p. 12). Given the all, it is safe to say that MMC can be deemed as a brain-based pedagogy and should be supported in writing curriculum to allow for new meaning-making possibilities.

In addition to this, as a 21st century writing practice enabling learners to develop their multiple literacy skills including digital literacy, information literacy or media literacy, etc. and at the same time enhancing the collaboration with others in a multimodal platform, through MMC, students’ out of school literacy practices, namely “real-world literacy practices” (Foley et al., 2014, p. 165), largely based on producing and interacting with multimodal texts (Black, 2009; Hull & Katz, 2006) can be connected to classroom pedagogies (Foley et al., 2014). “Utilizing these literacy practices suggests that by capitalizing on students’ existing practices, we can show students the value of these practices as legitimate forms of reading and writing and keep students engaged in educational pursuits” (Amicucci, 2013, p. 71).

The other important aspect of MMC is that because it “requires attention to rhetorical principles of communicationsuch as audience awareness, exigency, organization, correctness, arrangement” (Takayoshi & Selfe, 2007, p. 5), students can develop new strategies and approaches to deal with these basic conventions of writing. The study of Beard (2012), who investigated first-year students’ perceptions of traditional and MMC at a college in southern Tennessee through surveys, interviews and reflection essays, confirmed that students gained an

awareness of rhetorical basics of writing such as organization, time management, audience and purpose of writing in multimodal composing practices.

2.3.2.2. Challenges of MMC

Despite the numerous benefits of MMC mentioned above, it is not without challenges, that is, there are also some concerns as to the MMC on the following points: The first and foremost important limitation is that “some English composition teacher might argue composing with multiple modes takes attention away from writing concerns” (Takayoshi & Selfe, 2007, p. 6). That is to say, it is argued that the writing element can be ignored in the multimodal texts. However, in the 21st century, multimodal writing is the everyday writing and requiring students to compose such texts will only minimize the gap between in- and out-of-school writing. Moreover, it is not suggested to totally abandon traditional writing practices; MMC can support the written composition because using multimodal modes to convey messages “also helps teach them specific strategies for focusing a written essay more tightly and effectively, choosing those details most likely to convey meaning in effective ways to a particular audience, for a particular purpose” (Takayoshi & Selfe, 2007, p. 9).

The second limitation of MMC can be related to technology; students may have problems in accessing technological devices. In other words, limited access to technology tools can be regarded as a barrier to implementing MMC properly, yet “access to technology is not as big of an issue as in times past” (Beard, 2012, p. 198). Another technology-related issue is the lack of technical help when needed; some students may not easily manage to solve the problems that they encounter during the implementation. But in-class and out-of-class assistance by the teacher or their peers who are more competent in using technological tools can minimize the problems related to technical issues. Lastly, although students are provided with sufficient access to technology, the teacher may not be that professional to implement technology-enhanced instruction. In addition, some may mistakenly think that to implement such a project, the teacher should be a technology expert (Takayoshi & Selfe, 2007). But composing a digital text requires having basic technology skills that a primary-grade student can even possess. Moreover, if teachers receive training on the effective use of technology in instruction through

professional development activities, they can feel competent in developing such projects (Sivin-Kachala & Bialo, 2000).

The other concern is the time limitation to incorporate technology into the curriculum. The writing curriculum can be overloaded and scheduling time for technology use can be considered as time-consuming. But with careful planning, MMC integration into the curriculum does not require extra time to spend on.

As seen, there are some challenges of the MMC in the implementation, but there are also some solutions to those problems, as well and a number of researchers (Shipka, 2005; Takayoshi & Selfe, 2007; Yancey, 2006) assert that under right conditions, MMC can be a worthwhile 21st century writing strategy. Depending on this, these researchers are articulating a call for a change in the writing curriculum in a way that takes advantage of multimodality in writing. In response to this emerging call, educators have reconsidered the concepts of “text” and “writing” and accordingly reshaped the English writing curriculum including ESL and EFL contexts. Parallel to this, a growing body of research has investigated the integration of multimodality into writing via webpage composing (Tardy, 2010), social networking (Bani-Hani, Al-Sobh, & Abu-Melhim, 2014; Yunus et al., 2011), WebQuest writing (Castillo, 2007; Chuo, 2004), blog writing (Armstrong & Retterer, 2008; Chang & Sun, 2012; Higginson, 2009), Microsoft PowerPoint presentation crafting (Tardy, 2005), Microsoft Word processing (AbuSeileek, 2006; Yılmaz & Erkol, 2015), electronic portfolio designing (Erice & Ertaş, 2011), and wikis (Aydin, 2011; Chao & Lo, 2011; Elola & Oskoz, 2010; Kost, 2011; Kuteeva, 2011; Lee, 2010) on writing instruction in various EFL or ESL contexts. This research indicates that multimodality benefits language learners in developing their writing proficiency, leads to having positive perceptions and attitudes towards the writing skill. The findings of these studies also underline that there is a need for more additional research helping teachers to incorporate new literacies into the writing curriculum through different pedagogies.

2.3.2.3. The Use of DS as a Multimodal Narrative Practice

DS, as a *multimodal writing pedagogy* allowing “for better communication knowledge ... through various modes of representation” (Shin & Cimasko, 2008, p. 376), is capturing the interests of educators and researchers professionalized in the writing instruction aiming to develop 21st century writers by emphasizing the

role of multimodality in the writing curriculum. Authoring digital stories is a form of learners' life world (Vinogradova, 2011) and therefore such a practice will bridge the gap between learners' social literacy practices and academic literacy (Brzoska, 2009).

DS is also a *multi-literacy approach* which enables educators to navigate the challenges and affordances of the literacy pedagogy in the 21st century by engaging students in new literacies such as “assembling, editing, processing, receiving, sending, and working on information and data to transform diverse resources of ‘digitalia’ ... into new digital resources and multimodal texts with representational meaning and communicative purposes” (Lanksear & Knobel, 2003, p. 173). The study by Alameen (2011) conducted in an ESL context at a university in the US with the participation of 48 English language learners indicated that through the participation into the a 4-week implementation in which the students prepared a digital story related to their lives, they were engaged in a multiliteracy approach that developed learners' writing and critical thinking skills. Additionally, this implementation, as a Web 2.0 tool, provided a new venue for communication by enabling them to collaborate with each other in different phases of the implementation and allowed them to express themselves in different communication channels.

DS integrates multiple communication channels into the traditional storytelling and helps students to construct possible meanings through navigation between multiple modes (Angay-Crowder, 2013). DS is a mixture of old and new by combining the old storytelling with the new media tools. It is more than just the incorporation of media in the telling of tales in a slideshow of photos but a careful integration and combination of multimodal elements which are powerful vehicles of the messages (Foley et al., 2014) in “complex layers that promote learners' linguistic and writing development” (Oskoz & Elola, 2014, p. 180).

Although DS is a new writing genre (Oskoz & Elola, 2014) that takes advantage of technology, this pedagogy does not ignore the *writing* element. In fact, the most important part of a digital story is the *story* itself; therefore, story writing is central to the DS process. In other words, one of the most significant steps paving the way of producing a successful digital story is creating a good script (Dogan, 2008), while technology is always secondary to the storytelling (Banaszewski, 2005).

Therefore, it is noted that educators should not overemphasize the infusion of technology to the story (Banaszewski, 2005) but instead should focus on the *writing* element without ignoring the importance of multimedia tools. The infusion of technology makes a digital story more powerful and effective. Moreover, using technological elements in telling a story is found more motivating for students (Salpeter, 2005) and for this reason, multimedia elements should be incorporated into the process as supplementary tools.

In the digital story production, traditional writing skills are not negated but reinforced because this pedagogy can be thought as a new approach to *process-oriented writing* by following similar steps, namely “pre-writing, drafting, revising, editing, and publishing” (Foley et al., 2014, p. 153). Students deal with nearly all steps of process writing with a deliberate awareness and an in-depth involvement (Flihan, 2013). They start the digital story composing with topic selection by brainstorming the related ideas. Then, they proceed to the writing phase in which students provide multiple drafts. After the final draft is accomplished, students form a storyboard that shows the necessary components to visualize the story. The storyboarding is a plan which “provides a visual blueprint of ... how a digital story will look like frame by frame” (Gakhar, 2007, p. 11) and helps the digital storyteller organize the necessary tools such as images, soundtrack, voiceover in a way that synchronizes up with the narrative. Constructing the storyboard, students move to the *production* phase of the digital story by assembling the needed technological components depicting their story, by making voice-over and by putting all the project folders together as suggested in the storyboard. When the digital story is created, it is time to finalize the project by sharing these multimodal texts with others (Gakhar, 2007).

In DS, since texts are generally “personally narrated stories” (Klaebe & Bolland, 2007, p. 2) told through different media channels, *the writing element* in the process is largely based on the telling of a narrative (a story). That is, the element of story is at the very core of DS and therefore this pedagogy which “brings new elements to the table that go beyond the capabilities of traditional storytelling” has emerged as a new genre for *narrative writing* (Oskoz & Elola, 2014). But this new genre is more than traditional narrative writing for being “a way to incorporate 21st century technology into the already powerful process of narrative writing”

(Simpson, 2011, p. 2), and the digital storyteller “is able to bring to life their story more so than the pencil and paper” (Simpson, 2011, p. 2).

Narrative writing “tells a story, describes feelings and personal experiences, contains personal reflections, interpretations, tells autobiographical stories, and describes people, places, and things using devices and techniques that evoke clear images” (Abdel-hack & Helwa, 2014, p. 11). Similarly, DS “values the power of story as a tool for self-discovery and reflection” (Abdel-hack & Helwa, 2014, p. 21).

Narrative texts are often told by the first person in the story format and possess the following components: “Character(s), setting, kick-off event, character emotions and plans, sequence of events, a direct consequence of the event(s) and a resolution” (Abdel-hack & Helwa, 2014). These elements are also regarded as vital for digital stories. The difference between a traditional print-narrative text and a “multi-dimensional narrative” (Ioannidis et al., 2013) lies in the addition of a soundtrack, a series of visuals and a voice-over accompanied with the narrative providing the author with different modes of expression to convey the intended message and making “the story to be both visually and aurally appealing” (Simpson, 2011, p. 4).

Because the digital storyteller has a number of choices of modes to produce a multimedia text, this kind of writing is considered as a “design” (Huang, 2012; New London Group, 1996) or as a “composition” (Johnson & Smagorinsky, 2014, p. 265). Each mode has a different meaning, purpose and use and “can be combined with other modes in endless arrays” (Johnson & Smagorinsky, 2014, p. 266). The representation of the related modes in a particular design in which the chosen modes are in tune with each other creates the meaning which the author and the reader have more or the less the same understanding (Nystrand, 1986). This kind of approach is based on the *synaesthetic semiosis* framework (Kress, 1998) claiming that all available modes, as design elements, “hold the potential to influence or to change the meaning of all other modes represented in a text” (Shin & Cimasko, 2008, p. 379). In the digital story production, separate modes work “coextensively” (Fortune, 2005, p. 52) and “are synthesized to form integrated multimodal texts” (Shin & Cimasko, 2008, p. 379) which have “a deeper, fuller quality of meaning” (Huang, 2012, p. 84). The result is the construction of “hybrid”

texts which deliver the intended message through the “orchestration” of multimodal resources (Yang, 2012, p. 222).

Having more than one choice for meaning-making provides learners with an opportunity to express themselves in different ways, which may not be possible in the language-only mode. Although the studies by Nelson, Shin and Cimasko, and Yang conducted with college ESL learners in the composition class indicate that the linguistic mode is the primary source for meaning-making, across these studies, there is acknowledgement that DS expands means of expression and offers learners an avenue for what and how to tell (Yang, 2012). Digital story makers gain an “awareness of how a message can be delivered alternatively and multiply” (Yang, 2012b, p. 235), more powerfully and naturally than the linguistic-only-mode can do (Shin & Cimasko, 2008, p. 377).

Using non-linguistic modes such images, music or voice in addition to the language-mode for expression benefits learners to depict their *affective state* as well. In a traditional text employing only the linguistic mode, it is not easy to reflect on “emotions” or “feelings” (Huang, 2012). However, the multimodal nature of DS taking advantage of music, voice or images as well as language allows for a better composition which is formed by both affective features such as feelings, opinions or emotions and also the text (Huang, 2012).

Additionally, the expression of the narrative through multiple modes allows for deepening the meaning of the experiences depicted in the story by gaining “perspective about who they are and who they have become” (Simpson, 2011, p. 3). A personal narrative told with pen and paper has already been accepted as a powerful tool for self-reflection and connecting to the others (Simpson, 2011). However, as Simpson (2011, pp. 3–4) suggests, asking “students to spend quality time creating the kind of meaningful narratives that encourage learning on this level can be a daunting task that, at times, will require the use of more innovative tools than just pen and paper. The marriage of narrative writing with the digital world could serve as just the right incentive to get students interested in sharing their stories”.

Simpson highlights the use of DS in 21st century narrative writing as a “multi-media self-expression” tool (Davis & Weinshenker, 2012, p. 1) to help students come to

“a clearer understanding of themselves and story they are reporting” (Benson, 2010, p. 11) from multiple aspects. Within the digital format of storytelling, the meaning of “who they are and want to become” (Ross, 2011:36) is narrated with texts, images and music, leading to a deeper of analyses and expression of their experiences and the self (Huang, 2012). In this way, unlike traditional methods of narrative writing, storytelling in digital format leads to a shift of interest “from low level writing skills such as spelling, handwriting, and grammar to developing a carefully considered plot with well-rounded characters” and this “makes it possible for students to focus more on maintaining control over the story” (Kajder, 2004, p. 67) to define themselves better.

A digital story opens “a singular, chronotropic window onto an infinitely broader, richer, and more nuanced personal portrait” (Nelson, Hull, & Roche-Smith, 2008, p. 438); therefore, the use of DS in writing can be regarded as important to fashion the identity by helping students to define themselves better in their stories (Ross, 2011). And better definition of themselves in their personal stories holds potential to promote a sense of *authorship* where learners perceive themselves as *writers* (Foley, 2013).

As seen, digital story making is an innovative way of writing in the 21st century and it benefits the writer in a number of ways in any contexts (L1, L2 or FL). The findings of the previous research also report that DS is a viable way to improve writing from various aspects. In the next part, the evidence gathered from these studies will be presented in detail.

2.3.2.3.1. Related studies

For the multimedia authorship, Foley (2013) researched if DS was effective to support young learners’ identity as authors with students from first and second grade classrooms in Southwestern United States. Data were collected in one semester by qualitative data collection instruments, namely students writing samples, observations, interviews, field notes and digital story analyses. The collected data showed that learners, even reluctant ones, viewed themselves as writers and wanted to share their artefacts with others as an author.

Not limited to L1 learners, authoring multimedia stories making use of non-linguistic elements is also important “for increasing the quality and volume of

authorial voice, particularly of the voices of those who may not yet have gained the ability to fully express themselves in an L2” (Angay-Crowder, 2013, p. 5). It was noted that through DS, “ESL writers are able to find opportunities for expression that are more difficult to achieve linguistically at their current level of English comprehension” (Shin & Cimasko, 2008, p. 378).

Creating a digital story is also a motivating and engaging (Robin, 2008a, 2008b) writing task. The reasons for the heightened levels of motivation and engagement could be that learners find the activity authentic since preparing a digital story is similar to what and how they write in their real lives. Additionally, because of the presence of the real audience beyond classroom walls, the task arouses students’ interests in the writing. According to Karan-Miyar (2009), DS is a sure method in providing learners’ engagement in the writing process; moreover, the larger population of the audience also encourages learners to revise and enhance the end product to the point of reaching visual and audibly efficient levels.

The previous research also revealed consistent evidence pertaining to the positive effects of digital-story making on language learners’ motivation and engagement levels in writing. Campbell (2012) conducted such a study with the participation of 5-6 graders with the ages of 10-12 in a junior elementary school classroom to investigate if DS could enhance motivation and engagement in L1 writing. The study lasted two years and thus eliminating unpredicted factors in the implementation process such as the novelty effect. By using the three measures of the time spent focused on the task, task completion, and positive writer self-perception, the researcher concluded that students showed a higher level of engagement in the digital writing activities as compared to the traditional writing activities.

In a similar research setting, a qualitative study was carried out by Lobello (2015) with upper elementary and adolescent students to investigate the effect of using a DS approach on students’ motivation write in the first language. The findings showed that DS positively affected students’ motivation to write, their self-efficacy towards writing and their overall writing ability.

In addition to these studies, the effects of DS on self-efficacy for writing, admitted as a good predictor of the motivation construct (Zimmerman, 2000), were also

researched by Xu et al. (2011) through a quasi-experimental pre-/post-test study conducted at Korea National University of Education. Two groups of the participants were exposed to 6-week-instruction in which the experimental group was required to prepare digital stories online while the control group performed DS off-line. To collect data, the researchers used two different scales as pre-/post-tests to test writing self-efficacy and the flow state in “the virtual reality learning environment known as Second Life” (p. 181) before and after the treatment. The collected data revealed that the experimental group outperformed the control group in terms of writing self-efficacy and the flow state, suggesting that DS is a highly effective method to improve learners’ writing self-efficacy and the flow level.

In addition to these studies indicating the positive effects of DS on motivation for and engagement in writing, a limited but growing body of research indicates that DS holds potential to improve learners’ perspectives for writing. Given the ample evidence revealed from this research, it is safe to say that learners dealing with such multimedia-writing tasks hold positive perceptions of writing. For example, Huang (2014) carried out a quantitative study with 20 English-major-students from a public university in Taiwan to assess students’ perceptions of the multimedia writing. The researcher used a survey questionnaire with five parts. The first part of the questionnaire was administered before the implementation in order to determine learners’ existing computer and technological skills. The rest of the questionnaire was administered at the end of the implementation. Findings of the study indicated that the participating group had positive attitudes towards multimedia writing through DS by stating that these kinds of tasks were more authentic, realistic, persuasive, and effective than traditional print-based writing ones.

Similarly, Huang (2012) explored EFL learners’ views on multimodality in writing with two groups of participants from first-year and second year writing classes at a university in Southern Taiwan. The researcher utilized “semi-structured interviews, reflection sheets, and document analysis for data collection” (p.88). The collected data showed that “the multimodal writing practice helped to promote a positive cycle of writing experience” (p.109). The implementation was also found interesting and fun. Additionally, learners reported that this implementation

enhanced self-expression and led to a sense of achievement, intellectual development, independent learning, and creativity in writing.

Timuçin and Irgin (2015) also researched the possible impact of creating digital stories on EFL students' perceptions of DS for writing skills in the EFL Turkish context. The study was carried out with 16 university level intermediate EFL students in a five-week period. Data were collected through interviews and digital story analyses and the results showed that learners appeared to believe that DS is a viable tool to develop writing.

In another FL context, Oskoz and Elola (2014) researched advanced Spanish-major-students' perceptions of the DS application in writing by asking them to compare traditional writing genres and digital stories. The study was conducted at a US university and data were derived from questionnaires, journals, reflections, and digital-story analyses. The findings showed that learners had positive views on the inclusion of DS in the writing curriculum by valuing it as a 21st century writing tool. The participants expressed that the project "was more than a writing task" (p.196) since it not only developed their writing conventions but also helped them "become effective communicators in the 21st century ... and learn a new set of multimodal communicative conventions" (p.195). The phase of selecting multimedia elements such as visuals, sound or music corresponding the narrative led to having more concentration on the task and organizing the thoughts "in coherent storylines" (p.195). Moreover, having a wider audience promoted authorship and prompted learners to "search for discourse, vocabulary, and a style that could best transmit their message" to the audience (p.197). In short, the participants were positive about the use of the digital stories in writing class because of its various benefits on linguistic and genre-related development and technological literacy.

DS is also an effective tool for developing writing performance. Especially for struggling writers, this rising genre can be utilized to turn them into confident writers. "Papers written by struggling writers are shorter, incomplete, poorly organized, and weaker in overall quality. They typically contain more irrelevant information and more mechanical and grammatical errors" (Graham & Troia, 2003, p. 77). "While digital storytelling is not a cure for these kinds of struggles, it does provide a way for students, who do not know where to begin with a blank piece of

paper, who lack focus, and who have difficulty elaborating, to write using a more strategic approach” (Simpson, 2011, pp. 11–12). Especially the use of storyboarding before producing a digital story can be highly effective to plan and organize the ideas.

The study conducted by Sylvester and Greenidge (2009) confirmed this with ample evidence by examining the possible uses of DS with struggling writers described as so because of a number of reasons: having difficulty in starting the task or completing the task, being “seldom strategic writers”, having “weaknesses in conventions such as spelling, capitalization, and handwriting”, “overlooking important details that are central to the story” such as developing “a plot or transition between settings, actions, and episodes” (p. 285), not making necessary revisions for the subsequent drafts. The participating students, Kyle, Ray, and Colleen, were spotted as “struggling writers” by their teachers based on their impression in regards to the students’ performance. The students’ own interpretation of themselves as struggling was based on the scores that they got from a writing self-perception scale. The researchers revealed that using DS helped struggling writers to compose their stories more strategically as compared to the other traditional writing activities. Moreover, the process of storyboarding was important to enable them to organize the events in the story “in a logical and orderly sequence” (p. 291). The participants employed sensory words, dialogue and figurative language to make a more vivid story, which is not the case in a traditionally composed story for a struggling writer. More importantly, the students’ motivation for writing was heightened because of an awareness of a larger audience by making sustained efforts to complete the task. Lastly, the researchers concluded that DS is a promising tool to turn struggling writers to competent and confident writers.

DS not only improves the writing performance of struggling writers but also enhances the writing ability of other proficiency level students. In this vein, Ballast, Stephens, and Radcliffe (2008) carried out a study which aimed to gauge the effects of this application on primary school learners’ writing skills and their attitudes toward writing. The researchers tested the efficiency of the tool, namely DS, in 6-week-instruction with two groups of students, namely experimental and control groups, whose first language is English. Data were collected through pre-

post writing samples, a pre-/post attitude survey, interviews, and observations and at the end of the implementation, the findings showed that although there was not a statistically significant difference in the scores of the experimental and the control groups in terms of their attitudes toward writing, a statistically significant difference was measured between the post-test results of the two groups' writing performance in favor of the experimental group. This result suggested that the students in the experimental group showed a better development in writing through DS as compared to those who were exposed to traditional writing practices.

In another L1 primary education setting, Yamaç (2015) researched the effects of the DS intervention on the third grade students' narrative writing skills in Turkey. In the current study, the students prepared a series of three digital stories over the course of 48 hours instruction. The data were collected by pre-/post-test writing samples, observations, field notes, interviews, students' diaries and documents, and digital story analyses. The findings of the study indicated that this implementation enabled the learners to gain more awareness of the traditional writing procedures such as topic selection, planning, drafting, revising, or editing steps. Moreover, their writing skills were enhanced in terms of the following points: organization, vocabulary, sentence fluency, and conventions. It was also found that the participants were more aware of the importance of story elements such as plot, characters or theme. Lastly, students were observed to produce longer sentences at the end of the implementation. Alongside with these findings, it was also noted that students developed their technical skills by means of this implementation and had a heightened level of motivation to write.

With the same goal, enhancing literacy development, Kulla-Abbott (2006) explored qualitatively how DS affected 43 seventh grade primary learners' writing skills in an L1 setting in the US. The researcher used the following data collection instruments: "observational field notes, videotapes of classroom activity, digital video artefacts created by students, reflections, emails, and interviews" (p. 47-48). The implementation lasted for several months and the participants created a series of three digital stories in total. At the end of the implementation, it was found that DS emerged as a new writing genre for this group of students who could add it to their repertoire. Moreover, findings showed that DS improved learners' writing

skills by helping them to gain more awareness of “the importance of organization, story, voice, emotion, pacing, economy of words, and value of re-writing while developing presentation skills” (p. ii).

Beyond the primary level, Foley et al. (2014) conducted a qualitative research study with 16 first-grade students in the Southwestern United States in order to examine the impact of DS on learners’ motivation for writing, and their writing abilities. The study drew upon the data in one semester derived from observations, field notes, interviews, and students’ digital stories. Findings of the study indicated that DS was a viable tool to “motivate and engage students in generating personal narratives and develop their writing and fluency skills within the five stages of the writing process” (p. 58) including pre-writing, drafting, editing, revising, and publishing stages. The collected data also showed that the final products of the students were good examples of the 21st writing practices that enabled them to fully exploit the technology and express themselves in new modalities.

In addition to the L1 context, previous research also provided evidence of the power of DS to develop students’ writing skills in the ESL setting. Flihan (2013) examined how DS affected an 18-year-old ESL learner’s writing skills in a case study design. She collected data through interviews, conversations with the participant’s parents, and digital story analyses. The results showed that DS held the potential to positively affect the writing development process by indicating that DS, as a learner-centered practice, afforded the participant with an in-depth involvement in all stages of the writing process such as drafting, revising, and editing. Moreover, engaging in these writing processes enhanced other language skills, namely reading, listening, and speaking and other language areas such as word knowledge, oral reading fluency, and grammar, as well.

In another ESL context but this time with more participants than that of Flihan’s study, Bandi-Rao and Sepp (2015) aimed to investigate whether DS was an effective pedagogy to motivate and engage students in the writing skill and to enhance their writing performance. 19 high intermediate ESL students from a community college in the US participated into the study and data were gathered through a survey questionnaire, observations and interviews. Results of the study indicated that composing digital stories was helpful to motivate and engage

students in writing. Moreover, the study showed that learners developed their writing ability by organizing, building, and relating a story in a more coherent way.

As seen from the above, the studies conducted to test the impact of DS on enhancing the writing performance were notably in the L1 or L2 contexts. But less is known about the use of this tool in EFL settings. Moreover, although these studies are valuable to evaluate the effectiveness of DS in the writing curriculum, they did not go beyond the qualitative evaluation of the progression or testing the tool in question in a one-group research design. That is, none of the studies has addressed the issue of “whether students’ writing outcomes ultimately are better as a result of digital storytelling” (Bandi-Rao & Sepp, 2015, p. 83) in an empirical study design with two groups exposed to two types of instruction; instead, these afore-mentioned studies have consulted either students to evaluate their performances at the end of the implementation (Flihan, 2013; Timuçin & Irgin, 2015) or teachers to reflect on the participating students’ overall writing outcomes after the implementation or researched the effectiveness of the tool with only one group (Abdel-hack & Helwa, 2014; Yamaç, 2015), disabling the researcher to control the other factors that can affect the process. Whether students can develop their writing performance through DS is best measured in a pre-/post-test quasi-experimental research model which allows for making outcome evaluations by comparing the two groups’ writing performances exposed to different kinds of instruction (Oskoz & Elola, 2014) (e.g. one exposed to writing practices through DS and the other one exposed to writing via traditional writing practices). Therefore, in order to make a concrete deduction in favor of using DS to develop student writing performance, there is an urgent need for a research study which empirically tests learners’ performance by comparing both experimental and control groups’ pre-/post-test results.

2.4. Conclusion

This chapter has described DS and its relations to education with a special reference to language education. Following this, the use of DS in writing has been concentrated on with providing evidence gathered from the related literature.

3. METHODOLOGY

3.1. Introduction

This study explored whether a DS-integrated pedagogy was effective to enhance the writing performance in a university level EFL context. The study also investigated the effects of DS on learners' motivation and engagement levels. Whether students' attitudes toward and their self-efficacy beliefs for educational technology were affected as a result of the participation in the DS intervention was also explored. Lastly, the participants' perceptions of the implementation were also focused on in this study. The study aimed to answer the following research questions:

1. Are there any effects of using DS on EFL English-major-students' (narrative) writing skills?
 - 1.1. Does the treatment type (DS-integrated or traditional writing instruction) differentially affect these students' (narrative) writing skills?
2. Are there any effects of using DS in writing on EFL English-major-students' motivational profiles?
 - 2.1. Does the treatment type (DS-integrated or traditional writing instruction) differentially affect these students' motivational profiles?
3. To what extent are EFL English-major-students engaged in DS-integrated activities?
4. Does a DS implementation experience have an impact on these students' judgments of self-efficacy for and attitudes toward and technology integration into their learning practices?
5. What are the perceptions of students about the effectiveness of using DS in writing after a DS implementation experience?

This chapter presents the setting and the participants of the study, the data collection instruments, and the data collection procedures and analysis.

3.2. Setting

This study was conducted with the participation of EFL students whose major is English in the first term of the 2015-2016 academic year at School of Foreign Languages (SFL) at Cumhuriyet University (CU). This school includes two sections, namely preparatory department and modern languages department. This current study was carried out at the preparatory department that consists of two main programs, one of which is for the English-major-students and the other of which is for the students from the Faculties of Engineering and Economics. For the English-major-students, one year of intensive preparatory education is compulsory unless they pass the standardized proficiency exam when they enroll the university. However, the other program provided for non-English-major students from the Engineering and Economics faculties is not compulsory but based on a voluntary basis. At the beginning of the academic year, both English-major and non-English-major groups are placed randomly. In other words, students are not placed in the classes based on the results of a placement test. When this study was conducted, there were around 175 English-major students from seven classes and 125 non-English-major students five classes at the preparatory department.

English-major students are exposed to 25-hour instruction every week and they are taught in the four main skills and grammar. These students take five-hour writing instruction per week. The main aims of this writing instruction are to develop learners' paragraph writing skills and to provide a basis for the advanced writing skills course to be given in the subsequent year at their departments, main focus of which is to help learners with essay writing.

3.3. Participants

The participants of this study were 43 students from the two classes of the preparatory department at SFL. As mentioned before, these students were EFL English-major students from the departments of English Language Teaching (ELT) and English Language and Literature (ELIT). They will further their four-year departmental education after this prep education. These students' proficiency level was intermediate. As for the demographic information of the participants, it was noted that there were 31 female and 12 male students in total, whose ages ranged from of 18 to 25 with an average of 18 years of age (Table 3.1.).

Table 3.1. The Distribution of Participants by Gender

	<i>Frequency</i>	<i>Percent</i>
Male	12	27.1
Female	31	72.9
Total	43	100

The researcher of this study was also the current instructor of the writing courses of these two classes. She is a graduate of ELT department and has been teaching English for ten years in different courses including reading, writing, vocabulary, and grammar. At the beginning of the term, these two classes on which the current study was conducted were assigned by the school to the researcher/instructor to give the writing instruction, one of which was chosen as the experimental group and the other of which was chosen as the control group by the researcher randomly.

3.4. Materials

The materials used in this study were a video-editing tool, a tutorial hand-out on how to use the software, storyboard sheets, a Google Drive account, and a Facebook account. In order to conduct this study, a free video-editing application, WeVideo, was used. Through this tool, anyone can create a digital story by mixing images, language, music, voiceover, and videos. It is cloud-based software which allows digital storytellers to compose and store their stories online. This Web 2.0 tool also allows students to compose the stories collaboratively. What distinguishes WeVideo from the other software such as PhotoStory or Moviemaker is the feature of not requiring any programs to install on a computer. The only need is the Internet connection, that is, students can work at any time on any computer easily. The figure 3.1. is the screenshot of this tool:

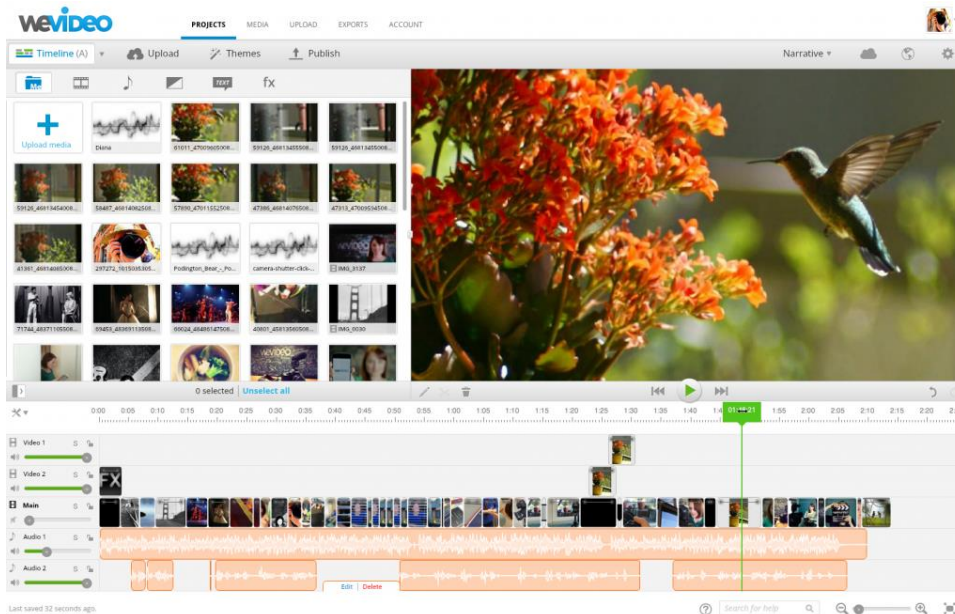


Figure 3.1. WeVideo Screenshot

Additionally, in order to be able to share the prepared storyboards, the students used Google Drive accounts. The ones who had already had such accounts could use those accounts, but the others who did not have such accounts had to create an account for themselves. For the ones who had never used Google Drive for sharing documents were trained on how to use it properly.

Lastly, www.facebook.com was used for sharing students' digital stories, for making comments on others' stories and for sharing any documents relating to the implementation. Facebook lets users publish their videos which are not longer than 15 minutes freely. Prior to the implementation, the researcher created a private group account namely "Digital storytelling". As it was a private group, only the members of the group could share something, see the posts, comment on, or like those posts. This group could not be found by searching and the posts were not visible to any Facebook user except for the group members.

3.5. Instruments

The study yielded both qualitative and quantitative findings by using different instruments. The quantitative data were gathered by using pre- and post-writing tests, an evaluation grid to assess writing samples, pre-/posttest surveys, a digital story analysis rubric, and an implementation-evaluation survey. On the other hand, for the qualitative data, semi-structured interviews and open-ended questions were used.

3.5.1. Pre- and Post-writing Tests Writing Tests

Before the implementation, the researcher administered a pre-test to both experimental and control groups in order to determine the initial writing proficiency levels of both groups. This test asked the participants to write a narrative paragraph on the given topic around 180-200 words. After the project implementation, the same test was administered to the same groups as a posttreatment test in order to measure if there was a change in their writing proficiency at the end of the implementation.

In order to score these tests, the researcher utilized a narrative writing evaluation rubric (Appendix 2) developed by the researcher by adapting the one used by National Assessment Program in Australia (<http://www.nap.edu.au/>). This rubric is five-point scale ranging from (1) *poor* to (5) *excellent* with 7 parts; namely, text structure, ideas, characters and setting, vocabulary, cohesion, sentence structure, and mechanics (punctuation & spelling). Both the researcher and a co-rater analyzed the participants' pre-/posttest samples. The inter-rater reliability of both tests was checked by employing a Pearson Product Moment Correlation in order to display that the two raters' scores for each test were consistent or not. Depending on the correlation scores between the raters' scores, it was found that both tests had high and statistically significant coefficients for both pre- ($r = .87, p < .01$) and posttest ($r = .90, p < .01$) and thereby the average of the two raters' scores for each test was used for the subsequent analyses.

3.5.2. Questionnaires

Two questionnaires were utilized in this current study: a pre-/posttest survey (Appendix 4) and a perception questionnaire (Appendix 6). Both questionnaires had a cover page informing the participants about the aim of the study, a consent page, and a demographic information section. These two questionnaires were prepared on the five-point or seven-point Likert scales and administered in Turkish.

3.5.2.1. The Pre-/Posttest Survey

Before and after the implementation, this questionnaire was administered to the same groups in order to measure if there were any changes in the variables that the researcher aimed to explore. It was given to the groups in Turkish in order to

avoid the misinterpretations of any items. But because the questionnaire was originally prepared in English, all the items were firstly translated into Turkish. Following this, a colleague translated the items from Turkish to English. Both Turkish versions were then compared by a native speaker of English to determine if there were any missing or misleading expressions. Upon this translating process, the questionnaire could be administered.

Following this procedure, before administering the questionnaire in the actual study, it was piloted with the participation of 51 students at CU SFL. The piloting session allowed the researcher to check the internal consistency of the questionnaire. By means of the feedback received in the pilot study, necessary changes such as deletion of irrelevant items, adding new ones, or rewording unambiguous items were made. Accordingly, a five-section-questionnaire was finalized to be used in this actual study.

The first section of the questionnaire used in the main study explored learners' demographic information by asking them to provide their name, surname, gender, and age.

The second section was aimed to assess learners' motivation levels before and after the implementation. It was a seven-point Likert scale, ranging from *not at all true of me (1)* to *very true of me (7)*. This section was taken from the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich, Smith, Garcia, and McKeachie (1990) in order to assess learners' motivation levels and learning strategy uses. The original questionnaire had 81 items with three sections: motivation (31 items), learning strategies (31 items), and student management of different sources (19 items). For this study, only the motivation section, which had six subscales, was used. Originally this subscale had 31 items, but after piloting it for this current study, one item that decreased the reliability score was deleted and was not used in the actual study. In actual study, this section had 30 items in total with .85 and .89 reliability scores in pre and posttest surveys, respectively. Table 3.2. shows the subscales of the motivation section:

Table 3.2. Components of Motivation

Subscales	Items
Intrinsic Goal Orientation , statements related to participating into the task because of having enjoyment	1-15-17-20
Extrinsic Goal Orientation , statements related to participating into the task because of external benefits such as grades or rewards	7-11-13-25
Task Value , statements related to "student's evaluation of the how interesting, how important, and how useful the task is"	4-10-19-21-22-30
Control of Learning Beliefs , statements about one's beliefs about his abilities to result in positive outcomes	2-9-12-16-29
Self-efficacy , statements based on one's judgments of his/her abilities to accomplish a task	5-6-14-18-24-26-27
Anxiety , statements about having discomfort, fear or worry in a test or in task	3-8-23-28

The third section, which had 16 items with a range from *strongly disagree* (1) to *strongly agree* (5), investigated learners' self-efficacy beliefs for technology integration into their learning practices. This section was adapted from the questionnaire used by Wang, Ertmer, and Newby (2004) to explore pre-service teachers' self-efficacy beliefs for technology in their teaching after DS implementation. Because Wang et al.'s questionnaire was originally prepared to be used for pre-service teachers, the researcher made changes in terms of adding new items or deleting the irrelevant ones to the present study. The original questionnaire had 21 items in total, the six of which with a special focus on teaching were discarded from this section. Additionally, a new item related to using educational technology in English language education was added to this section. Lastly, some changes were also made in wording such as using *learning* instead of *teaching* so as to be able to use it for the prep students in this current study. The internal consistency of this section was .92 and .96 Cronbach's α scores for the pre and posttest surveys, respectively.

The last section of the questionnaire consisted of the items about the attitudes toward the use of technology in education and perceived usefulness of technology in education. This section was formed through adaptation and combination of the well-grounded questionnaires in the literature: The ICT Scale by the Faculty Technology Committee of University of British Columbia, the Computer Attitude Scale by Loyd and Gressard (1984), Computer Attitude Measure by Kay (1998), and Computer Familiarity Questionnaire by Kirsch, Jamieson, Taylor, and Eignor, (1998). There were 23 items on a five-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5) in three subscales. 11 items of the section were

negatively expressed; therefore, before analyzing the data, these items were reverse-coded. The reliability scores of this section were .90 and .93 alpha scores for the pre and posttest surveys, respectively.

The questionnaire was administered to both groups in Turkish in order to avoid any misinterpretations by the students. The students who did not hand in these questionnaires were excluded from the study.

3.5.2.2. The Perception Questionnaire

This questionnaire was largely formed by the researcher by reviewing the relevant literature (Higginson, 2009; Hsieh, 2012; Kearney, 2009a). It had six subsections in total: five sub-sections which comprised of 44 items on a five-level Likert scale and the last sub-section with four open-ended questions. The subsections of the questionnaire can be seen below in Table 3.3.:

Table 3.3. Subsections of the Perception Questionnaire

<i>Subsections</i>	<i>Items</i>
Motivation	1-9
Self-correction	10-18
DS-integrated vs traditional writing	19-33
21 st century skills	34-41
Suggestions	42-44
Open-ended questions	1-4

Since all the items in the questionnaire originally prepared by the researcher or adapted from the related literature were in English, not to have any misunderstanding problems related to the items, “a three-step back-translation process” (Öztekın, 2011, p. 58) was used. Firstly, the researcher translated all items in the questionnaire from English into Turkish. Then, the items were back translated into English by another English language instructor, who is a native speaker of Turkish. Lastly, the two versions in English were compared by a native speaker of English so as to determine, revise and correct missing and mistranslated parts.

After the translation process, the wording of the first draft of the questionnaire was checked by a group of students similar to the participants of the main study and through their feedback, necessary changes were made for misleading or

ambiguous items. Following this, the questionnaire was conducted in Turkish and administered to only the experimental group after the treatment.

3.5.3. Digital Storytelling Analysis Rubric

This scoring rubric (Appendix 3) was aimed to analyze learners' digital stories quantitatively in order to determine the extent to which the students in this setting were engaged in this authentic activity by following the steps of the development, presentation, and sharing. "Literature shows that authentic assessment instruments are found appropriate to evaluate ICT-based learning implementations and individual and group presentations. One such instrument is the scoring rubric" (Sadik, 2008, p. 495).

To form such a scoring rubric to be used in this current study, firstly, the researcher reviewed the relevant literature to determine the related subcategories to be included in the rubric. As no single rubric had these subcategories determined by the researcher, it was decided to adapt and combine three different rubrics found in different websites (<http://education.fcps.org/trt/sites/default/files/SampleRubric.pdf>, www.umass.edu/wmwp/DigitalStorytelling/Rubric20%Assessment.htm, www.coe.uh.edu/digital-storytelling/evaluation.htm, <http://its.ksbe.edu/dst/>). Finally, the adapted and modified rubric had 10 subcategories (*Point of view, Content, Creativity, Organization (Storyboard), Images, Clarity of Voice, Meaningful Audio, Language Pacing, Narrative, and Economy of story detail*), each of which was identified on a four-point indicator scale, ranging from (1) *poor* to (4) *excellent*.

Before using the rubric in the actual study, the internal consistency of the instrument was checked by rating a sample of digital stories prepared in the pilot study and it was found that this rubric had a statistically significant correlation score ($r = .89, p < .01$) by confirming that it was a valid and reliable tool to analyze digital stories. In light of this evidence, the researcher was able to use it to analyze digital stories prepared in the actual study.

In this study, each participant in the experimental group prepared five different digital stories and in total there were 115 digital stories to be analyzed. The researcher and a colleague who was experienced in evaluating multimedia implementations and DS assessed the student-created digital stories after the

treatment was completed. Inter-rater reliability was checked via the Pearson Product Moment Correlation test in order to show that the two raters' scores were consistent or not. And it was found that both raters' scores had high and significant coefficients ($r = .87, p < .01$), allowing the researcher to use the average values of the two raters' scores for the subsequent analyses.

3.5.4. Interviews

After the treatment was finished, the researcher conducted semi-structured interviews with 10 students from the experimental group in order to gain in-depth information about the intervention. The researcher posed 10 questions (Appendix 8) about the learners' perceptions of the implementation in terms of the following points: its impact on writing performance, its advantages/disadvantages for writing, its effects on the motivation and engagement level, its effects on their attitudes toward and self-efficacy for technology use, the problems that they encountered during the process, and lastly their suggestions to improve the task. The interviews lasting about 10-15 minutes were administered in Turkish. All the interviews were tape-recorded and transcribed later on by the researcher.

As seen from this section, as a mixed-research study, both qualitative and quantitative data collection instruments were utilized. The summary of these instruments used in the study can be seen as follows:

Table 3.4. Instruments Used in the Study

<i>Research Questions</i>	<i>Data source 1</i>	<i>Data source 2</i>	<i>Data source 3</i>
1. Are there any effects of using DS on EFL English major students' (narrative) writing skills? 1.1. Does the treatment type (DS-integrated or traditional writing instruction) differentially affect these students' students' (narrative) writing skills?	Pretest	Posttest	Scoring rubric
2. Are there any effects of using DS in writing on EFL English-major-students' motivational profiles? 2.1. Does the treatment type (DS-integrated or traditional writing instruction) differentially affect these students' motivational profiles?	Pretest survey	Posttest survey	
3. To what extent are EFL English-major-students engaged in DS-integrated activities?	Digital stories	Scoring rubric	Interviews
4. Does a DS implementation experience have an impact on these students' judgments of self-efficacy for and attitudes toward and technology integration into their learning practices?	Pretest survey	Posttest survey	Interviews
5. What are the perceptions of students about the effectiveness of using DS in writing after a DS implementation experience?	Perception questionnaire	Interviews	

3.6. Data Collection Procedures

Before the actual study was conducted, the researcher piloted the instrument (pre-/posttest survey) with the participation of 45 EFL English-major-students at CU SFL in the spring term of the 2014-2015 academic year. After finalizing the survey questionnaire, the project implementation was also piloted in the same term in a 7-week-period. There were two groups in the pilot study, namely the control and the experimental groups. The experimental group was exposed to DS-integrated narrative writing; the control group dealt with traditional paper-based narrative writing instruction. At the end of the pilot study, the researcher got feedback from the two groups related to the procedure by asking them if they encountered any problems and asked their suggestions for the application of the process. In the light of the gathered feedback, the researcher made necessary changes in the final form of the main study process.

Following the piloting sessions, in the next term (the fall term of the 2015-2016 academic year), the researcher carried out the actual study with the participation of 43 English-major-students from the same school in a 14-week period (two weeks were allotted for pre and posttests). At CU SFL, the fall term in which the actual study was conducted lasted for 16 weeks and the experiment was started to

be carried out in the third week of the term. At the very beginning of the term, prior to the actual study, for two weeks, students from both groups were taught the basic conventions of the paragraph writing genre: e.g. the definition of a paragraph, the parts of it, and basic properties of a well-written paragraph. Then in the third week of the term, a pretreatment writing test was applied to both groups to determine their existing proficiency in writing. On the following day, the pretreatment questionnaire was administered to both groups to determine their initial levels of the target variables of the study (motivation, self-efficacy, and attitudes toward technology use). After conducting the pretests, in the fourth week of the term, the experimental phase started.

For this treatment, both groups had the same learning materials and syllabus for the writing course that was based on improving learners' paragraph writing skills. Two groups were exposed to the same amount of instruction per week and in total. For both groups, the experimental phase lasted 42 hours for 12 weeks.

In the treatment, the experimental group was exposed to DS-integrated narrative writing instruction while the control group received the classroom-based traditional narrative writing instruction. When the experiment began, students from these two classes had not written a narrative academic paragraph before. Therefore, both groups were taught the basics of narrative writing in the first weeks of the experiment.

In the first stage of the treatment, students from both classes dealt with only the implementation and accordingly narrative writing for five weeks. For these five weeks, all the students from two groups were exposed to 5-hour-instruction a week. For the control group, all these five hours were spent on covering narrative writing basics. However, in addition to learning how to write a narrative paragraph, the experimental group was also trained on how to prepare a digital story via WeVideo. After these five weeks, this current implementation was carried out alongside with the other course requirements such as writing cause-effect paragraphs or classification paragraphs. Therefore, till the end of the treatment for seven weeks, the allotted time for the implementation for both groups changed 2-3 hours per week.

This experiment was integrated into the course syllabus. That is, this experiment is not on a voluntary basis. During the experiment, the students in the control group were required to prepare five different narrative paragraphs on the given topics with their three drafts (first, second and final drafts) as a course requirement. The teacher largely used the class hours to work on the implementation.

The experimental group was responsible for preparing five different digital stories on the same topics given for the control group. Each digital story was prepared by following the same procedure below:

(1) **writing and rewriting the narrative which constituted the core of each digital story in three drafts (first, second and final drafts).** The students wrote these drafts at home or in class. The teacher gave feedback on each draft. However, continuously, the students also gave feedback on each other's writings.

(2) **storyboarding.** After the teacher taught the students the basics of storyboarding in the early stages of the implementation, the students were required to prepare a storyboard for each digital story before they prepared their digital stories. Each storyboard was shared with the teacher and via Google Drive and the teacher gave feedback on them. The students also gave feedback on each other's storyboards continuously.

(3) **choosing the appropriate multimedia accompanying the narrative.** Following the storyboard that they had prepared, the students selected appropriate multimedia elements that accompanied the script. The students generally used their own photos, drawings, or images from the Internet. For the background music, they also benefitted from the Internet.

(4) **recording the voice.** After pairing the script with the related multimedia elements, the students recorded their voice accompanying with the script.

(5) **preparing digital stories on WeVideo.** In the first weeks of the implementation, the students were trained on how to prepare a digital story by using WeVideo. For this, they practiced basic WeVideo functionalities through in-class activities in which the students prepared short slide shows about the given topics in groups. Following this guidance, the students learned how to use this video-editing program and prepared all the five videos using this software.

(6) **presenting digital stories in class.** During this implementation, each student presented one of their five digital stories in class.

(7) **sharing them on Facebook.** Before the implementation, the teacher created a group account on Facebook and during the implementation, all the materials prepared or presented by the teacher were shared on this page. Moreover, all the digital stories prepared by the students were shared there.

(8) **commenting on others' digital stories shared on Facebook.** Each student was responsible for commenting on one of the digital stories that his/her friends prepared in each set by using a rubric provided by the teacher (Appendix 3). At the end of the implementation, each student was required to have commented on 5 different digital stories.

At the end of this 12-week-experimental phase (in the 16th week of the term), both experimental and control groups were post tested to see if they developed their (narrative) writing skills as a result of their participation into the implementation. Then, both groups received the posttest survey to determine whether there was a change in the target variables in the end. Next, the perception questionnaire was administered to the experimental group to gather data the participants' general impression of the implementation. Lastly, the researcher conducted semi-structured interviews with 10 students from the experimental group to provide in-depth data as to their perceptions of the implementation. The outline of the implementation can be seen below:

Table 3.5. The Procedures Followed in the Study

<i>Experimental group</i>	<i>Control group</i>
Prior to the treatment	Prior to the treatment
<ul style="list-style-type: none"> • A brief description of the survey • Pretests 	<ul style="list-style-type: none"> • A brief description of the survey • Pretests
Week 1 (five hours)	Week 1 (five hours)
<ul style="list-style-type: none"> • Work on narrative writing 	<ul style="list-style-type: none"> • Work on narrative writing
Week 2 (five hours)	Week 2 (five hours)
<ul style="list-style-type: none"> • Work on narrative writing • Presentation on what DS is • Digital story examples 	<ul style="list-style-type: none"> • Work on narrative writing
Week 3 (five hours)	Week 3 (five hours)
<ul style="list-style-type: none"> • Digital story elements • Training on How to use WeVideo • Create a WeVideo account • Register the Facebook group account • Write the first draft of 1st narrative paragraph on the given topic • (The teacher gave feedback on the first drafts before week 4) 	<ul style="list-style-type: none"> • Write the first draft of 1st narrative paragraph (class hour) • Write the second draft of 1st narrative paragraph (class hour)
Week 4 (five hours)	Week 4 (five hours)
<ul style="list-style-type: none"> • Write the second draft of the 1st narrative paragraph • (till the end of the fourth week, the teacher gave feedback on the second drafts and students prepared the final drafts at home before week 5) • Presentation on What storyboarding is • Storyboarding the 1st digital story • (the teacher gave feedback on the 1st storyboards before the week 5) 	<ul style="list-style-type: none"> • Write the final draft of the 1st narrative paragraph (class hour) • Write the first draft of the 2nd narrative paragraph on the given topic (class hour)
Week 5 (five hours)	Week 5 (five hours)
<ul style="list-style-type: none"> • (the students prepared their 1st digital stories before week 5) • In-class first digital story presentation (for six students from the class) • Post 1st digital stories on Facebook • Comment on a digital story shared on Facebook of their choice. • (the teacher gave feedback for all the prepared digital stories) • Write the 1st draft of the 2nd digital story narrative • Write the 2nd draft of the 2nd digital story narrative (homework) • (till the end of the week 5, the teacher gave feedback on the second drafts and the students prepared the final drafts at home before week 6) 	<ul style="list-style-type: none"> • Write the second draft of the 2nd narrative paragraph (class hour) • Write the final draft of the 2nd narrative paragraph (class hour)
Week 6 (3 hours)	Week 6 (3 hours)
<ul style="list-style-type: none"> • Create storyboards for the second digital story (the teacher gave feedback on the following day) • Write the 1st draft of the 3rd narrative • Write the 2nd draft of the 3rd narrative • (till the end of the week 6, the teacher 	<ul style="list-style-type: none"> • Write the 1st draft of the 3rd narrative writing • Write the 2nd draft of the 3rd narrative writing

gave feedback on the second drafts and the students prepared the final drafts at home before week 7)	
Week 7(3 hours) <ul style="list-style-type: none"> • (students prepared their 2nd digital stories before week 7) • In-class 2nd digital story presentation (for 5 students) • Post the 2nd digital stories on Facebook • Comment on a digital story shared on Facebook of their choice. • (the teacher gave feedback for all the prepared digital stories) • Write the 1st draft of the 3rd digital story narrative • Write the 2nd draft of the 3rd digital story narrative • (till the end of the week 7, the teacher gave feedback on the second drafts and the students prepared the final drafts at home before week 8) 	Week 7(3 hours) <ul style="list-style-type: none"> • Write the final draft of the 3rd narrative paragraph • Write the 1st draft of the 4th narrative paragraph
Week 8 (3 hours) <ul style="list-style-type: none"> • Create storyboards for the 3rd digital story (the teacher gave feedback on the following day) • Write the 1st draft of the 4th narrative • Write the 2nd draft of the 4th narrative • (till the end of the week 8, the teacher gave feedback on the second drafts and the students prepared the final drafts at home before week 9) 	Week 8 (3 hours) <ul style="list-style-type: none"> • Write the 2nd draft of the 4th narrative paragraph
Week 9 (2 hours) <ul style="list-style-type: none"> • (the students prepared their 3rd digital stories before week 9) • In-class 3rd digital story presentation (for 4 students) • Post the 3rd digital stories on Facebook • Comment on a digital story shared on Facebook of choice. • (the teacher gave feedback for all the prepared digital stories) • Write the 1st draft of the 4th digital story narrative • Write the 2nd draft of the 4th digital story narrative • (till the end of the week 9, the teacher gave feedback on the second drafts and students prepared the final drafts at home before 10) 	Week 9 (2 hours) <ul style="list-style-type: none"> • Write the final draft of the 4th narrative paragraph
Week 10 (2 hours) <ul style="list-style-type: none"> • (before week 10 students prepared their storyboards the teacher gave feedback on them) • (the students prepared the 4th digital story before week 10) • In-class 4th digital story presentation (for 4 students) • Post the 4th digital stories on Facebook • Comment on a digital story shared on Facebook of their choice. 	Week 10 (2 hours) <ul style="list-style-type: none"> • Write the 1st draft of the 5th narrative paragraph

<ul style="list-style-type: none"> • (the teacher gave feedback for all the prepared digital stories) • Write the 1st draft of the 5th digital story narrative 	
Week 11 (2 hours) <ul style="list-style-type: none"> • Write the 2nd draft of the 5th digital story narrative • Write the final draft of 5th narrative 	Week 11 (2 hours) <ul style="list-style-type: none"> • Write the 2nd draft of the 5th narrative paragraph
Week 12 (2 hours) <ul style="list-style-type: none"> • Students created their last storyboards (the teacher gave feedback) • (Students prepared the 5th digital stories at home) • In-class 5th digital story presentation (for 4 students) • Post the 5th digital stories on Facebook • Comment on a digital story shared on Facebook of choice. • (the teacher gave feedback for all the prepared digital stories) 	Week 12 (2 hours) <ul style="list-style-type: none"> • Write the final draft of the 5th narrative paragraph
At the end of the implementation-the last week of the term <ul style="list-style-type: none"> • Discussions on the implementation • Posttests • The perception questionnaire • Interviews with 10 students 	At the end of the implementation-the last week of the term <ul style="list-style-type: none"> • Discussions on the implementation • Posttests

3.7. Data Analysis

The data of this research were gathered both qualitatively and quantitatively. The qualitative data gathered from interviews and the open-ended questions section were transcribed and translated from Turkish to English. Then, the researcher conducted a content analysis on the responses for the interview questions and for the questions in the open-ended section and the themes emerged in the answers were coded, categorized, and presented by starting from the most common patterns. For the quantitative data, Statistics Package for Social Sciences (SPSS) version 18 was utilized for the analysis.

For the first research question, both pre and post-tests were analyzed by the researcher and a colleague from CU SFL by using a rubric and the total scores of both raters were computed via SPSS as the score showing their performance in the writing test in question. Then, the total data obtained from the sum of the raters for both tests were analyzed using a 2×2 mixed Analysis of Variance (ANOVA) to determine whether there was an interaction between the independent variables (group*time) for the dependent variable (motivation scores). Following this, General Linear Model (GLM) ANOVAs were used to explore if there was a change

in pre and posttest results in each group separately and if the two groups test results differed from each other. Since the rubric had different dimensions showing different domains of writing performance, firstly Wilcoxon signed-rank tests were run to determine whether there were any changes for the writing sub-skills between pre and posttest results for each group. Then, Mann-Whitney U tests were calculated in order to show if either group increased its scores more than the other one.

For the second research question, the data were obtained from pre and posttest surveys administered to both groups. The quantitative data were analyzed by using a 2×2 mixed ANOVA with the follow up tests to determine which instruction type was more effective for enhancing motivation. Then, since the construct of motivation had different dimensions, eventually leading to have different subscales in the questionnaire, a 2×2 repeated measures Multivariate Analysis of Variance (MANOVA) with follow up independent and paired sample *t* tests was utilized.

As for the third research question, a rubric was used to assess the students' performance in DS in order to explore the extent to which the students were engaged in authentic learning tasks via the development, presentation and sharing of digital stories. The researcher and a colleague who has pedagogical and technical experience in teaching and using multimedia and DS rated the digital stories independently using the rubric and their scores were computed and the total data obtained from the sum of raters were used. Means and standard deviations were calculated to present an overall score of the engagement construct. Then a repeated measures ANOVA was used to compare the participants' engagement scores gathered from each digital story. Additionally, semi-structured interviews conducted with 10 students from the experimental group were also addressed. The data gained from these instruments were coded and interpreted by the researcher qualitatively.

The fourth research question, investigating the impact of the current digital storytelling experience on attitudes toward and self-efficacy beliefs for technology integration into their learning and teaching practices, was analyzed by using pre and posttest surveys conducted. 2×2 mixed ANOVAs with follow up tests for between and within group comparisons were used for the analysis of the two sections (*self-efficacy beliefs for and attitudes toward technology integration into*

their learning). Moreover, semi-structured interviews with the students from the experimental group after the implementation were conducted to gain in-depth knowledge about the target variables and analyzed qualitatively.

Lastly, the participants' perceptions of the current DS implementation aiming to promote EFL writing were explored by using different instruments. Firstly, a questionnaire was used and analyzed quantitatively via SPSS. Frequencies, mean scores and standard deviations were used for the analysis of the questionnaire. The open-ended items in the questionnaire were analyzed qualitatively. Additionally, semi-structured interviews were conducted to gain deeper insights into their perceptions into the process. For the qualitative data obtained from the open-ended question section and from the interviews, qualitative data analysis techniques were used.

3.8. Conclusion

This chapter has indicated the setting, the participants of the study, and the instruments used to collect data. In addition, it has presented data collection and analysis procedures. The next chapter will demonstrate the findings in detail.

4. DATA ANALYSIS

4.1. Introduction

This study attempted to explore (a) whether the DS-integrated writing instruction was effective to develop English-major-students' writing proficiency, (b) whether this instruction type improved the students' motivation for writing, (c) to what extent the students were engaged in this authentic task aiming to improve FL writing, (d) whether the DS-integrated writing instruction changed the students' self-efficacy beliefs and attitudes toward technology integration into their learning, and (e) the students' perceptions of the implementation. The researcher answered the following research questions:

1. Are there any effects of using DS on EFL English-major-students' (narrative) writing skills?

- 1.1. Does the treatment type (DS-integrated or traditional writing instruction) differentially affect these students' (narrative) writing skills?

2. Are there any effects of using DS in writing on EFL English-major-students' motivational profiles?

- 2.1. Does the treatment type (DS-integrated or traditional writing instruction) differentially affect these students' motivational profiles?

3. To what extent are EFL English-major-students engaged in DS-integrated activities?

4. Does a DS implementation experience have an impact on these students' judgments of self-efficacy for and attitudes toward and technology integration into their learning practices?

5. What are the perceptions of students about the effectiveness of using DS in writing after a DS implementation experience?

Data were collected both qualitatively and quantitatively through different instruments (pre- and post-writing tests and pre- and posttest surveys, a perception questionnaire, scoring rubrics, student artefacts, and semi-structured interviews). The quantitative data were analyzed by using the SPSS 18 program and the qualitative data were coded and interpreted through qualitative data

analysis techniques. In the next section, the findings regarding each research question were indicated in detail.

4.2. Results

4.2.1. Analysis of the Data for Research Question 1

The aim of this research question was to explore if there were any effects of using DS on EFL English-major-students' (narrative) writing skills. As a sub-question, it was also asked if the treatment type differentially affected experimental and control groups' (narrative) writing skills. Data were collected quantitatively by analyzing both groups' writing performance before and after the implementation. At the beginning of the experiment, both groups were given a narrative test and at the end of the implementation the same test was re-administered to the two groups to make between-group and within-group comparisons.

A five-point scoring rubric composed of seven subcategories was used to analyze both tests for each group. The scores for each test were given out of 35 points. The researcher and a colleague rated both pre and posttests and the sum of the ratings was used for the subsequent analyses.

The data obtained from the tests were analyzed by conducting a 2×2 mixed ANOVA, which is run to calculate the scores yielded repeatedly on the same scale (Tabachnick & Fidell, 2013). This test was conducted here to explore whether there was a *group by time* interaction for the dependent variable (the writing score). In this study, the *two time* points (pre and posttests) and the *group* variable are the independent variables.

Before conducting the mixed ANOVA, it is needed to check the underlying assumptions of this test in order to get more valid results. The first assumption is related to not having any outliers in the data. This assumption was checked by inspecting the boxplot. Any data points whose values are greater than 1.5 box-lengths from the edge of the box are assessed as outliers (Tabachnick & Fidell, 2013) and there found no outliers in the data, as checked by inspection of the boxplot. Moreover, the data were further analyzed if there were any outliers by checking standardized residuals whose scores were greater than ± 3 standard deviations and it was revealed that there were no outliers in the data.

The second assumption is related to having normally distributed data for each test across group. This assumption was tested by addressing Shapiro-Wilk test results since there were less than 50 students in each group, and it was found that scores for each test for each group were normally distributed across students. Table 4.1. shows the results:

Table 4.1. The Normality Test Results for the Writing Test Scores across Time Point by Group Type

		<i>Kolmogorov-Smirnov</i>			<i>Shapiro-Wilk</i>		
		<i>Statistic</i>	<i>df</i>	<i>Sig.</i>	<i>Statistic</i>	<i>df</i>	<i>Sig.</i>
pretest	Control	.152	20	.200	.972	20	.789
	Experimental	.189	23	.033	.929	23	.103
posttest	Control	.158	20	.200	.937	20	.215
	Experimental	.193	23	.026	.933	23	.128

Another assumption is to check homogeneity of covariance by assessing the Box's test of equality of covariance's matrices. As suggested by Mayers (2013), non-significant p values meet the assumption and the results of this study showed that the covariances were equal, meaning that the assumption was satisfied ($p = .249$)

The last assumption, having homogeneity of variances across groups, was also checked using the Levene's test (Tabachnick & Fidell, 2013). Significant p values signify violation of this assumption, yet it was found that there were equal variances between groups with non-significant p values. The results of this study are as follows:

Table 4.2. Levene's Test for Writing Pre and Posttests

	<i>F</i>	<i>df1</i>	<i>df2</i>	<i>Sig.</i>
pretest	.165	1	41	.687
posttest	2.448	1	41	.125

As illustrated above, since all the assumptions were met, the mixed ANOVA could be conducted. For this and subsequent analyses, "partial eta-squared (η^2) was used as the estimate of effect size, which shows the magnitude of effects or how large the difference between groups that is relatively independent of sample size" (Heo, 2007, p. 68). Partial eta-squared values range from 0 to 1. Generally, the larger the effect size, the greater the impact of an intervention. Partial eta-squared can be interpreted as small (0.14), medium (0.36), large (0.51), and very large (0.70+) (Leech, Barrett, & Morgan, 2005).

The results presented in Table 4.3. indicate that there was a significant main effect of *time*, $F(1, 41) = 243.911$, $p < .001$, partial $\eta^2 = .856$. This finding implies that if the group of the students is ignored, an overall difference exists between pre and posttest writing scores. The analysis also found a significant main effect of *group*, $F(1, 41) = 31.547$, $p < .001$, partial $\eta^2 = .435$, suggesting that irrespective of the pre and posttest results, the experimental group's scores were significantly different from those of the control group (Table 4.4.). Another important finding is also that the *time* main effect was also qualified by a significant interaction between time points and group variables, $F(1, 41) = 23.673$, $p < .001$, partial $\eta^2 = .366$ (Table 4.3.). This implies that the treatment type had a different effect on writing scores at two time points in the experimental and control groups.

Table 4.3. The Within-Group Mixed ANOVA (and interaction) Results for Writing Performance

Source		Sum of Squares	df	Mean Square	F	Sig.	η^2
time	Sphericity Assumed	2607.289	1	2607.289	243.911	.000	.856
time * group	Sphericity Assumed	253.056	1	253.056	23.673	.000	.366
Error(time)	Sphericity Assumed	438.270	41	10.690			

Table 4.4. The Between-Subjects Mixed ANOVA Results for Writing Performance

Source	Sum of Squares	df	Mean Square	F	Sig.	η^2
group	233.917	1	233.917	31.547	.000	.435
Error	304.013	41	7.415			

As suggested by Mayers (2013), if there is a two-way interaction between the between- and within-subjects factors (i.e., a group*time interaction), the nature of the interaction should be analyzed further. For this aim, firstly the estimated marginal means were interpreted (Figure 4.1.). The graph clearly indicates that at the beginning of the study, the two groups had fairly similar level of writing skill. But at the end of the study, although the two groups considerably increased their writing scores, it seems that the increase in the experimental groups' ratings was higher than that of the control group, meaning that DS-integrated writing instruction seems to affect the writing scores more positively.

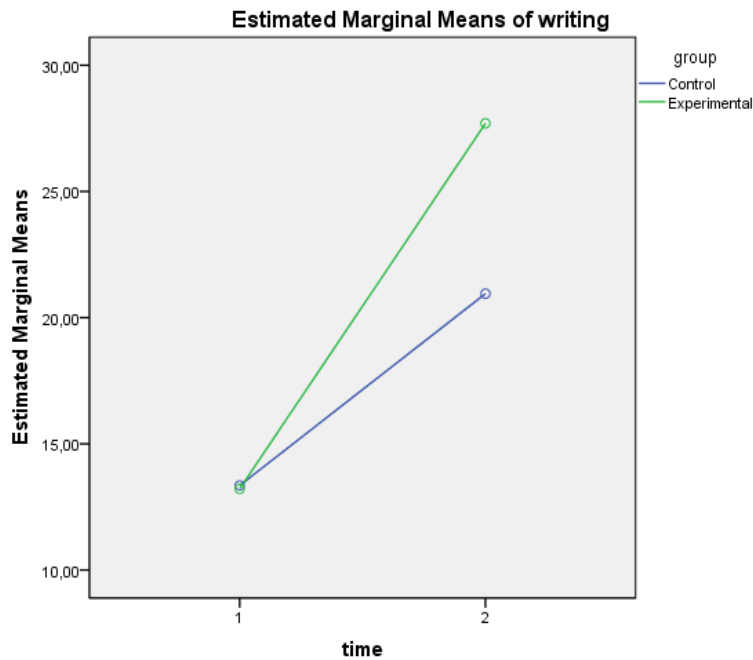


Figure 4.1. Estimated Marginal Means of Writing

In addition to the interpretation of the graph lines, follow up GLM ANOVA tests were conducted to find out the sources of the interaction. The reason for using GLM ANOVA tests for post hoc analyses rather than using *t* tests is that the GLM approach additionally provides the effect sizes.

The results illustrated in Table 4.5. show that there was not a statistically significant difference between the experimental and control group's pretest results, $F(1, 41) = 0.34, p = .855, \text{partial } \eta^2 = .001$.

Table 4.5. The Between-Subjects Univariate ANOVA Results for Pretest Writing Performance

Source	Sum of Squares	df	Mean Square	F	Sig.	η^2
Group	.188	1	.188	.034	.855	.001
Error	228.463	41	5.572			

However, at the posttest (Table 4.6.), a significant difference was found between the control and the experimental groups' writing scores, $F(1, 41) = 38.843, p < .001, \text{partial } \eta^2 = .486$. This finding indicates that the experimental group outperformed the control group at the posttest writing scores with a significant mean difference value ($M= 6.75, SE = 1.08 \text{ mmol/L}, p < .05$).

Table 4.6. The Between-Subjects Univariate ANOVA Results for Posttest Writing Performance

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>	<i>η²</i>
Group	486.785	1	486.785	38.843	.000	.486
Error	513.820	41	12.532			

As for the simple main effect for time, GLM ANOVAs were used. The results in Table 4.7. revealed that there existed a significant difference between the control groups' pre and posttest writing scores, $F(1,19) = 77.067$, $p < .001$, partial $\eta^2 = .802$, meaning that the control group significantly increased its writing scores from pretest to posttest ($M= 7.60$, $SE = .87$ mmol/L, $p < .05$).

Table 4.7. The Within-Subjects Univariate ANOVA Results for Control Group's Writing Performance

<i>Source</i>		<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>	<i>η²</i>
time	Sphericity Assumed	577.600	1	577.600	77.067	.000	.802
Error(time)	Sphericity Assumed	142.400	19	7.495			

As illustrated in Table 4.8., a significant difference was also found for the experimental group's pre and posttest results, $F(1, 22) = 179.247$, $p < .001$, partial $\eta^2 = .891$. This suggests that the experimental group also increased its scores at the posttest ($M= 14.48$, $SE = 1.08$ mmol/L, $p < .05$) compared to the pretest.

Table 4.8. The Within-Subjects Univariate ANOVA Results for Experimental Group's Writing Performance

<i>Source</i>		<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>	<i>η²</i>
time	Sphericity Assumed	2410.630	1	2410.630	179.247	.000	.891
Error(time)	Sphericity Assumed	295.870	22	13.449			

To sum up, it can be concluded from all these findings presented above that both treatment types, namely DS-integrated and traditional writing instruction types, were effective in improving (narrative) writing skills. However, if it is looked at the mean differences calculated by extracting the groups' pretest scores from their posttest scores, it is obvious that the mean difference calculated for the experimental group ($M=14.478$) was higher than the score of the control group ($M=7.600$). This finding implies that although both types were effective in developing (narrative) writing skills, the DS-integrated writing instruction type was more effective than its traditional counterpart.

Additionally, the possible effect of the instruction type on the sub-skills of writing was also analyzed. Since the data were not normally distributed, median scores and non-parametric tests were used.

To begin with, the pretest and posttest results for each component of writing were compared by using Wilcoxon signed-rank tests for both control and experimental groups, respectively. The results are shown below:

Table 4.9. Wilcoxon Signed-Rank Test Results for the Control Group's Writing Sub-Components

<i>Sub-skills</i>	<i>Test</i>	<i>Median</i>	<i>Z</i>	<i>Sig. (2-tailed)</i>
Organization	Pre	2.00		
	Post	2.00	-3.611	.000
Ideas	Pre	1.50		
	Post	2.00	-3.535	.000
Characters and Setting	Pre	1.00		
	Post	2.00	-3.695	.000
Vocabulary	Pre	2.00		
	Post	2.00	-3.944	.000
Cohesion	Pre	1.00		
	Post	1.00	-3.703	.000
Grammar	Pre	2.00		
	Post	1.00	-3.448	.001
Mechanics	Pre	4.00		
	Pre	4.00	-2.496	.013

The results displayed in Table 4.9. reveal that there was a statistical difference between control group's pre and posttest scores for each subscale: *Organization*, $z = -3.611$, $p < .05$; *Ideas*, $z = -3.535$, $p < .05$; *Characters and Setting*, $z = -3.695$, $p < .05$; *Vocabulary*, $z = -3.944$, $p < .05$; *Cohesion*, $z = -3.703$, $p < .05$; *Grammar*, $z = -3.448$, $p = .001$; and *Mechanics*, $z = -2.496$, $p = .013$. This means that all the components of the control group's writing were positively affected by the traditional writing instruction.

Table 4.10. shows the results regarding the experimental group. Significant differences between pre and posttests for all the sub-components of writing were elicited via Wilcoxon signed-rank tests. [*Organization*, $z = -4.177$, $p < .05$; *Ideas*, $z = -4.146$, $p < .05$; *Characters and Setting*, $z = -4.238$, $p < .05$; *Vocabulary*, $z = -4.062$, $p < .05$; *Cohesion*, $z = -4.232$, $p < .05$; *Grammar*, $z = -4.055$, $p < .05$; and *Mechanics*, $z = -4.001$, $p < .05$]. These findings suggest that the experimental

group also *did* increase significantly its pretest scores for each sub-component of writing at the posttest, as well. In other words, both groups increased their scores for each component. As is obvious, depending on these findings, it is not easy to determine which group increased its scores more. Therefore, the two groups' pre and posttest results were also compared for each sub-component performing Mann-Whitney U tests, allowing us to conclude if either of the groups scored higher in any sub-components.

Table 4.10. Wilcoxon Signed-Rank Test Results for the Experimental Group's Writing Sub-Components

Sub-skills	Test	Median	Z	Sig. (2-tailed)
Organization	Pre	2.00		
	Post	2.00	-4.177	.000
Ideas	Pre	1.50		
	Post	2.00	-4.146	.000
Characters and Setting	Pre	1.00		
	Post	2.00	-4.238	.000
Vocabulary	Pre	2.00		
	Post	2.00	-4.062	.000
Cohesion	Pre	1.00		
	Post	1.00	-4.232	.000
Grammar	Pre	2.00		
	Post	1.00	-4.055	.000
Mechanics	Pre	4.00		
	Pre	4.00	-4.001	.000

Table 4.11. shows Mann-Whitney U test results related to the pretest scores on the domains of the writing skill.

Table 4.11. Mann Whitney U Test Results for the Pretest Writing Sub-Components

<i>Sub-skills at the pretest</i>	<i>Group</i>	<i>Median</i>	<i>Mann-Whitney U</i>	<i>z</i>	<i>Sig. (2-tailed)</i>
Organization	Control	2.00			
	Experimental	2.00	227.00	-.084	.933
Ideas	Control	1.50			
	Experimental	2.00	219.00	-.303	.762
Characters and Setting	Control	1.00			
	Experimental	2.00	157.50	-2.065	.039
Vocabulary	Control	2.00			
	Experimental	2.00	213.50	-.451	.652
Cohesion	Control	1.00			
	Experimental	1.00	220.50	-.276	.782
Grammar	Control	2.00			
	Experimental	1.00	177.00	-1.417	.157
Mechanics	Control	4.00			
	Experimental	4.00	201.50	-1.250	.211

This table displays that there were no statistical differences between the control and the experimental groups' pretest results in terms of the following writing sub-skills, [*Organization*, $U = 227$, $z = -.084$, $p = .933$; *Ideas*, $U = 219$, $z = -.303$, $p = .762$; *Vocabulary*, $U = 117$, $z = -2.065$, $p = .652$; *Cohesion*, $U = 220$, $z = -.276$, $p = .782$, *Grammar*, $U = 177$, $z = -1.417$, $p = .157$; and *Mechanics*, $U = 201$, $z = -1.250$, $p = .211$]. But a statistical difference between the two groups was elicited for the *Characters and the Setting* sub-skill, $U = 157$, $z = -2.065$, $p = .039$. Overall, these results show that at the beginning of the study, except for one component (*Characters & Setting*), both groups were nearly in the same level in terms of the mentioned-above writing sub-skills.

Similarly, as for the posttest, in order to determine if there were any differences in any writing sub-skills between the two groups, Mann-Whitney U test results and medians were analyzed and shown below in Table 4.12.:

Table 4.12. Mann Whitney U Test Results for the Posttest Writing Sub-Components

Sub-skills at the posttest	Group	Median	Mann-Whitney U	z	Sig. (2-tailed)
Organization	Control	3.00			
	Experimental	4.00	55.00	-4.490	.000
Ideas	Control	3.00			
	Experimental	4.00	73.00	-4.058	.000
Characters and Setting	Control	3.00			
	Experimental	4.00	71.00	-4.098	.000
Vocabulary	Control	3.00			
	Experimental	3.00	99.00	-3.426	.001
Cohesion	Control	3.00			
	Experimental	4.00	85.50	-3.824	.000
Grammar	Control	3.00			
	Experimental	4.00	64.00	-4.496	.000
Mechanics	Control	4.00			
	Experimental	5.00	156.50	-2.112	.035

The Mann-Whitney U test results indicate that there were statistical differences between the two groups' posttest results for all the writing sub-components as follows: *Organization*, $U = 55$, $z = -4.490$, $p < .05$; *Ideas*, $U = 73$, $z = -4.058$, $p < .05$; *Characters and Setting*, $U = 71$, $z = -4.098$, $p < .05$; *Vocabulary*, $U = 99$, $z = -3.426$, $p = .001$; *Cohesion* $U = 85.50$, $z = -3.824$, $p < .05$; *Grammar*, $U = 64$, $z = -4.496$, $p < .05$; and *Mechanics*, $U = 156.50$, $z = -2.112$, $p = .035$. These findings imply that although both groups' scores were the same at the pretest except for one sub-skill (*Characters & Setting*), the experimental group increased its scores more than the control group in all of the sub-skills in question.

All in all, both groups improved their scores for writing sub-skills after the treatment. But although the two groups were fairly similar at the outset for each sub-component of writing (except for one sub-component), at the posttest, the experimental group *did* outperform the control group, meaning that even though both treatment types were effective for developing writing sub-skills, the DS-integrated treatment type was more effective than its traditional counterpart.

4.2.2. Analysis of the Data for Research Question 2

The purpose of this research question was to determine if there were any positive effects of DS-integrated writing instruction on students' motivational profiles. As a sub-question, if DS-integrated writing instruction was more effective for promoting motivation as compared to traditional writing practices was also analyzed. For this

research question, quantitative data were collected using both groups' pre-/posttest survey results. The scores gathered from a seven-point Likert scale were evaluated through the SPSS program and are averaged for an overall motivation score for each survey.

The data were analyzed by using a 2×2 mixed ANOVA to see whether there was a group*time interaction for the dependent variable (*the motivation score*). The independent variables are the two *time* points (*pre and posttests*) and the *group* variable where one underwent an intervention while the other did not.

But before conducting this test, some prior tests were applied to check if the two-way mixed ANOVA assumptions were met or not. The first test is based on examining whether there were any outliers in the data. This assumption was checked by using inspection of a boxplot and any data points whose values were greater than 1.5 box-lengths from the edge of the box were reported as outliers. Based on this evaluation through inspecting of a boxplot, it was found that there were no outliers in the data. Moreover, the data were further analyzed to detect any outliers by checking standardized residuals whose scores were greater than ±3 standard deviations and it was revealed that there were no outliers in the data.

Additionally, the normality tests were run to determine if the data were normally distributed for each test (*pre and posttests*). The dependent variable (*motivation scores*) was analyzed separately for each category of the independent variable (*experimental and control groups*) at each test. Since there were less than 50 students in each group, Shapiro-Wilk test results were addressed and it was found that scores for each test were normally distributed across groups. The results can be seen below:

Table 4.13. The Normality Test Results for the Motivation Scores across Time Point by Group Type

<i>Group</i>		<i>Kolmogorov-Smirnov</i>		<i>Shapiro-Wilk</i>		<i>Sig.</i>	
		<i>Statistic</i>	<i>df</i>	<i>Statistic</i>	<i>df</i>		
Motivation pre-test	Control	.131	20	.200	.975	20	.859
	Experimental	.148	23	.200	.953	23	.336
Motivation post-test	Control	.101	20	.200	.989	20	.996
	Experimental	.160	23	.130	.947	23	.258

Another assumption is to have homogeneity of covariance and this assumption was checked by the Box's test of equality of covariance's matrices. The results

showed that the covariances were equal, meaning that the assumption was satisfied ($p = .129$).

Lastly, the assumption of homogeneity of variances was also tested using the Levene's test to determine if there were equal variances between the groups. The non-significant p values shown in Table 4.14. are indicative of homogeneity of variance assumption being met.

Table 4.14. Levene's Test for Pre and Posttest Motivation Scores

	<i>F</i>	<i>df1</i>	<i>df2</i>	<i>Sig.</i>
Motivation_pre	1.175	1	41	.285
Motivation_post	2.761	1	41	.104

Since all assumptions were met, the two-way mixed ANOVA was run and the results in Tables 4.15. and 4.16. showed that a significant main effect of *time* on motivation did not exist, $F(1, 41) = 2.332, p = .134, \text{partial } \eta^2 = .054$. This suggests that regardless of whether the students were in the control or the experimental group, there was not an overall difference in pre and posttest motivation scores. However, there found a significant main effect of *group* on motivation scores, $F(1, 41) = 6.425, p = .015, \text{partial } \eta^2 = .135$, meaning that regardless of the pre and posttest results, the students in the experimental group were more motivated for writing than the students in the control group. There was also a statistically significant group*time interaction, $F(1, 41) = 937.712, p < .001, \text{partial } \eta^2 = .479$, implying that the treatment type (*group*) had a differential effect on the motivation scores over time.

Table 4.15. The Within-Subjects Mixed ANOVA (and interaction) Results for the Motivation Scores

		<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>	η^2
time	Sphericity Assumed	.602	1	.602	2.332	.134	.054
time* group	Sphericity Assumed	9.729	1	9.729	37.712	.000	.479
Error(time)	Sphericity Assumed	10.578	41	.258			

Table 4.16. The Between-Subjects Mixed ANOVA Results for the Motivation Score

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>	η^2
Group	2.500	1	2.500	6.425	.015	.135
Error (group)	15.952	41	.389			

According to Mayers (2013), if there found an interaction, it should be analyzed in depth by interpreting the graph lines and applying post hoc tests. For this aim, the graph lines showing the estimated marginal means of motivation scores in Figure 4.2. were examined to find the potential source/s of the interaction. The crossover of the lines indicates an interaction between the independent variables (*time and group*) for the dependent variable. As seen, at the beginning of the study, there was not a big gap between the two groups' pretest results. However, at the posttest, although the control group substantially decreased the motivation scores, the experimental group dramatically increased its scores. It is clear that the gap between the groups was widened at the posttest, providing support for the treatment instruction (*DS-integrated approach*) over the traditional method. Although these line graphs clearly indicate the sources of the interaction, the data were further analyzed by conducting post hoc tests. To this end, simple main effects of *group* and *time* on the motivation variable were assessed using GLM ANOVA tests, respectively.

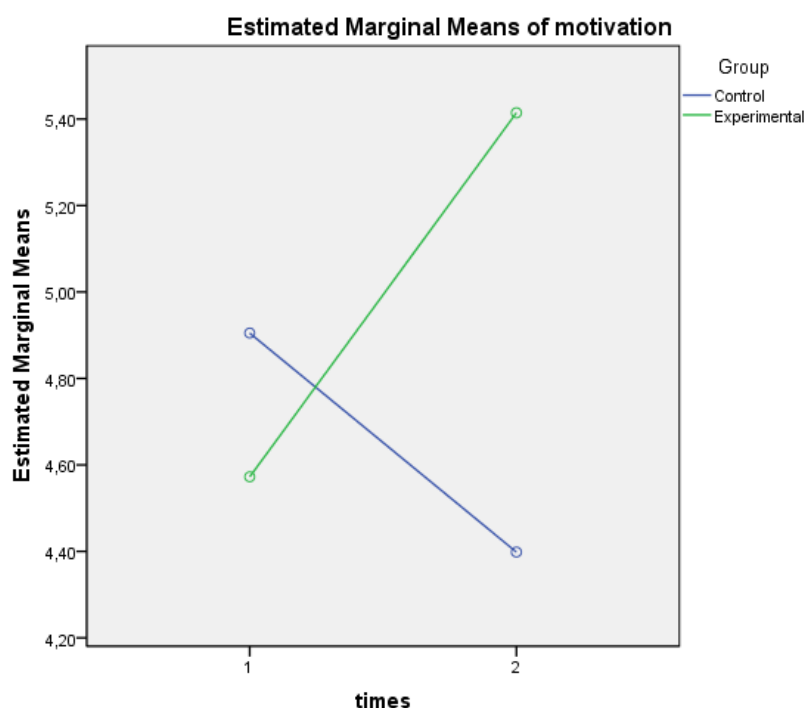


Figure 4.2. Estimated Marginal Means of the Motivation Construct

According to the ANOVA results shown in Table 4.17., it was revealed that there was not a statistically significant difference between the experimental and control group's pre-test results, $F(1, 41) = 2.720$, $p = .107$, partial $\eta^2 = .062$.

Table 4.17. The Between-Subjects Univariate ANOVA Results for Pretest Motivation Scores

Source	Sum of Squares	df	Mean Square	F	Sig.	η^2
Group	1.183	1	1.183	2.720	.107	.062
Error	17.829	41	.435			

However, at the posttest (Table 4.18.), there existed a significant difference between the control and the experimental groups, $F(1, 41) = 52.053$, $p < .05$, partial $\eta^2 = .559$, meaning that the experimental group outperformed the control group at the posttest motivation scores ($M= 1.02$, $SE = 0.14$ mmol/L, $p < .05$).

Table 4.18. The Between-Subjects Univariate ANOVA Results for Post-Test Motivation Scores

Source	Sum of Squares	df	Mean Square	F	Sig.	η^2
Group	11.046	1	11.046	52.053	.000	.559
Error	8.701	41	.212			

As illustrated above, one source of interaction was found as the group variable.

Table 4.19. The Within-Subjects Univariate ANOVA Results for Control Group's Motivation Scores

Source		Sum of Squares	df	Mean Square	F	Sig.	η^2
time	Sphericity Assumed	2.567	1	2.567	9.888	.005	.342
Error(time)	Sphericity Assumed	4.933	19	.260			

Table 4.19. also illustrates that there was a significant effect of *time* on motivation scores for the control group, $F(1, 19) = 9.888$, $p = .005$ partial $\eta^2 = .342$, suggesting that the control group's motivation score was statistically significantly greater at the pretest, ($M= 0.51$, $SE = 0.16$ mmol/L, $p < .05$) compared to the posttest.

For the experimental group, as seen in Table 4.20., a statistically significant effect of *time* on motivation scores was found, $F(1, 22) = 31.779$, $p < .05$ partial $\eta^2 = .591$, meaning that the experimental group significantly increased their motivation levels at the posttest, ($M= 0.84$, $SE = 0.15$ mmol/L, $p < .05$), compared to the pretest. As seen, for the experimental group, the difference was in the *positive direction*, while for the control group the difference was in the *negative direction*, suggesting that the motivation scores increased in the experimental group but

decreased in the control group. Overall, depending on these results, it is evident the DS-integrated writing instruction was more effective in developing motivation than the traditional writing instruction.

Table 4.20. The Within-Subjects Univariate ANOVA Results for Experimental Group's Motivation Scores

Source		Sum of Squares	df	Mean Square	F	Sig.	η^2
time	Sphericity Assumed	8.154	1	8.154	31.779	.000	.591
Error(time)	Sphericity Assumed	5.645	22	.257			

Since the motivation section has several subscales indicating different dimensions of the motivation construct such as anxiety, self-efficacy or task value, the effect of the treatment type on each subscale was also assessed by using a 2x2 repeated measures MANOVA. This test was run to determine whether there was a main effect of the treatment *group*, a main effect of *time* and a *group*time interaction* on motivation dimensions. The independent variables are *group* (DS-group and traditional writing-group) and two *time points* (pre and posttests) and the dependent variables are the *motivation domains*. Before conducting the repeated measures MANOVA, it was analyzed if the assumptions of this test were met or not.

The first assumption is related to whether there were any correlations between dependent variables. Pearson correlation tests showed that there were reasonable correlations between the variables. Then, the data were checked if there were any univariate and multivariate outliers and there found no univariate and multivariate outliers in the data as assessed by inspection of box plots and Mahalanobis distance ($p < .001$), respectively.

The other assumption is related to having normally distributed data for each dependent variable across group. Table 4.21. shows the results regarding normality assumption:

Table 4.21. The Normality Test Results for Motivation Sub-Components across Time Points by Group Types

	Group	Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Anxiety_pre	Control	.160	20	.192	.924	20	.117
	Experimental	.187	23	.036	.929	23	.103
Anxiety_post	Control	.158	20	.200	.971	20	.780
	Experimental	.239	23	.001	.830	23	.001
Intrinsic_pre	Control	.180	20	.089	.837	20	.003
	Experimental	.143	23	.200	.943	23	.211
Intrinsic_post	Control	.176	20	.107	.936	20	.198
	Experimental	.134	23	.200	.953	23	.340
Extrinsic_pre	Control	.114	20	.200	.933	20	.175
	Experimental	.131	23	.200	.959	23	.439
Extrinsic_post	Control	.148	20	.200	.953	20	.410
	Experimental	.189	23	.033	.950	23	.297
Task_pre	Control	.189	20	.060	.932	20	.167
	Experimental	.140	23	.200	.951	23	.309
Task_post	Control	.225	20	.009	.896	20	.035
	Experimental	.225	23	.004	.881	23	.010
Control_pre	Control	.137	20	.200	.954	20	.435
	Experimental	.126	23	.200	.954	23	.353
Control_post	Control	.225	20	.009	.946	20	.317
	Experimental	.176	23	.062	.948	23	.261
Selfeficacy_pre	Control	.126	20	.200	.981	20	.947
	Experimental	.116	23	.200	.947	23	.258
Selfeficacy_post	Control	.134	20	.200	.922	20	.107
	Experimental	.161	23	.128	.934	23	.131

As there are fewer than 50 students in each group, Shapiro-Wilk outcome was addressed. Table 4.21. shows that there was reasonable normal distribution across groups in almost each subscale. The normality outcome of the posttest results of the *Task Value* subscale for two groups and the pretest results of the *Intrinsic Motivation* subscale for the control group is potentially a problem with significant *p* values, but given the overall picture, this outcome can be accepted.

The other assumption of the repeated measures MANOVA is to have a homogeneity variance across groups for each dependent variable at each condition. There found homogeneity of variances across groups for all dependent variables, as assessed by Levene's test of homogeneity of variance. Table 4.22. shows the results:

Table 4.22. Levene's Test for Motivation Sub-components

	<i>F</i>	<i>df1</i>	<i>df2</i>	<i>Sig.</i>
Anxiety_pre	.316	1	41	.577
Anxiety_post	.758	1	41	.389
Intrinsic_pre	.139	1	41	.711
Intrinsic_post	.950	1	41	.335
Extrinsic_pre	.121	1	41	.730
Extrinsic_post	.141	1	41	.709
Task_pre	.066	1	41	.799
Task_post	.177	1	41	.676
Control_pre	1.163	1	41	.287
Control_post	3.135	1	41	.084
Sefficacy_pre	.600	1	41	.443
Sefficacy_post	8.919	1	41	.055

The last one is about meeting the assumption for between-group homogeneity of variance-covariances matrices. This assumption was assessed via the Box's M test of equality of covariance matrices yet found that the assumption was not met ($p = .001$). But Mayers (2013) suggests that if there are equal sample sizes, a violation of this assumption is not too problematic. Therefore, the researcher ignored this violation and analyzed the data using the repeated measures MANOVA. Mayers (2013) also states that if there are two groups, it is more suitable to refer to Pillai's Trace for the results. Therefore, Pillai's Trace results were addressed for the subsequent analyses. The results are as follows:

Table 4.23. The Multivariate MANOVA Results for the Combined Motivation Sub-Components

<i>Effect</i>			<i>Value</i>	<i>F</i>	<i>Hypo. df</i>	<i>Error df</i>	<i>Sig.</i>	η^2
Between-subjects	group	Pillai's Trace	.304	2.619	6.000	36.000	.033	.304
Within Subjects	time	Pillai's Trace	.625	10.014 ^a	6.000	36.000	.000	.625
	time* group	Pillai's Trace	.637	10.545 ^a	6.000	36.000	.000	.637

As shown in Table 4.23., findings revealed that there was a multivariate *group* effect on overall motivation sub-components (the combined anxiety, intrinsic motivation, extrinsic motivation, task value, control of learning and self-efficacy scores) (regardless of time point): $V = .304$, $F(6, 36) = 2.619$, $p = .033$, partial $\eta^2 = .304$. There is also a significant multivariate effect for within-subjects *time* point (regardless of group type): $V = .625$, $F(6, 36) = 10.014$, $p < .001$, partial $\eta^2 = .625$.

There also found a significant multivariate effect for interaction between (the type of the treatment) group and time points: $V = .637$, $F(6, 36) = 10.545$, $p < .001$, partial $\eta^2 = .637$. This finding suggests that the difference between the treatment and control groups on the linear combination of the dependent variables (motivation sub-components) is different at two time points (i.e. at pre and posttests).

Univariate analyses were also calculated as seen in Tables 4.24. and 4.25. The results indicated that there found a main effect of the *group* variable on the dependent variables. For anxiety scores, it was found that the control group had a higher level of anxiety than the experimental group (regardless of any time point), $F(1, 41) = 11.611$, $p = .001$, partial $\eta^2 = .221$, while the experimental group had a higher level of intrinsic motivation than the control group (regardless of any time point), $F(1, 41) = 7.398$, $p = .010$, partial $\eta^2 = .153$. As for the extrinsic motivation, perceived task value and control of learning scores, there found no statistical differences between the two groups (regardless of the time points). The last subscale is about self-efficacy and it was found that self-efficacy scores were significantly higher for the experimental group than for the control group, $F(1, 41) = 5.978$, $p = .019$, partial $\eta^2 = .127$.

Table 4.24. Descriptive Statistics for the Motivation Sub-Components across Groups

<i>Measure</i>	<i>Group</i>	<i>95% Confidence Interval</i>			
		<i>Mean</i>	<i>Std. Error</i>	<i>Lower Bound</i>	<i>Upper Bound</i>
Anxiety	Control	4.844	.221	4.398	5.290
	Experimental	3.815	.206	3.399	4.231
Intrinsic	Control	4.850	.137	4.574	5.126
	Experimental	5.359	.128	5.101	5.616
Extrinsic	Control	4.869	.145	4.575	5.162
	Experimental	4.543	.136	4.270	4.817
Task	Control	5.350	.123	5.101	5.599
	Experimental	5.634	.115	5.402	5.866
Control	Control	5.270	.144	4.979	5.561
	Experimental	5.274	.134	5.002	5.545
Self-efficacy	Control	4.196	.167	3.859	4.534
	Experimental	4.755	.156	4.440	5.069

Table 4.25. The Between-Group Univariate ANOVA Results for the Motivation Sub-Components

Source	Measure	Sum of Squares	df	Mean Square	F	Sig.	η^2
Group	anxiety	22.634	1	22.634	11.611	.001	.221
	intrinsic	5.537	1	5.537	7.398	.010	.153
	extrinsic	2.264	1	2.264	2.675	.110	.061
	task	1.726	1	1.726	2.846	.099	.065
	control	.000	1	.000	.000	.984	.000
	self-efficacy	6.667	1	6.667	5.978	.019	.127
Error	anxiety	79.922	41	1.949			
	intrinsic	30.682	41	.748			
	extrinsic	34.693	41	.846			
	task	24.871	41	.607			
	control	34.093	41	.832			
	self-efficacy	45.729	41	1.115			

As for the main effect for *time*, Tables 4.26. and 4.27. indicate that anxiety scores were significantly higher at the pretest (regardless of group type) than at the posttest, suggesting an improvement, $F(1, 41)$, 10.647, $p = .002$, partial $\eta^2 = .206$. Intrinsic motivation scores and self-efficacy scores were also higher in the pretest scores (regardless of group type) than in the posttest results, demonstrating an improvement, $F(1, 41)$, 4.667, $p = .037$, partial $\eta^2 = .102$ and $F(1,41)$, 14.920, $p < .001$, partial $\eta^2 = .267$, respectively. There found no statistical difference between pre and posttest results (regardless of group type) for subscales of extrinsic motivation, perceived task value and control of learning.

Table 4.26. Descriptive Statistics for the Motivation Sub-Components at Two Time Points

<i>Measure</i>	<i>Times</i>	<i>Mean</i>	<i>Std. Error</i>	<i>95% Confidence Interval</i>	
				<i>Lower Bound</i>	<i>Upper Bound</i>
Anxiety	1	4.737	.228	4.277	5.197
	2	3.922	.157	3.604	4.240
Intrinsic	1	5.280	.146	4.984	5.576
	2	4.929	.096	4.734	5.123
Extrinsic	1	4.901	.135	4.629	5.173
	2	4.511	.145	4.219	4.804
Task Value	1	5.491	.136	5.217	5.765
	2	5.493	.087	5.318	5.668
Control of Learning	1	5.337	.135	5.065	5.609
	2	5.207	.117	4.971	5.443
Self-efficacy	1	4.108	.173	3.758	4.457
	2	4.843	.119	4.602	5.084

Table 4.27. The Within-Group Univariate ANOVA (and interaction) Results for Motivation Sub-Components

<i>Source</i>	<i>Measure</i>		<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>	<i>η²</i>
time	anxiety	Sphericity Assumed	14.190	1	14.190	10.647	.002	.206
	intrinsic	Sphericity Assumed	2.645	1	2.645	4.667	.037	.102
	extrinsic	Sphericity Assumed	3.253	1	3.253	3.936	.054	.088
	task	Sphericity Assumed	.000	1	.000	.000	.987	.000
	control	Sphericity Assumed	.359	1	.359	.678	.415	.016
	self-efficacy	Sphericity Assumed	11.566	1	11.566	14.920	.000	.267
time*				1				
group	anxiety	Sphericity Assumed	53.202	1	53.202	39.918	.000	.493
	intrinsic	Sphericity Assumed	16.320	1	16.320	28.794	.000	.413
	extrinsic	Sphericity Assumed	2.294	1	2.294	2.776	.103	.063
	task	Sphericity Assumed	2.659	1	2.659	5.295	.027	.114
	control	Sphericity Assumed	7.459	1	7.459	14.084	.001	.256
	self-efficacy	Sphericity Assumed	20.769	1	20.769	26.792	.000	.395
Error (time)	anxiety	Sphericity Assumed	54.644	41	1.333			
	intrinsic	Sphericity Assumed	23.238	41	.567			
	extrinsic	Sphericity Assumed	33.886	41	.826			
	task	Sphericity Assumed	20.589	41	.502			
	control	Sphericity Assumed	21.713	41	.530			
	self-efficacy	Sphericity Assumed	31.783	41	.775			

For the findings related to the interaction between *time* and *group* for dependent variables, univariate ANOVA results were used. Table 4.27. presents that there

found significant interactions between *time* and *group* variables for anxiety scores, $F(1, 41) = 39.918, p < .001, \text{partial } \eta^2 = .493$, intrinsic motivation scores, $F(1, 41) = 28.794, p < .001, \text{partial } \eta^2 = .413$, task value scores, $F(1, 41) = 5.295, p = .027, \text{partial } \eta^2 = .114$, control of learning scores, $F(1, 41) = 14.084, p = .001, \text{partial } \eta^2 = .256$, and for self-efficacy scores, $F(1, 41) = 26.792, p < .001, \text{partial } \eta^2 = .395$. These findings demonstrate that these dependent variables changed significantly differently over time across the groups. For the extrinsic motivation scores, there found no interaction between the independent variables, $F(1, 41) = 2.294, p = .103, \text{partial } \eta^2 = .063$.

Since there found significant interactions for many dependent variables, the nature of the interactions was explored further. For this aim, firstly, the potential sources of interaction in the anxiety scores for the independent variables were explored by using line graphs, independent and paired sample *t* tests.

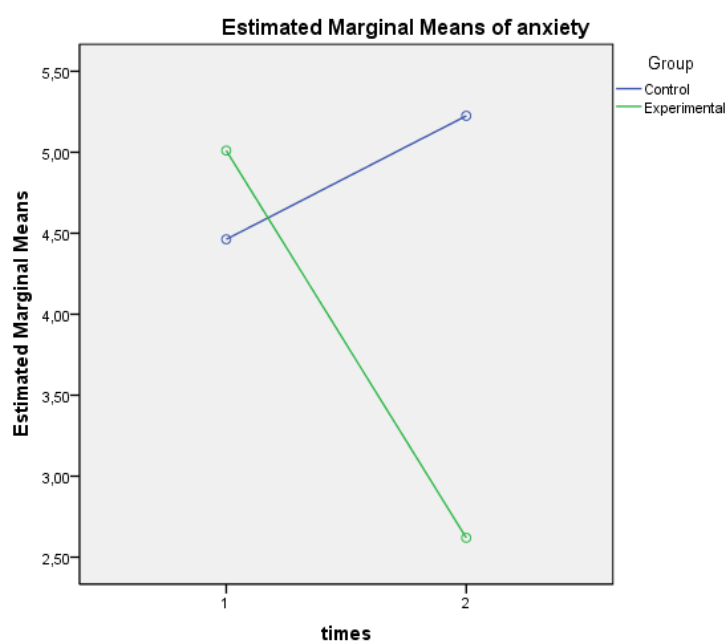


Figure 4.3. Estimated Marginal Means of the Anxiety Dimension

Figure 4.3. shows that since the lines are not parallel, it provides support that there was a significant group*time interaction for the anxiety scores. This figure presents that at the outset there was not a big difference between the experimental and control groups' anxiety scores. However, at the post-test, the experimental group's anxiety scores decreased dramatically while the control groups' anxiety scores

increased substantially. To statistically test this, independent sample *t* tests were run as shown in Table 4.28:

Table 4.28. Independent Sample *t* Test Results for Pre and Posttest Anxiety Scores

	<i>Group</i>	<i>Mean</i>	<i>Std dev.</i>	<i>t</i>	<i>df</i>	<i>Sig. (2-tailed)</i>
Anxiety_pre	Control	4.462	1.480	-1.203	41	.236
	Experimental	5.010	1.499			
Anxiety_post	Control	5.225	.822	8.276	41	.000
	Experimental	2.619	1.179			

Table 4.28. shows that there was not a significant difference between the groups' anxiety scores before the treatment $t(41) = -1.203$, $p = .236$. However, after the treatment, there found a significant difference between the two groups in respect of anxiety scores, $t(41) = 8.276$, $p < .001$. That is certainly one explanation for the observed interaction (Mayers, 2013, p. 348).

Paired sample *t* tests were also run to explore whether there were any differences the groups' pre and posttest results separately. Table 4.29. indicates that there was a statistically significant difference between the control group's pre and posttest anxiety scores, suggesting that the control group had higher levels of anxiety after the treatment, $t(19) = -2.128$, $p = .047$. There also found a significant difference between the experimental groups' pre and post test results in the positive direction, indicating that experimental group's anxiety scored decreased after the treatment, $t(22) = 6.917$, $p < .001$. These findings show that another source of interaction for anxiety scores can be addressed as the different time points and accordingly the different treatment types in favor of the treatment instruction.

Table 4.29. Paired Sample *t* Test Results for Anxiety Scores across Time Points by Group Types

<i>Group</i>	<i>Paired differences</i>					<i>t</i>	<i>df</i>	<i>Sig.(2-tailed)</i>
	<i>Mean</i>	<i>Std. deviation</i>	<i>Std. error mean</i>	<i>Lower</i>	<i>Upper</i>			
Control	-.762	1.602	.358	-1.512	-.012	-2.128	19	.047
Experimental	2.391	1.658	.345	1.674	3.108	6.917	22	.000

The source of interaction between the independent variables for the intrinsic motivation scores was also explored in the same way by using line graphs, independent and paired sample *t* tests.

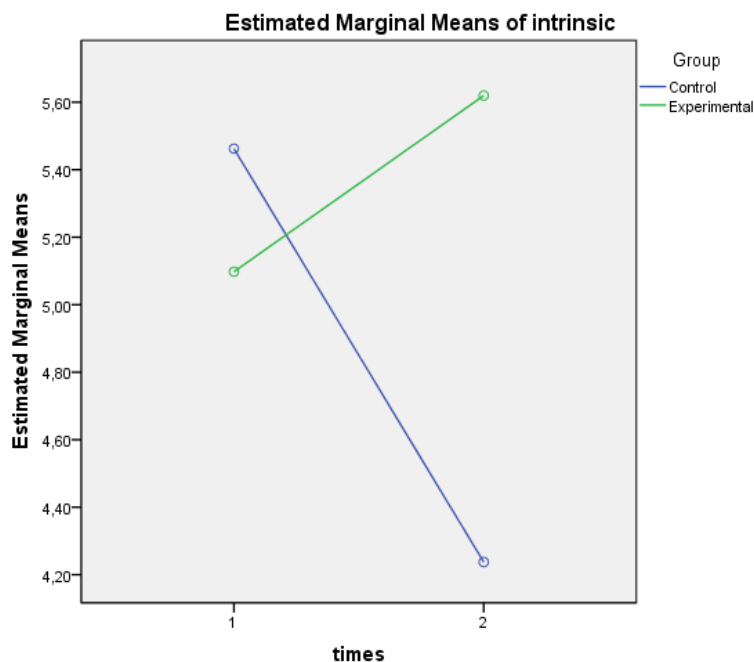


Figure 4.4. Estimated Marginal Means of the Intrinsic Motivation Dimension

As seen in Figure 4.4., non-parallel lines suggest that there was an interaction between the independent variables for the intrinsic motivation. This figure also indicates that although there was not a big difference between the two groups in terms of intrinsic motivation at the pre-test, after the treatment, the experimental group showed a dramatic increase at the post-test, but the control group's scores decreased dramatically.

Independent sample *t* tests were also calculated as shown in Table 4.30. and it was found that there was not a significant difference between the experimental and control groups' intrinsic motivation pretest scores, $t(41) = 1.245$, $p = .220$. But after the treatment, there found a significant difference between the groups' posttest results, $t(41) = -7.171$, $p < .001$, suggesting that the experimental group had a higher level of intrinsic motivation to write than that of the control group as a direct result of participating into the implementation.

Table 4.30. Independent Sample *t* Test Results for Pre and Posttest Intrinsic Motivation Scores

	<i>Group</i>	<i>Mean</i>	<i>Std dev.</i>	<i>t</i>	<i>df</i>	<i>Sig. (2-tailed)</i>
Intrinsic_pre	Control	5.462	.964	1.245	41	.220
	Experimental	5.097	.952			
Intrinsic_post	Control	4.237	.546	-7.171	41	.000
	Experimental	5.619	.694			

As for the within-group analyses that can be seen in Table 4.31., a significant difference was found between the control group's pre and posttest results in the negative direction, $t(19) = 4.940$, $p < .001$, indicating that after the treatment, students in the control group had a lower level of intrinsic motivation. A significant difference also existed between pre and posttest results of the experimental group in the positive direction, $t(22) = -2.441$, $p = .023$. This finding may suggest that after the treatment, the students in the experimental group were more intrinsically motivated to write than those in the control group. Depending on these results obtained from between-group and within-group comparisons, it can be concluded that the treatment types are the sources of interaction for this dependent variable (intrinsic motivation).

Table 4.31. Paired Sample *t* Test Results for Intrinsic Motivation Scores across Time Points by Group Types

<i>Group</i>	<i>Paired differences</i>							
	<i>Mean</i>	<i>Std. dev.</i>	<i>Std. error mean</i>	<i>Lower</i>	<i>Upper</i>	<i>t</i>	<i>df</i>	<i>Sig</i>
Control	1.225	1.108	.247	.706	1.74	4.94	19	.000
Experimental	-.521	1.025	.213	-.964	-.078	-2.44	22	.023

The sources of the interaction for the task value component were also explored by conducting independent and paired sample *t* tests and interpretation of the line graphs as follows:

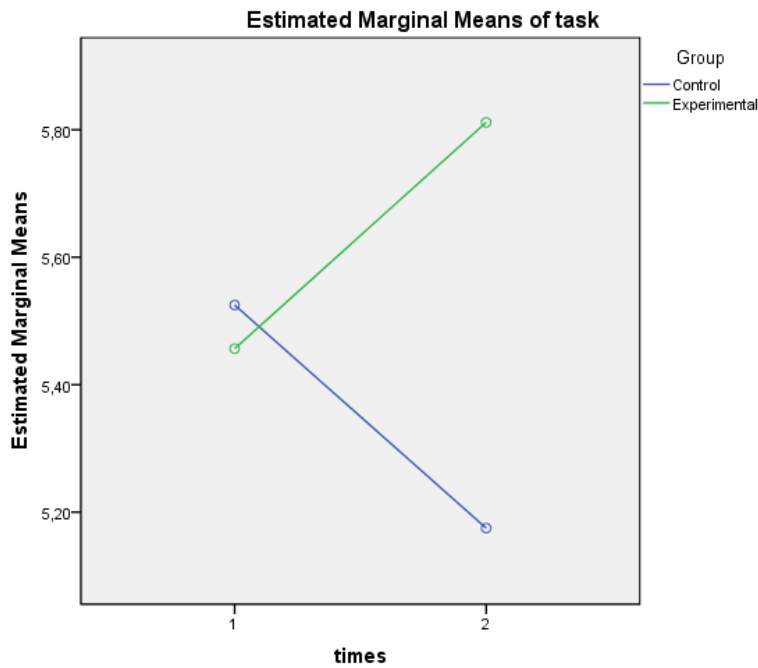


Figure 4.5. Estimated Marginal Means of the Task Value Dimension

As can be seen in Figure 4.5., the crossover of the lines indicates that there was a group*time interaction for the dependent variable (*task value component*). Figure 4.5. also shows that before the treatment, there was not a big difference between the two groups' pretest scores. But at the posttest following the treatment, while the experimental group's perceived task value scores increased substantially, the control group's scores decreased dramatically. Independent and paired sample *t* tests confirmed this interpretation:

Table 4.32. Independent Sample *t* Test Results for Pre and Post-Test Task Value Scores

	<i>Group</i>	<i>Mean</i>	<i>Std dev.</i>	<i>t</i>	<i>df</i>	<i>Sig. (2-tailed)</i>
Taskvalue_pre	Control	5.525	.897	.252	41	.802
	Experimental	5.456	.879			
Taskvalue_post	Control	5.125	.496	-3.67	41	.001
	Experimental	5.811	.620			

Table 4.32. shows that a significant difference did not exist between both groups' perceived task value pre-test scores, $t(41) = .252, p = .802$. However, after the treatment, the experimental group scored significantly higher than the control group at the posttest, $t(41) = -3.67, p = .001$. Overall, this finding can explain one source of interaction (*group type*) for this dependent variable by indicating that DS-

integrated writing instruction was more effective to positively change learners' perceptions of the task value in the writing course than traditional writing practices.

Within-group analyses were also conducted as follows:

Table 4.33. Paired Sample *t* Test Results for Task Value Scores across Time Points by Group Types

Group	Paired differences					<i>t</i>	df	Sig. (2-tailed)
	Mean	Std. deviation	Std. error mean	Lower	Upper			
Control	.350	.911	.203	-.076	.776	1.718	19	.102
Experimental	-.355	1.074	.224	-.819	.109	1.585	22	.127

Table 4.33. indicates that there were no statistical differences between control and experimental groups' pre and post-test results, $t(19) = 1.718$, $p = .102$ and $t(22) = -1.585$, $p = .127$, respectively. This finding suggests that the main effect for the treatment time points was not significant in respect of the dependent variable (*perceived task value*).

The interaction sources between the independent variables (*treatment time points and the group type*) for control of learning scores were also explored via line graphs, independent and paired sample *t* tests as follows:

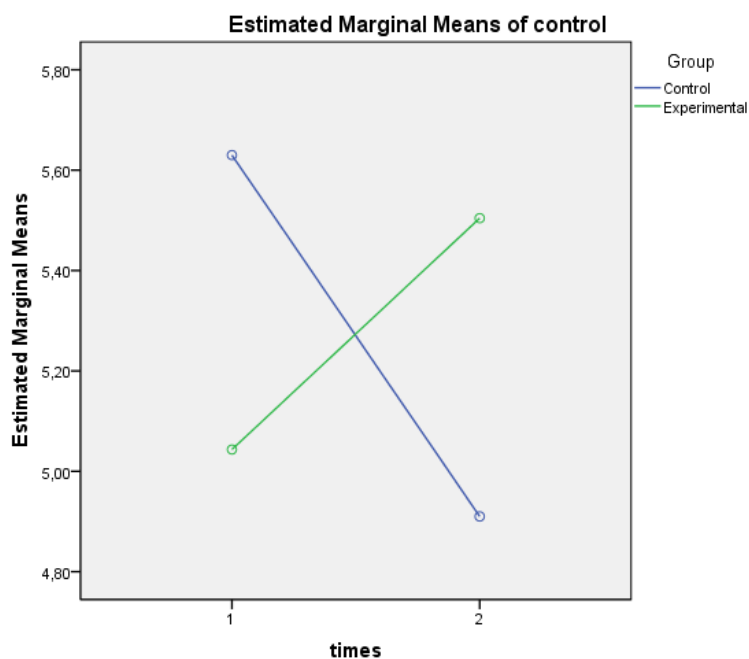


Figure 4.6. Estimated Marginal Means of the Control of Learning Dimension

Figure 4.6. suggests that there was an interaction between the time and group variables for the dependent variable. This figure also indicates differences

between the two groups' both pre and posttest results for this dependent variable. Before the treatment, the control group's mean score of the control of learning variable was greater than that of the experimental group. However, after the treatment, the control group's score of this variable decreased dramatically, whereas the experimental group's scores increased substantially. Independent and paired sample *t* tests confirmed these interpretations as follows:

Table 4.34. Independent Sample *t* Test Results for Pre and Post-Test Control of Learning Scores

	<i>Group</i>	<i>Mean</i>	<i>Std dev.</i>	<i>t</i>	<i>df</i>	<i>Sig. (2-tailed)</i>
Control_learning_pre	Control	5.630	.800	2.17	41	.035
	Experimental	5.043	.945			
Control_learning_post	Control	4.910	.907	-2.54	41	.015
	Experimental	5.504	.6614			

Table 4.34. shows that significant differences existed between both groups' control of learning component pre-, $t(41) = 2.17, p = .035$, and posttest scores, $t(41) = -2.54, p = .015$. This indicates that one source of the interaction, which affects the dependent variable, was found in the group type.

The within-group analyses were also revealed in Table 4.37:

Table 4.35. Paired Sample *t* Test Results for Control of Learning Scores across Time Points by Group Types

<i>Group</i>	<i>Paired differences</i>			<i>Lower</i>	<i>Upper</i>	<i>t</i>	<i>df</i>	<i>Sig(2-tailed)</i>
	<i>Mean</i>	<i>Std. deviation</i>	<i>Std. error mean</i>					
Control	.720	.866	.193	.314	1.125	3.715	19	.001
Experimental	-.460	1.151	.240	-.958	.036	-1.920	22	.068

As can be seen from Table 4.35., there was a significant difference between the control group's pre and posttest results in the negative direction, $t(19) = 3.715, p = .001$. But no statistical difference was found between the experimental group's pre and post test results, $t(22) = -1.920, p = .068$. This finding suggests that after the treatment, the control group's posttest results decreased while the experimental group's scores did not vary too much. Depending on these results, another source of interaction for the dependent variable (control of learning) can be addressed as the treatment time points.

The last variable to be explored in terms of the interaction of the independent variables is the self-efficacy component. For this, firstly line graphs were interpreted and independent and paired sample *t* tests were run as follows:

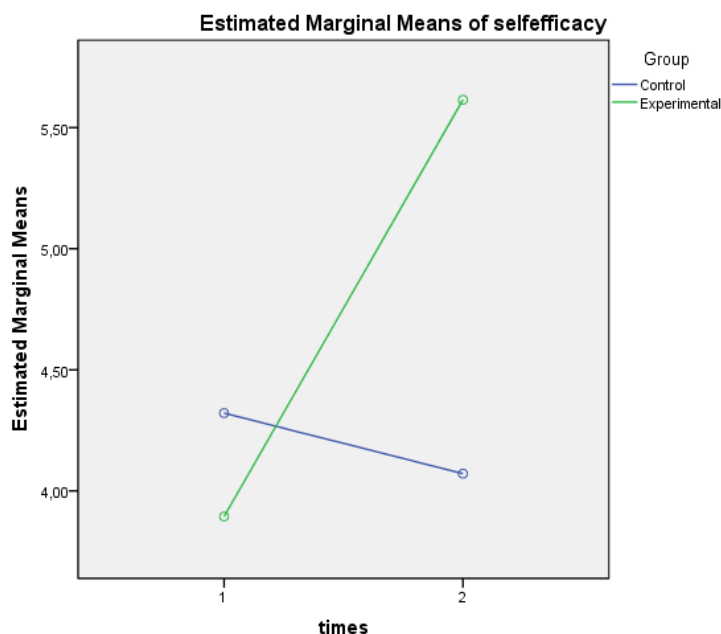


Figure 4.7. Estimated Marginal Means of the Self-efficacy Dimension

As can be seen in Figure 4.7., the lines are not parallel but have a crossover, suggesting that there was an interaction between time and group variable for this dependent variable. It also shows that there was not a big gap between both groups' self-efficacy scores prior to the treatment. But as the figure suggests, after the treatment, there was a big gap between two groups' scores. The results show that the control group's self-efficacy scores decreased slightly from time 1 to time 2, suggesting that the control group did not have a big change in their judgment of self-efficacy for writing before and after the treatment. However, the experimental group had a higher level of self-efficacy scores than their pre-test scores and the control groups' posttest scores, indicating an improvement in self-efficacy levels for writing. Independent and paired sample *t* tests were also calculated as follows:

Table 4.36. Independent Sample *t* Test Results for Pre and Posttest Self-Efficacy Scores

	<i>Group</i>	<i>Mean</i>	<i>Std dev.</i>	<i>t</i>	<i>df</i>	<i>Sig (2-tailed)</i>
Self-efficacy_pre	Control	4.321	1.240	1.234	41	.224
	Experimental	3.894	1.029			
Self-efficacy_post	Control	4.071	1.044	-6.46	41	.000
	Experimental	5.614	.440			

As seen from Table 4.36., there was not a significant difference between both groups' pretest results, $t(41) = 1.234, p = .224$. However, a significant difference existed between the two groups' posttest results, $t(41) = -6.46, p < .001$. This finding shows that the main effect for the group variable is significant.

The within-group analyses were also revealed as follows:

Table 4.37. Paired Sample *t* Test Results for Self-efficacy Scores across Time Points by Group Types

Group	Paired differences					<i>t</i>	<i>df</i>	Sig.(2-tailed)
	Mean	Std. deviation	Std. error mean	Lower	Upper			
Control	.250	1.292	.284	-.355	.855	.865	19	.398
Experimental	-1.720	1.202	.250	-2.240	-1.20	-6.86	22	.000

Table 4.37. illustrates that there found no statistical differences between the control group's pre and posttest results, $t(19) = 865, p = .398$. But there was a significant difference between the experimental group's pre and post test results, $t(22) = -6.861, p < .001$. This finding provides further evidence about the positive effects of the treatment program on self-efficacy beliefs.

As for the extrinsic motivation component, there found no interaction between time and group variables, as can be seen in Figure 4.8. Therefore, further analyses were not seen necessary for this component.

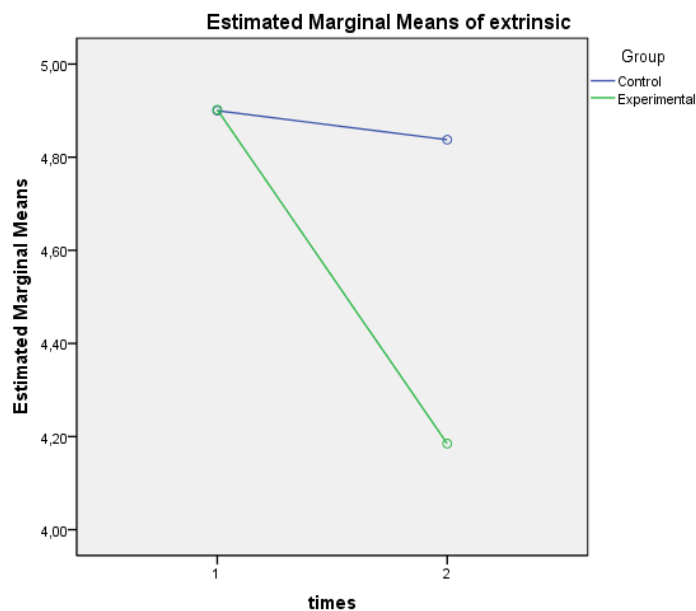


Figure 4.8. Estimated Marginal Means of the Extrinsic Motivation Dimension

All in all, it is worth noting that the between- and within-group differences in these sub-skills can be attributed to using DS in writing.

4.2.3. Analysis of the Data for Research Question 3

This research question aimed to determine to what extent the experimental group students were engaged in this implementation aiming to develop writing. Data were collected both qualitatively and quantitatively.

Depending on the related literature (Ivala, Gachago, Condy, & Chigona, 2013; Lin, 2012; Sadik, 2008; Smeda, 2014), it was found that there are certain indicators of the engagement construct as follows:

- Active participation
- Creative learning
- Collaboration
- Being more responsible for their own learning
- Taking learning more seriously
- Keeping with enthusiasm despite challenges
- Time/effort spent on task

In light of these points, the data yielded from the interviews conducted with 10 students from the experimental group after the implementation were coded in order to determine the participants' engagement levels.

To begin with, the students were asked to what extent they were engaged in this implementation by evaluating their participation into this implementation and all of the 10 interviewees unanimously noted that they were actively engaged in this implementation to the last minute. Moreover, four students made further comments by stating that they were more actively engaged in the DS-supported writing than they were in a traditional writing activity. Their comments are below:

Student 1: *Of course I was more active in the DS-integrated writing. I participated into all the stages. But I am more passive in traditional writing activities.*

Student 2: *[I was] more active in DS-supported writing. I had really difficulty in traditional writing activities such as writing a cause and effect paragraph. But through DS, I had an opportunity to show my abilities.*

Student 4: *I was less careful for traditional writing assignments because I knew that you [the teacher] would give feedback and I could correct my mistakes without much effort. But I participated into the DS implementation more actively.*

Student 10: *[I was] more active in the DS implementation. I paid attention to preparing all the videos and I prepared them. I really wanted to prepare them, that is, I never thought that I should not prepare them because I found the implementation useful and enjoyable more than traditional writing.*

As illustrated above, these students underlined that they were more active in the DS implementation than they were in its counterpart. One interviewee also made another comment:

Student 6: *I was active in this implementation because I enjoyed doing this, that is, I enjoyed writing. Before this implementation I did not know that I enjoyed writing this much. Through this implementation, I noticed this.*

This quotation clearly indicates the basis of her actively engagement into the process, that is, because of this implementation she started to enjoy writing more, which led to her more actively participation. Lastly, one student also mentioned that he was active in this process even more than his classmates:

Student 8: *I was active in every stage of this process. I was also more actively engaged than the others in the class (Smiley).*

As for another specific point mentioned in the interviews, it was also found that a considerable majority of the students (interview responses: 9/10) maintained that this implementation developed their writing skills by encouraging them to do their best in writing. In fact, this is the most frequently addressed point by the students during the interviews, suggesting that the students in this context perceived this (*encouraging them to do their best in writing*) as the most important advantage of the implementation on writing. Some sample extracts are below:

Student 1: *If we write on a paper, you are the only one who can see what we have written but DS allows the whole class members to see our video, which makes us more careful for our writing by paying attention to vocabulary or spelling.*

Student 4: *We are paying more attention to our writing since others will see what we wrote.*

Student 7: *Since others were going to see the video, I focused on the implementation more. If it were just on a paper, I would not pay attention to my writing this much.*

Student 8: *If we write just on a paper traditionally, we will give it to you and only you will see what we have written. Actually, this is not developing our writing too much. Since with DS a number of people could see what we prepared, we were more careful for writing and accordingly writing course in general.*

Student 9: *(...)And since the others will see your video, you pay more attention to what you are writing. Yes you are becoming more careful about your writing.*

As seen from the extracts above, the students mentioned that with the help of DS, they paid more attention to their writing because others would see what they prepared. This finding is a clear indicator of the audience effect that enhances writing. The presence of an authentic audience which was not limited to the

teacher encouraged them to be more careful about their writing. In addition to the positive effects of the audience factor on taking the job serious and thus being more careful, this factor also made the students more responsible for their own learning:

Student 5: *It was very important to follow every step of this implementation. That is, I had to complete this implementation because others would see what I did.*

Student 7: *Each session was vital for me because I knew that if I had skipped any points, I would have had low-quality videos accordingly.*

Student 9: *I tried not to skip any points mentioned for developing a good digital story because the better digital story I prepare, the more the others would like it.*

As is obvious from above, the students (7/10) *felt more responsible* for their own learning because they appeared to believe that missing a point relating to the digital-story making process would in turn negatively affect the quality of their videos.

On the *collaboration* issue, which is another mediator of engagement, some of the students (5/10) expressed:

Student 2: *Not just at school, we were also dealing with this implementation at home, too. We were also making collaboration with our friends at home as to how to beautify our stories. For example, we consult our friends' comments regarding to the suitability of an image or the clearness of the voice-over used in our digital stories. Therefore, this implementation improved our in-class relationships.*

Student 8: *This implementation helped group-work because while making our digital stories, we were interacting with others.*

Based on these sample excerpts related to the positive effects of the implementation on the social interaction with others, an indicator of engaged learners, it can be concluded that DS enhanced learners' collaboration in and outside of the school and in turn enabled them to be more engaged in the learning process.

As for the *time and effort* spent on this implementation, all of the students underlined that they spent a great deal of time and effort on this implementation.

The sample excerpts are as follows:

Student 3: *Of course, I spent more time on this implementation. I often studied outside of the school.*

Student 5: *Whenever I got a break from the other courses, I immediately went to the lab to finish my implementation.*

Student 8: *I really spent so much time and effort on this project. For example, I remember that I tried to record my voice for a word more than ten times at home. But the project deserved this.*

As seen from the sample extracts, the students extended the task outside of the school and put so much time and effort into this project.

Lastly, four of the students stated that although there were some problems that they faced, they still *kept going on the task with enthusiasm*, indicating a heightened level of engaged-learning. The sample statements are below:

Student 9: *Especially when I had problems related to Internet access, I really had difficulty in completing the task, but anyway I found a way to solve the problem because I loved this process.*

Student 10: *Of course, I had some difficulty but I never thought to give up the project because it was useful and enjoyable.*

To sum up, it is evident from these findings that the students' engagement level was high in this implementation because they mentioned that the task enabled them to actively, creatively and collaboratively participate into the learning. Moreover, they expressed that this project positively affected their attitudes in terms of being more responsible and careful for learning. Lastly, through this implementation, students spent much time and effort and kept on the task despite the challenges they faced. As mentioned before, all these points are noted as the indicators of the heightened engagement level, and the students' reflections on these points prove that DS was an engaging tool.

In addition to the qualitative findings, the students' engagement levels were also investigated quantitatively in order to get a clearer insight into the variable in question. The quantitative data were obtained by examining the quality of the students' digital stories in terms of some aspects such as creativity, organization, language or multimedia elements. The scores obtained from each set of digital stories determined the learners' engagement levels in the process because the quality of the artefacts can clearly reveal students' active participation, doing their best on the task, their responsibility for the implementation and their creativity, all of which are the indicators of engagement. It was thought that the more engaged students, the higher quality the digital stories.

To analyze the digital stories, a scoring rubric was used. This rubric was composed of 10 subcategories, each of which was identified on a four-point indicator scale, ranging from (1) *poor* to (4) *excellent*. The scores obtained from the digital stories were rated out of 40 points. Each student prepared five digital stories on the given topics and these stories were analyzed by two raters (*one is*

the researcher and the other one is her colleague who is eligible to evaluate such tasks). Then the sum of the two raters' scores was used for the subsequent analyses.

For the analyses, firstly the descriptive statistics (means and standard deviations) were calculated in order to get an overall picture of the students' engagement levels throughout this implementation. The mean score shown in Table 4.38. reveals that the students had a high engagement level in the implementation.

Table 4.38. Descriptive Statistics for the Engagement Construct

	<i>Mean</i>	<i>Standard deviation</i>
Engagement score	30.92	1.94

Following this, a one-way repeated measures ANOVA was conducted in order to compare students' engagement levels at different time points. Since each student prepared five different digital stories at five different time points, the engagement level at each time point was calculated and compared with each other in order to determine whether students' engagement levels increased, decreased or did not change at all.

Before running the one-way repeated measures ANOVA, the pre-assumptions regarding this test were checked. Firstly, the data were analyzed if the normality assumption was met or not. Shapiro Wilk tests showed that the data were normally distributed at all the time points (Table 4.39.).

Table 4.39. Normality Test Results for Engagement Scores across Time Points

	<i>Kolmogorov-Smirnov</i>			<i>Shapiro-Wilk</i>		
	<i>Statistic</i>	<i>df</i>	<i>Sig.</i>	<i>Statistic</i>	<i>df</i>	<i>Sig.</i>
Engagement1	.210	23	.010	.930	23	.110
Engagement2	.111	23	.200*	.975	23	.811
Engagement3	.110	23	.200*	.969	23	.671
Engagement4	.142	23	.200*	.949	23	.278
Engagement5	.170	23	.083	.956	23	.379

Additionally, the data were checked if there were any outliers in the data and as assessed by inspection of a boxplot, no outliers were detected in the data set.

Lastly, the homogeneity assumption for repeated measures designs was tested. This assumption, also known as "sphericity, requires equal variances and covariances for each level of the within subjects variable" (Leech et al., 2005, p. 147). To check this assumption, the Mauchly's test of sphericity was applied. The

non-significant p values (e.g. $p > .05$) suggest non-violation of this assumption. Depending on the results of the Mauchly's test of sphericity, it was found that the assumption was also met, $\chi^2(9) = 16.108$, $p = .065$.

After testing all the needed assumptions, the repeated measures ANOVA was run and the results in Table 4.40. were interpreted as follows: The differences in the engagement scores were statistically significant at different time points throughout the implementation, $F(4, 88) = 13.838$, $p < .0005$, partial $\eta^2 = .38$.

Table 4.40. The Repeated Measures ANOVA Results for Engagement Scores

Source		Sum of Squares	df	Mean Square	F	Sig.	η^2
Time	Sphericity Assumed	448.991	4	112.248	13.838	.000	.386
Error(time)	Sphericity Assumed	713.809	88	8.111			

Additionally, in order get a better impression of the data, the profile plot shown in Figure 4.9. was also inspected. Through this interpretation, it is obvious that there was an increase in the students' engagement scores at each successive time point (*from the first digital stories to the last ones*). In other words, the students consistently increased their already-high engagements scores measured at the first digital stories to the last ones. This shows that the students were highly engaged throughout this DS- integrated implementation.

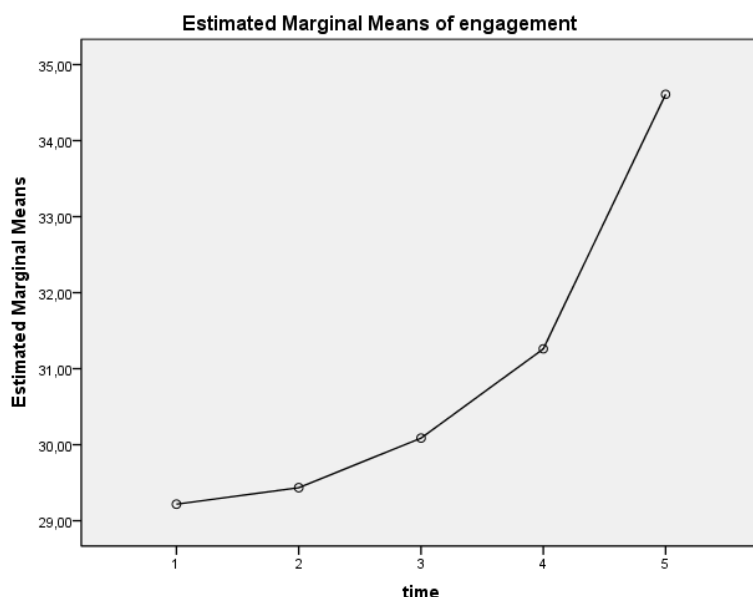


Figure 4.9. Estimated Marginal Means of the Engagement Component

In addition to this interpretation of the line graphs, post hoc tests with Bonferroni adjustment were also employed in order to make all possible pairwise combinations of levels of the within-subjects factor (different time points). The

results showed that the engagement scores increased from 29.21 ± 3.28 mg/L the 1st digital stories to 29.43 ± 3.13 mg/L at the 2nd digital stories, to 30.08 ± 3.30 mg/L at 3rd digital stories, to 31.26 ± 3.82 mg/L at 4th digital stories and to 34.60 ± 2.29 mg/L at the last digital stories. Additionally, post hoc tests revealed that the engagement scores significantly increased from 1st digital stories to the last digital stories (-5.39 (95% CI, -8.35 to -2.43) mg/L, $p < .0005$), and from the 2nd digital stories to the last digital stories (-5.17 (95% CI, -7.05 to -3.29) mg/L, $p < .0005$), from the 3rd digital stories to the last digital stories (-4.52 (95% CI, -6.69 to -2.34) mg/L, $p < .0005$), and from the 4th digital stories to the last digital stories (-3.34 (95% CI, -5.50 to -1.19) mg/L, $p = .001$).

To sum up, all these findings suggest that this implementation enabled the students to be highly engaged throughout the process.

4.2.4. Analysis of the Data for Research Question 4

The aim of this research question is two-fold: examining the effects of DS-integrated writing instruction on the students' (a) self-efficacy beliefs for technology integration and (b) attitudes toward technology integration into their learning practices. The demographic information about participants' computer and Internet experience is presented below:

Table 4.41. Computer and Internet Experience Statistics of the Participants

Category	Ranges	Percentages (%)
Computer Experience	Less than 1 year	9.3
	1-3 years	20.9
	3-5 years	18.6
	5-7 years	16.3
	More than 7 years	34.9
Daily Computer Usage	Less than 1 hour	62.8
	1-3 hours	32.6
	3-5 hours	4.7
	More than 5 hours	0
Internet Experience	Less than 1 year	4.7
	1-3 years	2.3
	3-5 years	34.9
	5-7 years	23.3
	More than 7 years	34.9
Daily Internet Usage	Less than 1 hour	24.9
	1-3 hours	23.3
	3-5 hours	30.2
	More than 5 hours	21.6
Have you received an ICT course before?	Yes	48.8
	No	51.2
Do you have computers at your dorm or home?	Yes	60.5
	No	39.5
Do you have an access to internet?	Yes	65.1
	No	34.9

This table shows that at beginning of the implementation a majority of the participants (regardless of groups) had at least 3 or more years of computer (69.9%) and Internet experience (93%). As for their daily computer usage, it is seen that a substantial majority of the students reported using 3 or less hours of computers a day (95.3%). But for daily Internet usage, the number of hours considerably increased; 51.8 % students expressed that they were using at least 5 or higher hours of Internet a day.

For the last three questions, a slight majority of the students noted that they had not received an ICT course before. Additionally, 60.5% of the students reported having computers at the place where they stayed and lastly, two quarters of the students (65.1%) expressed that they had an access to the Internet.

In the light of this demographic information, it is evident that the participants of this study had a considerable amount of experience in terms of the Internet and computers. Moreover, most of the students were using computers and the Internet

daily and had a computer or Internet access. This finding is not surprising because in the 21st century students are called as “*digital natives*” (Prensky, 2001) or technology savvy because of their high investment in technology and this finding supports this in the sense that although the students in this study did not seem to spend all their time on the Internet or computers, it is obvious that they were familiar with these technological advances to a great extent.

4.2.4.1. The Effects of the Treatment on Self-efficacy Judgments of Technology Integration

For this research question, the quantitative data were gathered by using both control and experimental groups’ pre-/posttest survey scores based on a five-point Likert scale. The qualitative data were collected through semi-structured interviews. Firstly, the quantitative data and then the qualitative data will be analyzed and shown here.

The scores gathered from the pre- and posttest surveys were averaged for an overall self-efficacy score for each group in each test and these average scores were used for the subsequent analyses. Then a 2×2 mixed ANOVA was run in order to calculate the possible effects of the treatment types on the participants’ self-efficacy beliefs for technology integration into their learning. In this study, the two groups were measured twice (at pre and posttest) on the same questionnaire to determine the possible changes between groups and time. The independent variables are the *time* (pre and posttests) and the *group* variables (DS-integrated group and traditional-writing group) and the dependent variables are the self-efficacy scores.

Before calculating this test, the preliminary analyses were conducted by checking the assumptions of the mixed ANOVA. The first assumption is that there should be no outliers in the data and this assumption was evaluated by inspecting the boxplots. The boxplot values that are greater than 1.5 box-lengths from the edge of the box were assessed as outliers. Depending on the inspection of the boxplots, it was found that there were no outliers in the data. Additionally, the data were further analyzed if there were any outliers by checking standardized residuals whose scores were greater than ± 3 standard deviations and it was revealed that there were no outliers in the data.

The second assumption is related to having normally-distributed data for all interventions at all time points. As seen in Table 4.42., Kolmogorov-Smirnov and Shapiro-Wilk tests showed that the scores of each test were normally distributed across groups.

Table 4.42. Normality Test Results for Self-Efficacy Scores across Time Points by Group Types

	Group	Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Self-efficacy_pre	Control	.084	20	.200	.959	20	.530
	Experimental	.125	23	.200	.958	23	.428
Self-efficacy_post	Control	.116	20	.200	.948	20	.342
	Experimental	.119	23	.200	.948	23	.272

Another assumption of the mixed ANOVA is that there should be homogeneity of covariances. Whether this assumption is met or not is checked via the Box's test of equality of covariance matrices and any statistically significant results (e.g. $p < .001$) indicate that this assumption is violated. The result of this present study presents that this assumption was also satisfied with the non-significant p value ($p = .007$).

The last assumption of the two-way mixed ANOVA is the presence of homogeneity of variances, and this assumption was tested by using the Levene's test of homogeneity of variance. The results are below:

Table 4.43. Levene's Test for Self-efficacy Beliefs for Educational Technology

	F	df1	df2	Sig.
Selfefficacy_pre	1.184	1	41	.283
Selfefficacy_post	7.285	1	41	.010

Statistically significant results (e.g. $p < .001$) violate the assumption, but as shown in Table 4.43. this assumption was met at the pretest ($p > .05$) but not at the posttest ($p < .05$). However, if the groups are equal in number, the violation of this assumption can be disregarded because the test results are not strongly affected by this violation (Hanna & Dempster, 2012; Leech et al., 2005). Therefore, for this study, the violation of this assumption at the posttest was ignored and the two-way mixed ANOVA was run anyway.

As seen in Table 4.44., the results reveal that a significant main effect for time existed, $F(1, 41) = 6.442$, $p = .015$, partial $\eta^2 = .136$, suggesting that ignoring whether students in the control or in the experimental group, there was an overall

significant difference between pre and posttest self-efficacy scores. There also found a significant main effect for group, $F(1, 41) = 5.902$, $p = .020$, partial $\eta^2 = .126$ (Table 4.45.). This means that regardless of the two time points, the students in the experimental group were more self-efficacious for technology integration than the students in the control group. As can be seen from Table 4.44, there was also a statistically significant *group by time interaction* for the dependent variable, $F(1, 41) = 16.488$, $p < .001$, partial $\eta^2 = .287$, suggesting that the treatment type (group) has a differential effect on the self-efficacy beliefs for the technology use over time.

Table 4.44. The Within-Group Mixed ANOVA (and interaction) Results for Self-Efficacy Scores

Source		Sum of Squares	df	Mean Square	F	Sig.	η^2
time	Sphericity Assumed	2.305	1	2.305	6.442	.015	.136
time* group	Sphericity Assumed	5.899	1	5.899	16.488	.000	.287
Error(time)	Sphericity Assumed	14.668	41	.358			

Table 4.45. The Between-Group Mixed ANOVA Results for Self-Efficacy Scores

Source	Sum of Squares	df	Mean Square	F	Sig.	η^2
Group	3.968	1	3.968	5.902	.020	.126
Error	27.565	41	.672			

Figure 4.10. also illustrates the crossover of the lines suggesting an interaction between the independent variables (*time and group*) for the dependent variable. At outset, the two groups' pretest results were nearly the same; however, at the posttest, although the control group dramatically decreased its self-efficacy score, the experimental group substantially increased its score. It is clear that the gap between the groups was widened at the posttest, suggesting the superiority of the treatment instruction (*DS-integrated approach*) over the traditional method. Although these line graphs are indicating the source of the interaction, as suggested by Mayers (2013) and Leech et al. (2005), if there found a significant interaction, it is needed to explore further the nature of the interaction by conducting post hoc tests. Therefore, simple main effects for group and time were analyzed by using GLM univariate ANOVA tests, respectively.

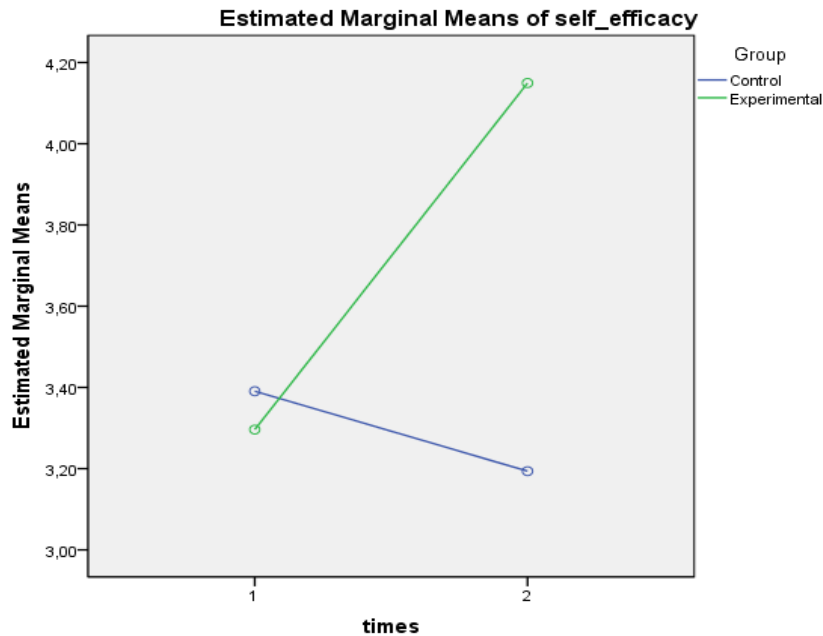


Figure 4.10. Estimated Marginal Means of the Self-efficacy Component

Table 4.46. The Between-Subjects Univariate ANOVA Results for Pre-Test Self-Efficacy Scores

Source	Sum of Squares	df	Mean Square	F	Sig.	η^2
Group	.095	1	.095	.174	.679	.004
Error	22.477	41	.548			

Table 4.46. shows that there was no statistically significant difference between the experimental and control group's pre-test results, $F(1, 41) = .174$, $p = .679$, partial $\eta^2 = .004$. As for the self-efficacy posttest scores illustrated in Table 4.47., a significant difference was found between the control and the experimental groups, $F(1, 41) = 20.279$, $p < .05$, partial $\eta^2 = .331$, suggesting that the level of self-efficacy beliefs for the technology integration was statistically significantly higher in the experimental group ($M = 0.96$, $SE = 0.21$ mmol/L, $p < .05$) compared to the control group.

Table 4.47. The Between-Subjects Univariate ANOVA Results for Post-Test Self-Efficacy Scores

Source	Sum of Squares	df	Mean Square	F	Sig.	η^2
Group	9.771	1	9.771	20.279	.000	.331
Error	19.755	41	.482			

The simple main effect of *time* on self-efficacy for educational technology was also explored by using GLM univariate ANOVA tests as follows:

Table 4.48. The Within-Subjects Univariate ANOVA Results for the Control Group's Self-Efficacy Scores

Source		Sum of Squares	df	Mean Square	F	Sig.	η^2
time	Sphericity Assumed	.388	1	.388	1.153	.296	.057
Error(time)	Sphericity Assumed	6.388	19	.336			

As shown in Table 4.48., there found no statistically significant effect of time on self-efficacy scores for the control group, $F(1, 19) = 1.153$, $p = .296$ partial $\eta^2 = .057$, suggesting that the control group's pre and posttest results were not different.

For the experimental group results shown in Table 4.49., a statistically significant effect of time on self-efficacy scores was elicited, $F(1, 22) = 22.247$, $p < .05$ partial $\eta^2 = .503$, demonstrating that the experimental group significantly differently increased the self-efficacy level at the posttest, ($M = .85$, $SE = 0.18$ mmol/L, $p < .05$), compared to the pre-test. Overall, on the basis of the simple main effect of time results, it can be concluded the treatment type differently affected the groups' self-efficacy scores in favor of the DS-integrated instruction type.

Table 4.50. The Within-Subjects Univariate ANOVA Results for the Experimental Group's Self-Efficacy Scores

Source		Sum of Squares	df	Mean Square	F	Sig.	η^2
time	Sphericity Assumed	8.373	1	8.373	22.247	.000	.503
Error(time)	Sphericity Assumed	8.280	22	.376			

All in all, although the findings illustrated above clearly reveal that the implementation affected the participants' self-efficacy beliefs for technology integration positively, there is a need for a more in-depth analysis of the issue in question. Therefore, the qualitative data were yielded from the semi-structured

interviews conducted with 10 students from the experimental group at the end of the process.

The interviewees were asked if there were any changes in their self-efficacy beliefs for technology use in their learning after this current implementation. An overwhelming majority of the interviewees (9/10) expressed that they had a heightened level of efficacy for technology use thanks to this project. Their quotations are below:

Student 1: *At first, of course I had difficulty in preparing my video. But in the second or third ones, we started to develop these videos more comfortably. I feel more confident in those issues now.*

Student 2: *Yes, I have never prepared a digital story before. Through this implementation I learned how to make a digital story. It is good for me. (...) but at first when you first stated this [the DS implementation] at the beginning of the year, I was really anxious for that because I had never used such video-making programs before. But not now.*

Student 3: *My stress level for technology use decreased after this implementation.*

Student 6: *Before this study, I did not even have an email address, so with this task I had my first email address. Additionally, I had difficulty in combining multimedia elements such as visual music etc. I was typing very slowly. But after this project, I started to type faster.*

Student 7: *Yes, because at the beginning, I did not have any idea about technology use. So, at first I was really afraid of not preparing the task properly or not comprehending what I had to do. But then, I saw that I could use the technology in my learning effectively.*

Student 10: *Yes, it [this implementation] increased my confidence. At the beginning I was afraid but after this project, I believe that I can help anyone who needs help in technology use in learning.*

As illustrated above, all the students expressed that at the beginning of the implementation, they were anxious for using technology and had initial fears for using technology in class. But then all noted that with this implementation they improved their self-efficacy beliefs for technology use in their learning. Only one student did not make any comments related to overcoming his anxiety for technology use because he expressed that he was already good at ICT skills. He noted that he had a few problems in using the software while making the first digital story, but not in the subsequent stories. He stated that he could prepare almost the stories at ease using the video editing tool. But interestingly, he also admitted that although he was good at technology use, he had never prepared such a story digitally and therefore he underlined that this project was beneficial for developing ICT skills because they learned a new program allowing them to make a digital story easily. His comments are below:

Student 8: *I don't have any problems in ICT skills because I am good at using those skills. Of course I had some problems resulting from being inexperienced in making a digital story. I have never made a digital story before. But in the second or subsequent stories I did not have any difficulty. (...) In fact this implementation was useful because we learned a new platform to make a digital story.*

Additionally, some of the students (Students 1, 2 & 6) specifically reported that with the help of this implementation, they could comfortably use technology for their subsequent technology-integrated projects:

Student 1: *In my subsequent projects, I can comfortably use technology and will have no stress.*

Student 2: *By using these programs [DS programs], I saw that I would use those programs by myself for any technology-supported projects. I had high confidence for technology use after I prepared my videos.*

Student 6: *Now I had a higher confidence for any technology-based projects. Now I know everything related to computers because while preparing my digital stories I mistakenly entered into other sites many times, which in turn increased my efficacy for technology use in my learning.*

To sum up, on the basis of the aforementioned quotations, it is clear that a vast majority of the students overcame their anxiety for using technology in their learning after this implementation. That is, in accordance with the survey results, through this DS-integrated pedagogy, they appeared to believe that they became more efficacious toward the technology use in their learning.

4.2.4.2. The Effects of the Treatment on the Participants' Attitudes toward Technology Integration

In order to answer this research question that aimed to analyze if there was an effect of the treatment type on the groups' attitudes toward technology integration into their learning, both quantitative and qualitative data were collected. Firstly, the quantitative data and then the qualitative data will be analyzed and shown here.

The quantitative data yielded from both groups' pre and posttest scores were averaged for an overall attitude score for each group in each test and these average scores were used for the subsequent analyses. Following this, a two-way mixed ANOVA was calculated with one between-groups variable (*group*) and one within-group variable (*treatment time points*). The dependent variables were pre and post-treatment attitude scores.

Before conducting this test, the necessary assumptions were checked for a valid result. The first assumption is to examine whether there are any outliers in the data by checking the boxplot values. The values greater than 1.5 box-lengths from

the edge of the box are assessed as outliers. By checking the results, it was found that there were no outliers in the data with values that were greater than 1.5 box-lengths from the edge of the box. Moreover, the data were further analyzed if there were any outliers by checking standardized residuals whose scores were greater than ± 3 standard deviations and it was revealed that there were no outliers in the data.

The second assumption is that there should be normally distributed data for each score across groups and Shapiro-Wilk tests showed that the data were normally distributed in both pre and posttest scores for each group with non-significant p values. The results are as follows:

Table 4.51. Normality Test Results for Attitude Scores across Time Points by Group Types

	Group	Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Attitude_pre	Control	.161	20	.184	.916	20	.082
	Experimental	.096	23	.200	.976	23	.838
Attitude_post	Control	.164	20	.161	.961	20	.561
	Experimental	.146	23	.200	.964	23	.546

The homogeneity of covariances was also assumed, Box's $M = 3.25$, $p = .021$, demonstrating that there were equal covariances at the pre and posttests.

As for checking the homogeneity of variances, Levene's Test was used and as shown in Table 4.52., it was revealed that the assumption of the equality of error variances for variables was satisfied at the pretest ($p > .05$) but not at the posttest ($p < .05$).

Table 4.52. Levene's Test for Attitudes toward Educational Technology

	F	df1	df2	Sig.
Attitude_pre	.715	1	41	.403
Attitude_post	6.663	1	41	.014

But it is suggested by that if the groups are equal in size, this violation can be disregarded because the test results are not strongly affected by this violation (Hanna & Dempster, 2012; Leech et al., 2005). Therefore, despite the partially departure from meeting the assumption of homogeneity of variances, because the groups were equal in size in this study, the researcher proceeded with analyzing data via the two-way mixed ANOVA. The results are as follows:

Table 4.53. The Within-Group Mixed ANOVA (and interaction) Results for Attitude Scores

Source		Sum of Squares	df	Mean Square	F	Sig.	η^2
time	Sphericity Assumed	3.304	1	3.304	12.498	.001	.234
time*group	Sphericity Assumed	2.453	1	2.453	9.280	.004	.185
Error(time)	Sphericity Assumed	10.838	41	.264			

Table 4.54. The Between-Group Mixed ANOVA Results for Attitude Scores

Source	Sum of Squares	df	Mean Square	F	Sig.	η^2
Group	7.358	1	7.358	17.118	.000	.295
Error	17.624	41	.430			

Table 4.53. shows that there was a significant main effect of *time*, $F(1, 41) = 12.498$, $p = .001$, partial $\eta^2 = .234$, suggesting that regardless of the group type, there was an overall significant difference in pre and posttest attitude scores. Results in Table 4.54. also indicate a significant main effect of group, $F(1, 41) = 17.118$, $p < .001$, partial $\eta^2 = .295$. This demonstrates that regardless of the pre and posttest results, the experimental group was more positive for technology integration than the control group. There was also a statistically significant group*time interaction for the dependent variable (combined attitude scores) (Table 4.53.), $F(1, 41) = 9.280$, $p = .004$, partial $\eta^2 = .185$, suggesting that the difference between the treatment and control groups' linear combination of attitude scores was different at pretest in comparison with posttest.

Mayers (2013) and Leech at al. (2005) suggest that if there is a significant interaction yielded through the two-way mixed ANOVA, it is needed to explore further the nature of the interaction. To this end, firstly, the graph lines were interpreted and then post hoc tests were conducted to determine the source of the interaction. As seen in Figure 4.11., at the outset, the gap between the two groups' pretest results was not very wide; however, at the posttest, although there was a slight change in the control group's scores, the experimental group *did* increase their scores substantially. It is clear that the gap between the groups was widened at the posttest, suggesting the superiority of the treatment instruction (*DS-integrated approach*) over the traditional method. In addition to the inspection of the lines seen in Figure 4.11., simple main effects for group and time were also analyzed by using GLM univariate ANOVA tests, respectively.

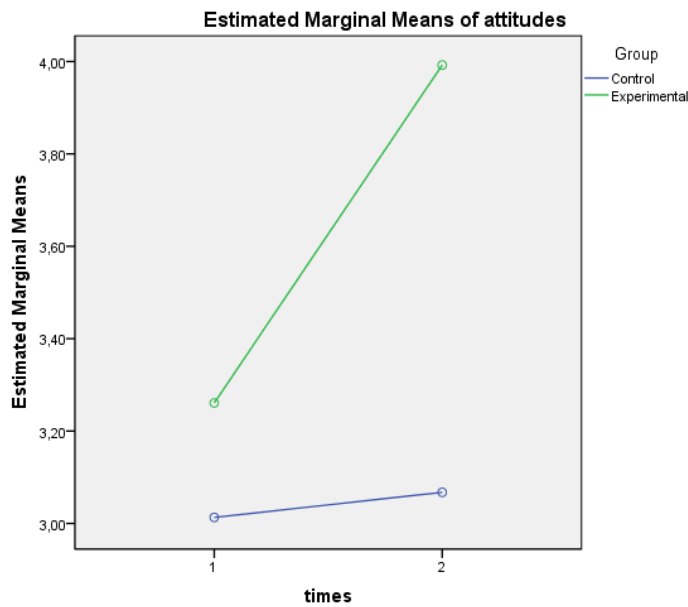


Figure 4.11. Estimated Marginal Means of the Attitudes Component

Table 4.55. reveals that no statistically significant difference was found between both group's pretest results, $F(1, 41) = 1.528, p = .223, \text{partial } \eta^2 = .036$.

Table 4.55. The Between-Subjects Univariate ANOVA Results for Pretest Attitude Scores

Source	Sum of Squares	df	Mean Square	F	Sig.	η^2
Group	.657	1	.657	1.528	.223	.036
Error	17.626	41	.430			

But at the posttest, a significant difference existed between the control and the experimental groups, $F(1, 41) = 34.636, p < .001, \text{partial } \eta^2 = .458$ (Table 4.56.). This finding means that at the end of this implementation, the experimental group ($M = 0.92, SE = 0.15 \text{ mmol/L}, p < .05$) outperformed the control group in the scores of attitudes toward technology integration into their learning, providing support for the treatment type (*DS-integrated approach*).

Table 4.56. The Between-Subjects Univariate ANOVA Results for Posttest Attitude Scores

Source	Sum of Squares	df	Mean Square	F	Sig.	η^2
Group	9.154	1	9.154	34.636	.000	.458
Error	10.836	41	.264			

The simple main effect for time was also explored using GLM univariate ANOVAs and found that there was not a statistically significant effect of time on attitude scores for the control group, $F(1, 19) = .122, p = .730, \text{partial } \eta^2 = .006$, which

indicates that the control group's pre and posttest results were not different. The results can be seen in Table 4.57.:

Table 4.57. The Within-Subjects Univariate ANOVA Results for the Control Group's Attitude Scores

Source		Sum of Squares	df	Mean Square	F	Sig.	η^2
time	Sphericity Assumed	.030	1	.030	.122	.730	.006
Error(time)	Sphericity Assumed	4.586	19	.241			

But as seen in Table 4.58., a statistically significant effect of time on attitude scores was found for the experimental group, $F(1, 22) = 21.655$, $p < .001$ partial $\eta^2 = .496$. This finding reveals that the experimental group had more positive attitudes toward technology integration after the treatment, ($M= 0.73$, $SE = 0.16$ mmol/L, $p < .05$), compared to the pretest scores. Overall, depending on the simple main effect of *time* results, it can be stated that the treatment type differently affected the groups' attitudes in favor of the DS-integrated approach.

Table 4.58. The Within-Subjects Univariate ANOVA Results for the Experimental Group's Attitude Scores

Source		Sum of Squares	df	Mean Square	F	Sig.	η^2
time	Sphericity Assumed	6.155	1	6.155	21.655	.000	.496
Error(time)	Sphericity Assumed	6.253	22	.284			

The qualitative data were also obtained by the semi-structured interviews conducted with 10 students from the experimental group after the implementation. The interviewees were asked the following question: "*What are your attitudes toward technology integration into your learning after this implementation?*" It was revealed that all of the 10 interviewees unanimously stated that they were more positive towards the use of technology in learning as a result of participating into this implementation. Five of the students also extended their comments by stating that they found technology-enhanced learning more enjoyable. One of these five students was of the opinion that these technology-supported tasks were not boring in general without comparing her enjoyment before and after the implementation:

Student 1: Of course I am more positive because we don't get bored in such classes and at the same time doing something different is more attractive.

But the other four students made a comparison by stating that they started to enjoy more in this implementation in time and thus becoming more positive

towards such projects although they were negative toward computers in general at the beginning. Here are their comments:

Student 2: *I became more positive towards such tasks. I started to do them by enjoying. To be honest, I did not enjoy at first and I was negative towards technology use in class but later it changed. I started to enjoy. Now I find those tasks more enjoyable. Therefore, such implementations should be used in courses because they can attract students' attention and students can participate into such courses more.*

Student 5: *At first I was negative but after I prepared my digital stories I started to deal with technology because it made my job easier. I am more positive now. I found it more enjoyable and much easier. I think I can do well with computers.*

Student 7: *Before this implementation, I did not have any knowledge, desire or interest for technology. But after I saw that I could use technology effectively in my learning, I became more positive because it was more enjoyable.*

Student 9: *At first I have not heard about WeVideo, so actually I was a bit negative because of my anxiety for technology use. But by using this program, it became enjoyable for me. Even now I show my other friends how to use this program because it is really enjoyable.*

In conclusion, depending on both qualitative and quantitative findings, it is worth noting that the students were more positive towards using technology in their learning after this technology-rich implementation. Hence, it seems that the DS-integrated pedagogy was effective in changing participants' attitudes towards technology use in the positive direction.

4.2.5. Analysis of the Data for Research Question 5

This research question analyzed the participating students' perceptions of the DS-integrated writing instruction by collecting data both quantitatively and qualitatively. Firstly, the quantitative and then the qualitative findings will be presented here.

4.2.5.1. Quantitative Findings

The quantitative data were obtained through a five-point Likert scale composed of six subsections. This questionnaire was administered to only the experimental group at the end of the implementation to gather information about their perceptions related to the current implementation. Kolmogorov-Smirnov and Shapiro-Wilk tests showed that data were normally distributed across students ($p > .05$). Then, the mean score of this perception scale was examined. The participants' perception scores ranged from 3.64 to 4.70, with a mean value of 4.06 (SD= .29). Taking this result into consideration, it can be noted that students in the experimental group were in the *positive direction* to use a DS-integrated approach in writing.

After calculating the overall perception score, the students' scores of each subscale were also assessed by using the descriptive statistics. Firstly, the normality tests were run and it was found that all the subsections were normally distributed ($p > .05$). Then means and standard deviations were calculated as shown in Table 4.59:

Table 4.59. Descriptive Statistics Results for the Perception Questionnaire Scales

<i>Subscales</i>	<i>Mean</i>	<i>SD</i>
21 st century skills	4.32	.36
Self-correction	4.20	.35
DS-integrated vs. traditional writing	3.94	.43
Motivation	3.93	.42
Suggestions	3.85	.49

This table shows that, overall, the students in the experimental group had positive perceptions of the DS application into the writing practices with the mean scores ranging from 3.85 to 4.32. This table also indicates that the *21st century skills* subscale got the highest mean score ($M= 4.32$), showing that the students agreed on most that the DS-integrated approach positively impacted the development of 21st century skills such as researching, using technology effectively, or collaboration skills. The second most highly endorsed subscale was the *Self-correction* subscale, with a mean value of 4.20 which falls into the 'strongly agreement' range. This indicates that the students were quite positive that this type of treatment promoted self-controlled evaluation. On the other hand, the students agreed at a lower level with DS vs. traditional writing subscale with a mean score of 3.94. But still this score is in the agreement range, implying that most of the students also agreed on the fact that DS-integrated writing was superior to traditional writing practices ($M= 3.94$). Likewise, the mean score of the motivation scale falls into the 'agree' category ($M= 3.93$), indicating that the students mostly agreed on that the DS-integrated approach had positive impact on motivation to write. As for the subscale which had the lowest mean score, it can be noted that although there was a slight decrease in the scores of this subscale (*Suggestions subscale*), the score was still above the average, which may mean that a majority of students suggested the use of a DS-integrated pedagogy in writing or in the other courses ($M= 3.85$).

Although the overall scores of the subscales gave an idea of the general tendency for the DS application into the writing courses, each subscale was also explored in depth through an item-by-item analysis indicating the most and the least endorsed items. For these analyses, frequencies and descriptive statistics were used and shown in this section. The subscales were analyzed one by one from the highest score to the lowest one in descending order. Because it received the highest mean score, firstly the *21st century skills* subscale was examined and the results were shown in Table 4.60.:

Table 4.60. Descriptive Statistics and Frequency Scores of the Items in the 21st Century Skills Subscale

<i>Items</i>	<i>SA</i> %	<i>A</i> %	<i>N</i> %	<i>D</i> %	<i>SD</i> %	<i>M</i>	<i>St</i> <i>D</i>
36. This implementation strengthened my confidence for technology skills.	56.5	43.5	-	-	-	4.56	.50
37. This implementation helped me evaluate and use digital tools and resources that match the work I am doing.	47.8	52.2	-	-	-	4.47	.51
38. This implementation helped me communicate information and ideas in a variety of forms and for various purposes.	47.8	52.2	-	-	-	4.47	.51
39. This implementation enabled me to correlate many multimedia items (picture, photograph, video etc.)	47.8	52.2	-	-	-	4.47	.51
41. This implementation developed my critical thinking skills because the implementation required planning, researching collaboration, problem solving, drafting, feedback and revision.	30.4	60.9	8.7	-	-	4.21	.59
34. This implementation helped me identified my deficiencies in digital literacy skills and remedy them while working on a meaningful implementation.	26.1	65.2	8.7	-	-	4.17	.57
35. This implementation strengthened collaboration.	30.4	56.5	13.0	-	-	4.17	.65
40. This implementation helped me exhibit a positive attitude toward using technology.	26.1	52.2	21.7	-	-	4.04	.70

SA=Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly disagree; M=Mean; StD=Standard Deviation

Table 4.60. shows that the mean scores of the participants' responses to each item in *the 21st Century Skills* subscale ranged from 4.04 to 4.56. This translates that a majority of the students reported that a DS-integrated pedagogy was helpful for developing 21st century skills. Moreover, this table also illustrates that none of the participants disagreed with any of the items in the subscale, meaning that a majority of the students agreed that a DS-integrated pedagogy was an effective way to improve 21st century skills.

Another interesting finding is that in addition to not having any scores in the disagreement line, items 36, 37, 38, and 39, all of which assessed the positive effects of the implementation on the use of technological tools, did not attain also any neutral scores. This suggests that all of the participants in the experimental group unanimously agreed that this type of instruction (DS) was helpful to improve the skills based on using technology.

Table 4.60. also indicates that three of the items (Items 37, 38, & 39), which are all about the effective use of technology for a meaningful purpose such as communication, had the same scoring ($M= 4.47$). This suggests that the students consistently noted that this implementation was effective in terms of using technology for a meaningful purpose.

Another subscale which attained the second highest mean score is the *Self-correction* scale, which was about the reflections on the positive effects of the implementation on self-controlled evaluation and correction process. Before making any analyses, item 15, which was negatively coded, was reverse-coded.

The findings (Table 4.61.) related to this subscale indicate that broadly, a vast majority of the students agreed that this implementation was beneficial to self-correction ($M= 4.20$). There are some other interesting findings related to this subscale. First, except for only one student, all of the participants agreed or strongly agreed with item 13 (95.6%). This suggests that almost all of the participants appeared to positively evaluate the effectiveness of this technology on self-correction specifically in writing. Another striking point is that except for only one student for only one item (item 15), none of the students disagreed or strongly disagreed with any of the items in this subscale. Moreover, for almost all items (except for item 15), the percentages of the neutral responses were very low (less than 20%). That is to say, all of the items in this subscale (except for item 15) were mostly clustered between *strongly agree* and *agree*, suggesting that a substantial majority of the students agreed that DS gave them more control of learning in correcting the mistakes (in writing).

Table 4.61. Descriptive Statistics and Frequency Scores of the Items in the Self-correction Subscale

<i>Items</i>	<i>SA</i> %	<i>A</i> %	<i>N</i> %	<i>D</i> %	<i>SD</i> %	<i>M</i>	<i>St</i> <i>D</i>
13. This technology allowed me to write individually. If I made a mistake, I could re-do it without pressure.	56.5	39.1	4.3	-	-	4.52	.59
12. This implementation helped me learn from my classmates and correct my mistakes by viewing their implementations.	39.1	52.2	8.7	-	-	4.30	.63
18. Doing assignments in this implementation helped me to learn from my own mistakes.	30.4	60.9	8.7	-	-	4.21	.59
11. The digital stories initiated my self-evaluation of the experiences as depicted in my artefacts.	34.8	52.2	13.0	-	-	4.21	.67
15. Giving feedback to others was not helpful for self-evaluation (RC).	39.1	47.8	8.7	4.3	-	4.21	.79
10. Through this implementation, my classmates were able to view my presentation and were able to evaluate my writing so that I could learn my own weaknesses in writing.	30.4	52.2	17.4	-	-	4.04	.70
14. Practicing peer feedback allowed me to focus on the implementation more.	26.1	52.2	21.7	-	-	4.04	.70
17. This implementation enabled me to evaluate my own performance.	13.0	73.9	13.0	-	-	4.00	.52

SA=Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly disagree; M=Mean; StD=Standard Deviation

The *DS-Integrated vs Traditional Writing* subscale had 15 items, one of which was negatively worded; therefore, before the analysis, this item was reverse-coded. The score of this scale, the third highest mean score, falls into the ‘agree’ category ($M= 3.94$), suggesting that the students responded positively to the items based on the idea that DS-integrated writing is more superior to traditional writing practices.

As for item-by-item analyses presented in Table 4.62., it can be seen that the mean scores of items ranged from 3.47 to 4.43, indicating that the students had a positive stand for any of the items based on the superiority of DS over traditional activities in writing.

Table 4.62. Descriptive Statistics and Frequency Scores of the Items in the DS-integrated vs Traditional Writing Subscale

<i>Items</i>	<i>SA</i> %	<i>A</i> %	<i>N</i> %	<i>D</i> %	<i>SD</i> %	<i>M</i>	<i>St</i> <i>D</i>
20. I was more aware of the importance of the stages of writing such as planning, editing, or revising.	43.5	56.5	-	-	-	4.43	.50
21. The digital story improves my narrative writing skills more than traditional paper-based assignments.	56.5	26.1	17.4	-	-	4.39	.78
23. Digital storytelling activities are more effective than traditional paper-based assignments in improving writing.	30.4	56.5	13.0	-	-	4.17	.65
29. I can reflect my ideas and experiences in my writing much more effectively using digital storytelling than traditional paper-based assignments.	34.8	52.2	8.7	4.3	-	4.17	.77
25. Improving writing with digital storytelling is more challenging than traditional paper-based assignments. RC	34.8	39.1	21.7	4.3	-	4.04	.87
19. This implementation helped me more to organize my ideas in writing than traditional paper-based assignments.	17.4	65.2	17.4	-	-	4.00	.60
30. I am more active in writing classes based on the digital storytelling implementation than those based on traditional paper-based assignments.	26.1	43.5	30.4	-	-	3.95	.76
33. It increased my authorship more.	21.7	52.2	26.1	-	-	3.95	.70
27. I feel that my writing skill is improved more using digital storytelling than using traditional paper-based assignments.	21.7	47.8	30.4	-	-	3.91	.73
26. I feel more motivated to write in general in digital storytelling activities than traditional writing activities.	13.0	52.2	34.8	-	-	3.78	.67
32. I am more successful in writing classes based on the digital storytelling implementation than those based on traditional paper-based assignments.	17.4	47.8	30.4	4.3	-	3.78	.79
31. I am more confident in writing classes based on the digital storytelling implementation than those based on traditional paper-based assignments.	13.0	60.9	21.7	-	4.3	3.78	.85
28. I am more creative in writing using digital storytelling than I am in traditional paper-based assignments.	17.4	39.1	34.8	4.3	4.3	3.60	.98
24. I feel like it is easier to write on a topic using Digital Storytelling.	13.5	34.8	43.5	4.3	4.3	3.47	.94

SA=Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly disagree; M=Mean; StD=Standard Deviation

In this scale, item 20 got the highest agreement range, which means that that all of the students unanimously agreed or strongly agreed that DS helped them become aware of the importance of the process writing steps such as planning, editing or revising (100%). Throughout this process, students were engaged in combining

the multimedia elements and the script, naturally requiring them to move back and forth between process writing steps.

Additionally, a vast majority of students (82.6%) agreed or strongly agreed that DS was better at developing organization skills than traditional writing activities (Item 19). In fact, this finding is not surprising if it is thought that the students were engaged in storyboarding which enabled them to organize their thoughts properly.

Item 21, which is about the idea that DS is more effective than traditional writing activities to develop narrative writing skills, received the second highest mean score ($M=4.39$). 82.6% of the participants agreed or strongly agreed on the superiority of DS over paper-pen writing activities for the point in question. This finding is expected since as the name suggests DS is another way of storytelling and it is naturally based on telling a story in a more real life context. Therefore, the students appeared to believe that a story is better told through DS than traditional formats.

Another important finding related to this scale is that items 23 and 29, both of which center around the same idea of more effectiveness of DS than traditional writing practices to reflect on the ideas and experiences, got the third highest mean score (4.17). Similar to the aforementioned items (20 and 21), these two items (23 and 29) did not attain any disagreement responses, demonstrating that no students denied the superiority of DS over its counterpart in terms of the points mentioned. The agreement range of these items was 87%, which is another indicator of the students' positive stance towards the effectiveness of the implementation on writing skill.

The other important finding regarding this scale is that a large majority of the students (73.9%) accepted that DS is not more challenging than its traditional counterpart. In fact, this finding is surprising in that the students did not have too much technological expertise in designing a digital story at outset. But still they seem not to have evaluated putting extra effort on designing a digital story as challenging. Its reason might be that at the beginning of the implementation, the researcher properly trained the students on how to make a digital story online, so that they did not have too much difficulty in digital story making during the implementation.

As for the other items in the scale, it can be seen that they attracted more neutral and/or disagreement responses, but still a majority of the participants reported that DS is much superior to its counterpart for the points in question. That is, at least two thirds of the students agreed that DS promoted authorship more (73.9%) and developed writing skill/s more (69.6%).

The other items (30, 26, 32, 31, and 28) are all based on a single idea, namely the self-evaluation of the students' own performance in two different writing instruction types. Although scores of these items are lower than most of the other items in the scale, the findings show that a majority of the students thought that they were more active (69.6%), more motivated (65.2%), more successful (65.3%), more confident (73.9%), and more creative (56.5%) in DS-integrated writing instruction than they were in its counterpart (the disagreement range is less than 10%). In fact, this finding is expected because the students were actively engaged into this process by exerting so much effort to produce digital stories and at the end of the implementation they developed five different "*tangible*" artefacts, which may in turn promoted their confidence, success, creativity, and motivation.

The lowest mean score was rated for item 24 (*I feel like it is easier to write on a topic using Digital Storytelling*) with an agreement range of 48.2%. This item is the only one in the scale which is below the average. Its reason for this low rate can be that both DS-integrated and classroom-based writing activities follow the same procedures at the beginning. That is, in both types of instruction, firstly, students are required to write on a topic and then the instruction procedures differ from each other such as incorporating technological applications in making a digital story. Therefore, writing on a topic, which is the first step of both types of writing instruction, can be perceived as almost the same and accordingly, a majority of the students did not seem to note any differences between writing on a topic through DS and traditional ways of instruction.

Table 4.63. shows the descriptive statistics related to the *Motivation* subscale which had fairly similar mean score ($M= 3.93$) with that of the *Comparison of DS-integrated writing with traditional writing* scale ($M = 3.94$).

Table 4.63. Descriptive Statistics and Frequency Scores of the Items in Motivation Subscale

<i>Items</i>	<i>SA</i> %	<i>A</i> %	<i>N</i> %	<i>D</i> %	<i>SD</i> %	<i>M</i>	<i>St</i> <i>D</i>
2. I was actively engaged in writing because I was learning by doing, instead of passively receiving knowledge from the teacher.	39.1	60.9	-	-	-	4.39	.49
3. This implementation made me want to do my best because it had a real audience apart from the teacher.	43.5	43.5	13.0	-	-	4.30	.70
7. It was motivating to direct my own movie.	17.4	56.5	26.1	-	-	3.91	.66
9. I was motivated to do this implementation because digital Stories became a vehicle for me to coherently present and justify my artefacts, facilitating recollection and synthesis of experiences.	26.1	39.1	34.8	-	-	3.91	.79
1. I was motivated to do this implementation because it had a real purpose, leading to meaningful language use in writing.	17.4	52.2	30.4	-	-	3.86	.69
6. Learning new topics through this implementation was fun.	13.0	65.2	17.4	-	4.3	3.82	.83
5. I was satisfied with my contribution to the implementation.	21.7	30.4	47.8	-	-	3.73	.81
4. I enjoyed working on this implementation because it was not the typical writing exercise.	30.4	26.1	34.8	4.3	4.3	3.73	1.09
8. It was motivating to have a chance to express my own voice in my writing skill with digital stories (because I decided on what to write and how to write by myself).	4.3	69.6	21.7	-	4.3	3.69	.76

SA=Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly disagree; M=Mean; StD=Standard Deviation

Items in the *Motivation* subscale had mean values ranging from 3.69 to 4.39. Although this scale attracted more neutral responses than the other subscales aforementioned (less than 25% on average), this scale, too, did not receive too much disagreement as similar to the scales mentioned-above. There are only three items (Items 4, 6, & 8) that had a very low level of disagreement percentage (less than 10 percent). Overall, these findings may indicate that the majority of the students responded to these items positively by agreeing or strongly agreeing that DS-integrated writing instruction was a motivating tool for writing.

As for the percentages of the items in the scale, it was found that item 2 (*I was actively engaged in writing because I was learning by doing, instead of passively receiving knowledge from the teacher*) received the highest agreement (100%). This finding suggests that the students unanimously agreed or strongly agreed that DS-integrated writing led to an active involvement in the writing process. The second highest mean score was given to item 3, which was about the motivating factor of the presence of an authentic audience in DS-integrated activities. 87% of

the students agreed or strongly agreed that DS-integrated activities had a real audience to write for. Additionally, this item did not attain any disagreement rates, indicating that none of the students denied the audience effect that DS had on writing better.

Items 7 and 9 are both based on the motivating effect of having an end-product as a result of participation into this kind of instruction and these two items got the same mean score (3.91). Although these items attained slightly higher rates of neutral responses than those of the previous items (items 2 & 3), since none of the students disagreed or strongly disagreed with these statements, it is safe to say that a very large majority of the students thought that the 'tangible' artefact(s) created in this implementation was motivating (item 7= 73.9%, item 9= 85.2%).

Contrary to the statements above, this section discusses the items that had the lowest mean scores. Although item 8 got the lowest mean score in this scale ($M = 3.69$), approximately three quarters (73.9%) of the students agreed that DS enabled them to express their own voice in their writing, which was motivating. This suggests that a majority of the students perceived that DS enabled them to control their writing.

Items 4 and 5 got the next lowest mean score (3.73). Although this score was higher than that of the aforementioned item (item 8) that had the lowest mean score, these two items received more neutral responses (more than 35%) than item 8. Moreover, item 4 had the highest disagreement (8.6%) and neutral rates (47.8%) in this scale. Naturally, the combined agreement and strongly agreement score for these two items (items 4 & 5) was the lowest in the subscale. This shows that a slight majority of the students (item 4= 56.5% and item 5= 52.1%) agreed that they enjoyed in this implementation and satisfied with their contribution to the activities.

The lowest mean score (3.85) belongs to the last subscale of the questionnaire, namely *Suggestions* scale, which is about the making suggestions related to DS for courses with a special reference to writing. This mean value, which is lower than the other subscales but still above the average, may indicate that a slight majority of the students seemed to have positive attitudes towards using DS in future classes (specifically in writing). As for the item-by-item analyses shown in

Table 4.64., a striking point related to this scale is that none of the items received any disagreement scores, providing support for holding positive attitudes toward the integration of DS to the future classes.

Table 4.64. Descriptive Statistics and Frequency Scores of the Items in Suggestions Subscale

<i>Items</i>	<i>SA</i> %	<i>A</i> %	<i>N</i> %	<i>D</i> %	<i>SD</i> %	<i>M</i>	<i>St</i> <i>D</i>
44. I would prefer classes that use digital stories over other classes that do not use them.	8.7	73.9	17.4	-	-	3.91	.51
42. I recommend that teachers should use digital storytelling activities so as to teach writing in EFL classes.	21.7	43.5	34.8	-	-	3.86	.75
43. I would like to see digital stories used in other courses apart from writing.	60.9	8.7	30.4	-	-	3.78	.59

SA=Strongly agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly disagree; M=Mean; StD=Standard Deviation

As is evident from Table 4.64., out of three items, Item 44 (*I would prefer classes that use digital stories over other classes that do not use them*) got the highest agreement range, showing that a vast majority of the students (82.6%) agreed or strongly agreed that they preferred classes including DS. The second highest mean score belongs to item 42 which had a lower agreement range but still indicating that at least two thirds of the students recommended teachers to use DS in writing. As for item 43, it is seen that this item had the lowest mean score in the scale. But this score is still higher than the average. More than two thirds of the students wanted to have courses adopting a DS-integrated approach. The reason for this lower rate than other items in this subscale can be that apart from this current study carried out in the writing instruction, these students did not have an experience for the DS use in other skills; therefore, they may have not anticipated the use of this methodology in other skills. But overall, the high rates of these three items indicate that the students had favorable opinions of DS in future classes including writing.

In addition to the quantitative data presented above, qualitative data were also collected to get in-depth information as to the participants' comments and evaluations about the implementation. In the next section, the qualitative findings are indicated.

4.2.5.2. Qualitative Findings

The qualitative findings were yielded by means of two instruments: four open-ended questions which were asked to the experimental group students at the end of the perception questionnaire and semi-structured interviews which were carried out with 10 students from the experimental group. Since all four open-ended questions match with some of the interview questions (Question 3, 6, 8, and 10), the results of the open-ended questions are presented along with the interview results. That is to say, the interview findings plus open-ended questions results will be shown in the same section.

The interview questions can be categorized into three as follows:

Table 4.65. The Categories of the Interview Questions

Categories	Questions
1. General impression related to the implementation	1 and 2
2. Evaluation of the effectiveness of the current DS implementation on writing and on other skills	3*, 3a, 4, 5, 6*, 7, 8*, and 9
3. Suggestions	8, 9, and 10*

* = Questions were also asked in the open-ended section of the questionnaire

4.2.5.2.1. General Impression Related to the Implementation

The effectiveness of the DS implementation in general (Q1). This question asked the participants to evaluate the effectiveness of the implementation in general and all of them unanimously stated that they found the implementation effective. They maintained that it was a kind of instruction which integrated many different skills such as grammar, writing, listening, reading, researching, collaboration, technological skills, etc. Some of the extracts taken from the interviews are as follows:

Student 2: *This type of instruction is not an isolated writing activity. We had the chance for developing different skills in addition to writing.*

Student 10: *It was not a typical writing activity. It was an effective tool which integrated writing with many other different skills.*

Student 7: *I had a lot of benefits of DS for writing; therefore, I can say that this implementation is effective.*

As seen, the students maintained that DS was an effective instruction method which develops not only writing but also others skills.

Attitudes towards improving writing skills through DS activities (Q2). All of the 10 interviewees stated that they were positive towards the use of DS to improve the writing skills. Here is a sample extract:

***Student 3:** I liked this kind of writing. That is, I am really positive toward writing practices in which we produced digital stories. I think I really improved my writing with this [DS].*

4.2.5.2.2. Evaluation of the Effectiveness of the Implementation

The advantages/disadvantages of using DS in writing (Q3). This question was asked both in the interviews and in the open-ended questions section of the perception questionnaire. All of the 10 interviewees and all of the 23 students who answered the open-ended questions in the perception questionnaire unanimously agreed that this implementation was advantageous rather than disadvantageous. More importantly, none of the students mentioned any disadvantages of the implementation for writing in either interviews or in the open-ended questions section.

An important point mentioned in the interviews and in the open-ended questions section is that this implementation improved their grammar in a number of ways (*open-ended responses: 3/23, interview responses: 10/10*). For example, some students expressed that they paid more attention to grammar through this implementation: The sample extract is below:

***Student 8:** It developed especially grammar. By means of this project, I paid more attention to my grammar. I paid more attention to use the grammatical structures in proper places (Open-ended Response).*

The other student also commented that this implementation improved grammar in general:

***Student 7:** I really have difficulty in grammar as you can see (laughter). But with this implementation, it developed more.*

The other students mentioned that DS activities helped them to notice their grammar mistakes and correct them accordingly:

***Student 5:** There were some mistakes and I noticed those parts while writing in this implementation. When I corrected those parts, I started not to repeat those mistakes again. That is, I started to write more carefully and more fluently, without mistakes (Open-ended response).*

***Student 3:** This implementation helped me to see my grammar mistakes (Interview response).*

***Student 4:** As I said before, we were paying more attention to grammar; I mean grammar mistakes (Interview response).*

Student 6: *We saw our mistakes.... So it affected our grammar positively (Interview response).*

One student stated that DS was an effective tool for helping him to remember the grammar points that she had forgotten:

Student 7: *This tool [DS] developed my grammar. It helped me to remember some grammar points that I forgot (Open-ended Response).*

Lastly, another comment was made on producing longer and grammatical sentences with this pedagogy:

Student 8: *It positively affected my grammar because with this project I started to use longer sentences with correct grammatical structures (Interview response).*

As can be seen from the excerpts above, the answers focused on the positive effects of DS on grammar from different aspects. Students maintained that they paid more attention to grammar while engaging in this task. They also expressed that this tool helped them to see their grammar mistakes and correct them accordingly. Lastly it was mentioned that DS was effective to remember the forgotten grammar points or to construct longer and grammatical sentences.

A number of the students (*open-ended responses: 6/23, interview responses: 9/10*) also noted about the positive effects of DS on organization. The excerpts taken from the interviews and the questionnaire data can be seen as follows:

Student 7: *Before this implementation, I really could not construct a grammatically correct sentence. But with this implementation, the points related to writing a paragraph was much clearer. Now I know in which borders my paragraph should be organized (Interview response).*

Student 4: *Visual materials helped me to sequence the events in my story more properly (Open-ended Response).*

Student 5: *Before this implementation, I really had difficulty in organizing my ideas. But with this method, I can write more organized paragraphs by indicating the order of events in storyboard. In the storyboards, we can see our mistakes in the order of events and thus we can correct those mistakes easily (Open-ended Response).*

Student 6: *It developed my organization skills. I have less difficulty in organization now than I had before (Open-ended Response).*

Some other comments were also made on the positive effect of storyboarding, which is one of the steps of the digital-story making process, on organization:

Student 3: *We had never had such an experience (storyboarding) and this experience was effective. With the help of storyboarding, finding out the related pictures accompanying our story was effective (Interview response).*

Student 4: *[Storyboarding] It was enjoyable. Yes it was very enjoyable. Combining the script with pictures.... It was fine. That is, you pay attention to pictures, to your writing, and at the same time to their symphony. Thus, in this way the organization becomes more effective (Interview response).*

Student 6: *Storyboard affected me positively. While writing my story, I was trying to express my ideas by imagining the composition to be reflected in the storyboard through visuals. That is, my ideas were organized in my story by thinking about how it would look like in the storyboard (Interview response).*

Student 9: *We made storyboarding. Storyboarding helped us to move further in a more planned way. I learned how to organize events in a narrative paragraph type. (...) Before this implementation I could not make a plan; I was generally using irrelevant sentences. But it is not true for now (Interview response).*

The extracts mentioned above indicate that the responses were concentrating on the positive effects of DS on organization skills. Especially some of the students had consistent ideas by expressing that storyboarding was helpful to organize their thoughts.

Another important finding yielded from the qualitative data is related to the effectiveness of the implementation on learners' self-evaluation skills and in turn self-correction in writing. Some students (*open-ended responses: 9/23, interview responses: 4/10*) mentioned that DS helped them to self-evaluate their performance and enabled them to correct their mistakes by themselves. Accordingly, a more self-controlled learning environment is created via a DS-supported writing pedagogy. Some example extracts are as follows:

Student 10: *By means of this implementation, I saw my weak sides and mistakes in writing. So, this helped me not to make the same mistakes in the subsequent writing assignments (Open-ended Response).*

Student 15: *This implementation helped me to see my mistakes in my writings, and dealing with a story many times in different formats was helpful for not making the same mistakes again (Open-ended Response).*

Student 21: *My writing skills were improved because I saw my mistakes over and over again. So I had the chance to correct them (Open-ended Response).*

There are also other students noting that they learned from others by watching or commenting on other students' videos:

Student 3: *We made a lot practices in which we could correct our mistakes by ourselves. We found out the mistakes made in our friends' videos, which improved our writing skill a great deal (Open-ended Response).*

Student 2: *The most effective part of the implementation was evaluating our friends' videos. We found out their mistakes. This was effective for self-checking (Interview response).*

Student 5: *I saw my mistakes and learned not to repeat those mistakes. Moreover, by commenting on others' videos, I saw their mistakes and paid attention to not making such mistakes in my writings. After participating into this project, in my next writing assignments, I can clearly spot my mistakes not just related to grammar but including organization and accordingly correct them while checking out my writing (Interview response).*

Being commented on by other students was also expressed as an improving point for them:

Student 22: *Since they [digital stories] were evaluated by others on Facebook, through the comments made by the classmates we could notice our mistakes (Open-ended Response).*

To sum up, all of these excerpts indicate that DS-integrated writing created a more self-controlled learning environment. All of the responses above were all about the positive effect of this implementation on self-evaluating one's own performance in writing and correcting the mistakes by himself-herself.

Some of the interviewees (4/10) also mentioned that this pedagogy helped them to review, synthesize, reflect on and share their true stories:

Student 6: *Through DS, I reviewed my stories. The angriest and the most embarrassing moments.(...) Before this implementation, I had never thought about my experiences or stories. So this [implementation] helped in this issue. Moreover, it fostered my imagination (Interview response).*

Student 8: *I had not thought them before (his real stories). For example, I thought my angriest moments. When you asked us (to provide a digital story on you angriest moments), I thoroughly reviewed my stories (Interview response).*

Student 9: *I had never thought my stories before. But it was a good experience. You can refresh you memories. (...) Sharing with others was also enjoyable. And we really enjoyed in-class presentations (Interview response).*

As seen, DS helped them to think again on their stories and dig these stories by reviewing, synthesizing and elaborating them. Therefore, they felt themselves much clearer in their narratives by expressing themselves better. Accordingly, some of the students (*open-ended responses: 2/23, interview responses: 9/10*) stated that DS was beneficial to express their feelings better and to send the intended message in a more effective way. One student stated that this implementation is effective in general:

Student 19: *This implementation helped me to express my ideas better (Open-ended Response).*

The others elaborated this saying by adding that because visual, music or any other multimedia elements the message becomes much clearer and effective:

Student 5: *It was effective to see how my writings turned into a visual story by supporting them with pictures and music. Our writings turned into a real story. I mean you see how your writings can turn into a 'real' story. This helped us to express ourselves in a more complete way. For example, saying "I am sorry" and expressing this sadness by means of a visual and an audio are not the same. It [DS] is a more effective technique than writing. Our stories are perceived more truthful and more realistic (Open-ended response)*

Student 1: *Visual and auditory intelligence types came forward. Since not all the students understand the message in the same way, the message that I want to send becomes clearer and more effective for everyone through DS (Interview response).*

Student 3: *Visuals are important for learning. When you see something, it becomes more memorable. Therefore, I can say that digital stories are more beneficial than paper-pen writing practices (Interview response).*

Student 4: *Visuals and music are the elements that lead to expressing a more memorable story. So this method is effective (Interview response).*

Student 6: *[After this implementation] I learned how to combine music, image and text together to express an idea more effectively. Our story may not be fine enough but we can compensate the gap (it can be stemming from the lack of a good command of English) by adding visual materials, music or our voice to our story. So our story can be more attractive (Interview response).*

Lastly, one student talked about the effectiveness of DS-integrated writing from the point of the receiver of the message:

Student 2: *I had the opportunity to revive the events in my mind. Also I understood what my friends' lived and how they felt in such situations better through their voice tones and pictures. If I had read their stories but not watched them, I would have given up reading their stories (Interview response).*

As seen from the afore-mentioned extracts, it can be concluded that a majority of the students underlined the importance of visual materials or other multimedia elements (music, voice etc.) to support the expression of their message (the story). That is, the repertoire of expression was expanded through DS. Moreover, they mentioned that their message (the story) became clearer, more effective, and more realistic via DS. They stated that through DS, any given message was expressed more comprehensibly in a more realistic manner with the help of the composition including visual and audio dimensions. A visual composition was achieved by this method. They made further comments that all elements added a meaning to the story, each of which compensated the others' deficiency or enriched the expression, which may in turn have led to the wholeness of the story.

As illustrated above, the students directly maintained that this implementation gave them an opportunity to focus on their true stories by reviewing, synthesizing, and elaborating on them and they stated that DS was an effective method to reflect on their feelings, ideas or experiences mentioned in the stories. They reported that they were much clearer in expressing themselves via DS. Therefore, some students (*open-ended responses: 1/23, interview responses: 8/10*) mentioned that they were better at the narrative writing type in some aspects than the other paragraph types such as cause and effect, listing or classification paragraph types dealt with traditionally in class. This expression clearly indicates the positive impact of the DS implementation on the narrative writing type. Those statements can be seen below:

Student 14: *I feel myself better at narrative writing than the other types because I can provide the unity in my writing better in narrative paragraphs than classification or listing paragraphs (Open-ended Response).*

Student 2: *We had the opportunity to pour our feelings, thoughts, and our stories onto pages many times. So I think I express myself better not in other fields but in narrative writing. That is, I feel myself more successful in narrative writing (Interview response).*

Student 8: *I could not write something on a paper before this implementation. But now I felt myself more comfortable in writing especially in narrative writing (Interview response).*

Additionally, although some other students did not express directly that through this implementation, they were better at narrative writing, it can be easily inferred that they wrote better in the narrative paragraph type. Those students stated that they wrote more fluently (2 interviewees), more easily (1 interviewee) and faster (1 interviewee) in narrative paragraph writing. Below are these reflections:

Student 1: *I am writing more easily in the narrative writing type.*

Student 3: *This implementation really affected my writing skills. I started to write more fluently after DS. Especially in the narrative writing.*

Student 5: *Because of dealing with a paragraph in many times in different formats, I feel that I am writing more fluently now. Especially in the narrative paragraph type, I am writing more fluently.*

Student 7: *After this implementation, I believe that I am writing faster. At the beginning, I spent at least two hours to write a single paragraph but now I can write a paragraph in an hour. But to be honest I am much faster in writing a narrative paragraph.*

Another point mentioned in the interviews is the *authorship* element. Although the frequency score of this point is not as high as the other points mentioned above, some of the students (interview responses 4/10) expressed that with this implementation they felt themselves as an author. The sample excerpts of the interviews are as follows:

Student 5: *With this implementation, I felt myself as a real writer.*

Student 6: *I felt myself as an author. Before this implementation, I had not known that I liked writing this much.*

Student 7: *DS affected my authorship more than before.*

These extracts above indicate that perhaps because of producing artefacts which were appreciated by others (classmates), the students adopted an authorship identity through this implementation. In addition to these points mentioned above regarding the advantages of the implementation on writing skills, there are also other important points mentioned by some of the students via open-ended questions or interviews which had less frequency scores than those of the aforementioned items. For example, three students (*open-ended questions: 2/23,*

interview: 1/10) believed that this implementation enabled them to gain more awareness of the *process writing steps* by stating the following statements:

Student 5: *I really learned what outlining, drafting and editing mean because while making a digital story I moved back and forth between these steps. Before this implementation, I did not cover the importance and the necessity of outlining, drafting or revising our writings (Open-ended Response).*

Student 13: *We dealt with our implementation through different steps such as drafting our paragraph, the storyboarding and combining the multimedia elements around our plan that we made in our storyboards. We really paid attention to these steps because we knew that those steps were interrelated to each other, providing the basis of the artefact to be shown to the others (Open-ended Response).*

Student 5: *The quality of my digital story truly depends on what I do in the paragraph writing stages such as finding a good topic, drafting my paragraph, revising it based on the feedback that I got. I am sure that if I do not give importance to any of the paragraph writing steps, I know that my digital story will not be fine enough (Interview Response).*

These reflections are good indicators of gaining an awareness of the process writing steps as a result of the participation into the implementation.

Moreover, two interviewees reported that this implementation helped to spell more correctly:

Student 8: *DS is really helpful for spelling because you have to check all the words before showing this story to the others. I generally use dictionary for spell-check but sometimes I consulted my friends as to the correction of some words' spelling.*

Apart from these, other advantages of this implementation on writing skills were also mentioned in response to the question (*Do you think this implementation helped you more motivated toward writing? More efficacious? Less anxious?*) asked only in the interviews as a sub-question of Question 3 (*What are the advantages or disadvantages of this implementation on writing?*).

The effects of the implementation on motivation, efficacy and anxiety for writing (Q3a). This sub-question was only asked in the interviews. An overwhelming majority of the students (8/10 interviewees) directly expressed that this implementation made them more motivated for writing. A few students directly mentioned that this implementation motivated them to write:

Student 1: *This implementation really motivated me to write.*

Student 2: *It motivated me a lot.*

Two of the students underlined that they started to enjoy writing because of this implementation:

Student 6: *Before this implementation, I had never known that I liked writing this much (...). Because of this implementation, I started to keep a journal.*

Student 8: *This implementation made me love writing.*

Others expressed that DS activities did not discourage but made them more positive towards writing:

Student 3: *No, DS did not discourage me to write. On the contrary, it made me more positive towards writing. That is, because I am writing better, I have felt happy. I had more tendencies for writing.*

Student 5: *No, it [DS] did not discourage me to write. I was willing to write more when I produced digital stories using my own stories because stories become more realistic when they are in the digital format.*

One student stated that because this implementation made her more efficacious, she felt more motivated for writing:

Student 9: *It [The implementation] motivated me. I could not make a plan before. I was trying to bring irrelevant sentences together. That is, I had difficulty in unity, which in turn made me less motivated. I couldn't succeed in writing. But with DS, I felt more confidence for writing because I shared my digital stories in class and they really liked them. We also shared them in our group (Facebook group). It was really effective. That is, I started to like writing.*

Lastly, one student noted that DS activities were enjoyable and therefore motivating:

Student 7: *I was motivated. Actually writing a new paragraph via DS-integrated way rather than traditional paper-pen type sounds more enjoyable to me. DS is more enjoyable; thus being more motivating. For example, I was preparing my storyboards colorful although it was not required. Pen-paper writing is really boring. But DS allows us to express ourselves in different ways such as visuals, music and etc. Thus, writing became more motivating.*

It is clear from the excerpts above that students found writing in the DS-integrated way more motivating by underlining different points for finding like this.

Moreover, a substantial majority of the students also stated (9/10 interviewees) that they became more efficacious and in turn less anxious for writing as result of the participation to this implementation. Below are the sample extracts:

Student 7: *With this implementation, I became more efficacious and less anxious towards writing.*

Student 3: *I think I am writing better with less anxiety.*

A considerable number of the students also made additional comments as to how they felt at first and how it changed in time through this implementation:

Student 1: *Actually, I was really afraid of the writing course initially because we didn't write almost anything at high school. We were generally focusing on grammar or question-answer techniques in writing. I was too anxious; even I thought to run away from the school when you asked us to write a narrative paragraph for the first time. But as a result of the participation into this implementation, I believe that I can easily write on any topic in the narrative writing type. To me, I am more successful in the narrative writing type. I am writing more easily in this paragraph type.*

Student 2: *At the beginning, I was really afraid of writing anything. But making a lot of practices in narrative writing motivated me to write more. Not just for the narrative writing type but in any paragraph types. Now I am feeling myself more efficacious and less anxious in writing.*

Student 5: *Now I am feeling that I am writing better and I am less stressful for writing than before. Writing became easier for me. DS made my job much easier.*

Student 9: *I feel that I am writing better ... My stress level for writing also decreased. In fact, I had a bit anxiety at first and you can see the effects of this stress in my first drafts. But day-by-day my anxiety level decreased. I know this will positively affect my writing abilities in my future years. This was a really nice experience for me.*

From the excerpts above, it can be clearly concluded that this implementation made them more efficacious and in turn less anxious for writing. Although one student (student 1) stated that through this implementation, he felt more efficacious but less anxious specifically in the narrative writing type, the rest of the others expressed they became more efficacious and less stressful for writing in general.

The comparison of the DS-integrated writing with traditional paper-pen writing practices (Q4). This question asked the interviewees if they found DS (a) easier, (b) more effective, or (c) more enjoyable than traditional paper-based assignments. A vast number of the interviewees (7/10) reported that this type of writing was easier than traditional paper-pen writing assignments. Here is a sample extract:

Student 5: *To be honest, initially, I had difficulties in DS. But from the second digital story-making, writing through DS became much easier.*

Another student also commented on this issue as follows:

Student 2: *I think traditional writing assignments such as writing cause and effect paragraphs were more challenging because in digital stories we wrote something depending on our real life, that is, we told our real stories and expressed these stories via technology, so DS-integrated writing is much easier. For traditional writing assignments, I had difficulty in finding a suitable topic to write on. (...) and in digital stories I had a chance to show my writing skills to others because I am writing much better and more easily in DS-supported writing activities.*

As seen, this student revealed that DS-integrated writing was much easier than traditional writing activities because she had difficulty in finding a suitable topic to write for in the other paragraph types but not in the narrative writing type. Therefore, at first sight, it is not clear if she found narrative writing or DS-integrated narrative writing easier. But her last statements (*in digital stories I had a chance to show my writing skills to others because I am writing much better and more easily in DS-supported writing activities*) clearly indicate that she found writing via DS

easier and with this technique she started to write better in general without mentioning any points on the specifics' paragraph types.

Additionally, three students who did not make a direct saying on finding DS-supported writing easier than its counterpart noted that this type of writing was not more challenging than traditional writing practices. Their sample comments are below:

Student 4: *I cannot say DS-integrated writing is more challenging.*

Student 10: *I think writing via DS is not more difficult than traditional writing activities.*

As to the second point which is about asking the interviewees to compare DS-integrated and traditional writing in terms of effectiveness, a fair number of the students (6/10 interviewees) expressed that this type of writing was more effective because using multimedia elements helped them to send the message more effectively:

Student 3: *Writing via DS was more effective. We really like the videos in YouTube and I think that we are preparing videos similar to the ones in YouTube. Only the text is not more attractive.*

Student 4: *Visuals and music are the elements that lead to expressing a more memorable story. So this method is effective.*

Student 6: *[After this implementation] I learned how to combine music, image and text together to express an idea more effectively. Our story may not be fine enough but we can compensate the gap (it can be stemming from the lack of a good command of English) by adding visual materials, music or our voice to our story. So our story can be more attractive.*

These statements are clear indicators of students' evaluations of the effectiveness of the writing types in favor of the DS-integrated writing way.

As for the last point, namely the *enjoyment* point, all of the students unanimously maintained that the DS-supported writing was more enjoyable than the counterpart. The sample quotations can be seen below:

Student 1: *DS-integrated implementation is without doubt more enjoyable..... We are not getting bored in these activities.... Making something different is becoming more attractive.Pen-paper based writing activities are more boring.*

Student 2: *DS-integrated is more enjoyable.*

Student 3: *If I don't have problems related to Internet access, I find writing in this way (DS) more enjoyable. Recording voice, finding suitable visual materials for your story These are really enjoyable.*

Student 6: *Apart from what we did in the DS implementation in class, we mostly use our textbook in writing class, which is really boring. Expressing ourselves with visuals, music or other elements is really more enjoyable.*

Student 7: *Writing became more enjoyable. But unfortunately this project ended.*

Student 9: *Writing is really more enjoyable. Expressing yourself only through texts is not memorable but writing in a video format is more enjoyable and more memorable.*

As illustrated above, the students underlined that DS-integrated writing was more enjoyable than its counterpart and for some of the students (interviewees 1, 3, 6, and 9), its reasons were directly based on the use of multimedia elements in telling the story. That is, according to those students, by adding multimedia elements to the text, writing becomes more memorable, more effective and thus being more enjoyable.

The extent to which the participants were engaged in DS-integrated writing activities (Q5). The results related to this interview question were addressed in the data analysis part of Research Question 3 in the previous section. Therefore, the results will not be repeated here.

Apart from writing, the other language skill/s improved at the end of the implementation (Q6). This question was asked in both interviews and open-ended questions. As it was addressed in the previous section, the students believed that they improved grammar after participating into this implementation. In addition to grammar points, a considerable number of the students also expressed that they improved other language skills such as the speaking skill (*open-ended responses:18/23, interview responses:3/10*), pronunciation (*open-ended responses:10/23, interview responses:8/10*), phonology (*interview responses: 2/10*) and the listening skill (*open-ended responses:8/23, interview responses:0/10*). The sample extracts related to each skill will be shown here, respectively.

Student 1: *My speaking skill developed most. We paid more attention to correctly pronouncing the words because these stories would be listened by the others in class (Open-ended Response).*

Student 5: *I believe that DS improved my speaking skill because we did recordings for our videos and my pronunciation skill was affected by this positively (Open-ended Response).*

Student 8: *By means of DS, I improved myself in speaking. Now I am trying to pronounce the words more correctly and more carefully (Open-ended Response).*

Student 11: *Because we recorded our voice, we could develop our speaking skills (Open-ended Response)*

Student 12: *It can be said that my speaking developed a lot. That is, I paid more attention to correct pronunciation of the words (Open-ended Response).*

Student 17: *My speaking skill improved more than before. I had an opportunity to correct my pronunciation by listening to others' speech (Open-ended Response).*

Student 18: *I believe that I improved my speaking skill most because during our implementation, we did many voice recordings and so I paid much attention to my speaking and pronunciation (Open-ended Response).*

Student 7: *This implementation positively affected my speaking skill most. Especially the pronunciation (Interview response).*

Interestingly, all of the students who expressed that they developed their speaking skills via DS-integrated writing actually meant that they improved their pronunciation skills by stating this as the speaking skill. In other words, by noting that they improved their speaking, they in fact believed that they improved their pronunciation skills. The positive effect of the implementation on pronunciation was also directly stated by 10 respondents in the open-ended questions section and 8 interviewees. Here are some sample excerpts coming on the impact of DS on pronunciation as follows:

Student 20: *This tool [DS] improved my pronunciation skill. When I listened to my friends' digital stories, I learned the correct pronunciation of some specific words and when they mispronounced a word, we could teach them the correct form/s (Open-ended Response).*

Student 4: *We paid attention to pronunciation because others would see our stories. (...) I had hesitation of making a pronunciation mistake since the others would see it. But at the same time this encouraged me to improve myself more. Before this implementation I did not pay attention to correctly pronouncing the words. But now I really pay attention to this (Interview Response).*

Student 7: *Since the others would see it [the digital story], I tried to correct my mistakes. For example, I tried to read my speech properly. It affected my pronunciation. I tried to look up a dictionary for nearly every word (Interview Response).*

Student 10: *I really did a good job in pronunciation. Sometimes a door or a window was opened while recording. I remembered that I tried to record my voice for a word in multiple times. (...) So it was really effective for pronunciation (Interview Response).*

As seen, most of the students concentrated on pronouncing the words correctly because the others would see or evaluate their performance. That is, because of the audience effect, they paid more attention to correctly pronouncing the words. Other two students made also comments on the positive impact of DS on enhancing prosodic features of speech. A sample quotation is below:

Student 5: *While trying to add my emotions to my study, I paid attention to my voice tone, intonation, stress, and pitch.*

As for the listening point, some of the students (*open-ended responses: 8/23, Interview Responses:1/10*) stated that they developed their listening skills through this implementation. Some of those responses (e.g. students 4 and 16) revolved around again the pronunciation point in that those students expressed that

they improved their listening skills because they listened to and paid attention to the others' pronunciation.

Student 4: *Through DS, my listening skill improved a great deal. For example, I paid attention to how my friends pronounced certain words. And in this way, I corrected my mistakes (Open-ended Response).*

Student 10: *My listening skill developed. While listening to a text or a speech, I started to comprehend what was told better by time (Open-ended Response).*

Student 15: *I think I enhanced my listening skill a lot. Now I can understand most of the sentences spoken in the videos or most of the sentences that my friends talk (Open-ended Response).*

Student 16: *I improved my listening skill. With the help of listening to my friends' voice recordings and their pronunciation, I could develop this skill (Open-ended Response).*

As seen from the all mentioned points above, it is safe to say that, whether expressed as *speaking* (but meant pronunciation) or as directly *pronunciation*, a majority of the students perceived that they improved their pronunciation skill through this implementation. They also believed that their listening skills were also developed.

Self-efficacy beliefs for and attitudes toward incorporating technological devices into learning, especially into writing (Q7). The results related to this interview question were addressed in the data analysis of Research Question 4 in the previous section. Therefore, the results will not be repeated here.

4.2.5.2.3. Suggestions for the Implementation

The obstacles faced during the current DS implementation (Q8). This question was asked in both interviews and open-ended questions. A fair number of the students (*Open-ended responses: 20/23, Interview Responses: 4/10*) expressed that they faced some problems during the implementation. For example, 13 respondents in the open-ended questions section and 3 interviewees noted that they had difficulty in recording their voice. The sample extracts are illustrated below:

Student 3: *Sometimes my voice was not clear enough so I had to repeat the recording stage many times (Open-ended Response).*

Student 2: *I had problems in recording my voice because I had to synchronize our voice-over with the background music. That was the most difficult part for me (Interview Response).*

Student 6: *I had difficulty in recording my voice because the other people around me were making noise while recording my voice (Interview Response).*

A small number of the students (*Open-ended responses: 4/23, Interview Responses: 2/10*) also reported that at first they had some problems while making a digital story because of the novelty factor of the software (WeVideo) but later they developed themselves and faced almost no difficulty in producing such a story:

Student 1: *Of course we had some difficulty initially but later we covered how to use this program (WeVideo) (Open-ended Response).*

Student 23: *When I first used the program (WeVideo), I did not really know how to make a story using this program. I did not even know how to share my video on Facebook. But later, I learned all this stuff and did not have any difficulty. (Open-ended Response)*

Additionally, some others (*Open-ended responses: 4/23, Interview Responses: 2/10*) reflected on their difficulty in finding the Internet:

Student 3: *The lack of computers or Internet access was the most problematic part. So you have to develop the task day by day. You find the visuals one day and on the other day you record the voice, that is, you cannot finish the task at once. But if you have Internet access, you can easily finish the story at once (Interview Response).*

Student 9: *I have difficulty in accessing the Internet because I stay at dorm (Interview Response).*

In addition to the problems stemming from the lack of Internet access, there were also other problems related to the synchronization of the multimedia elements and the script. That is, all the multimedia elements should coordinate with the written content, leading to a great difficulty for some of the students (*Open-ended responses: 3/23, Interview Responses: 1/10*).

The last difficulty mentioned by two students is about finding the suitable visuals for their story (*open-ended responses: 1/23, Interview Responses: 1/10*):

Student 3: *Sometimes, I had difficulty in finding the suitable visual materials for the story (Open-ended Response).*

To sum up, it can be stated that some of the students had some problems mostly in Internet access, recording their voices and the use of the software (WeVideo). Additionally very few of the students (*1 interviewee*) also had difficulty in finding suitable visuals related to the story/ies and accompanying these materials with the script.

Reflections on teachers' use of more DS activities in teaching writing or in any other skills in the future (Q9). This interview question asked the students if they recommend teachers to use more DS activities in writing. Additionally, a sub-

question also asked them if DS could be used in any other language skills. All of the interviewees unanimously stated that they would recommend teachers to use DS in further writing classes. Some students also provided reasons for their preferences for such kind of instruction in writing by extending their answers. For example, three interviewees noted that just because it is enjoyable, this kind of technique should be used in writing:

Student 1: *Yes, the teacher should use this [DS] in writing because it is more enjoyable than traditional writing.*

Student 7: *Yes, because it is enjoyable; we are more active in this type [DS-supported writing].*

Student 8: *Yes, they should use it because it is enjoyable.*

One interviewee also mentioned that because this technique is attractive, teachers should make use of it:

Student 10: *Yes teacher should use it [DS] because it attracts our attention and enables us to participate into the course.*

The other student reported that this technique is useful; therefore; it should be used. Below is her quotation:

Student 5: *Yes because it is useful for us in writing.*

One student also mentioned that the reason for using this technique is related to its more effectiveness than traditional writing activities. Here is her comment:

Student 9: *Yes because this technique is effective. Actually only the text is not very effective because we put our writings in our folders as drafts and that's it. But in this way [DS-supported writing], everybody is seeing the others' stories, which is really effective for us.*

Lastly, one student from the ELT department extends her comments from a different perspective:

Student 3: *Definitely teachers should use it. In fact, when I become a teacher, I am planning to use it [DS] in writing.*

As illustrated above, the students were of the opinion that teachers should use DS in writing in their future classes although they extended their recommendations by commenting on different points.

In addition to this, the researcher also asked them if DS can be used in other skills apart from writing. Five of the interviewees stated that this technique can also be used in speaking. But four of these interviewees, in fact, meant “*pronunciation*” by articulating “*speaking*”. Sample quotations are below:

Student 3: *[DS] can be used in speaking because we re-recorded our voices many times. So we improved our pronunciation.*

Student 10: *Of course, speaking because of the possibility of the recording the voice.*

One student also mentioned *speaking* but this time, she commented on a different point:

Student 7: *For speaking. We can use it for presentation.*

In addition to speaking, two students also mentioned that DS can be beneficial in reading courses. Here is a sample quotation:

Student 8: *In reading, it can be used especially to teach new vocabulary items.*

One student also mentioned that it can be used in grammar:

Student 3: *In grammar, DS can be used. For example the teacher can make a grammar mistake and can her students to find that mistake through DS.*

All in all, as it is obvious from the above, all of the students agreed that teachers should use DS activities in future writing classes. Moreover, some students believed that this technique can also be useful in speaking with a special reference to pronunciation. Lastly, it is also noted that for grammar and reading, DS can also be utilized.

Suggestions for improving the implementation (Q10). This question was asked in both interviews and open-ended questions. The data yielded from both instruments show that none of the students noted any suggestions to be added to the implementation to improve it. Some students extended their comments by reporting that because the implementation was already well-planned, there is no need for any change. One sample excerpt is below:

Student 9: *You already planned every detail properly; therefore, it is not needed to change any part of the implementation (Interview Response).*

In conclusion, it can be stated that the students held positive perceptions of using DS in writing and they supported their ideas by commenting on different perspectives. The summary of the interviews and the open-ended question section can be seen as follows:

Table 4.66. The Summary of the Findings Obtained in the Interviews

<i>Categories</i>	<i>Questions</i>	<i>Sample Responses</i>	<i>Frequency</i>
General impression related to the implementation	1. How effective was the DS implementation?	Effective	I: 10/10
	2. What are your attitudes towards improving your writing skill through DS activities?	Positive	I: 10/10
Evaluation of the effectiveness of the current DS implementation on L2 writing and on other skills	3. *What are the advantages /disadvantages of the current implementation for writing?	Advantageous	OE: 23/23 I: 10/10
		Disadvantageous	OE: 0/23 I: 0/10
		Grammar	OE: 3/23 I: 10/10
		Organization	OE: 6/23 I: 9/10
		Self-correction	OE: 9/23 I: 4/10
		More focus on narrative	I: 4/10
		More effective expression of the message	OE: 2/23 I: 9/10
		Developing narrative writing style	OE: 1/23 I: 8/10
		Authorship	I: 4/10
		More awareness of process writing steps	OE: 2/23 I: 1/10
		Spelling	I: 2/10
	3-a) Do you think this implementation helped you more motivated toward writing? More efficacious? Less anxious?	More motivated	I: 8/10
More efficacious		I: 9/10	
Less anxious		I: 9/10	
4. How do you compare the DS-integrated writing with traditional paper-pen writing practices?	Easier	I: 7/10	
	More effective	I: 6/10	
	More enjoyable	I: 10/10	

	5. To what extent are you engaged in DS-supported writing activities	Active involvement	I: 10/10
		Doing their best	I: 9/10
		Feeling more responsible	I: 7/10
		Collaboration	I: 5/10
		Spending much time	I: 10/10
		and effort	I: 4/10
		Keeping going on the implementation with enthusiasm	
	6. *Apart from writing, what the other language skill/s did you improve at the end of the implementation?	Speaking	OE: 18/23 I: 3/10
		Listening	OE: 8/23 I: 0/10
		Pronunciation	OE: 10/23 I: 8/10
		Phonology	I: 2/10
	7. Does this implementation affect your self-efficacy for and attitudes toward technology integration into your learning (writing)?	Heightened level of self-efficacy	I: 9/10
		More positive	I: 10/10
Suggestions	8. *Are there any obstacles faced with during the current DS implementation?	Recording voice	OE: 13/23 I: 3/10
		The software	OE: 4/23 I: 2/10
		Internet access	OE: 4/23 I: 2/10
		Synchronization of the multimedia elements	OE: 3/23 I: 1/10
		Finding suitable materials	I: 1/10
	9. Do you recommend teachers use more DS activities in teaching writing or in any other skills in the future?	Yes	I: 10/10
		Speaking (Pronunciation)	I: 4/10
		Speaking (Presentation)	I: 1/10
		Reading	I: 2/10

	Grammar	I: 1/10
10. *Do you have any suggestions?	No	OE: 23/23 I: 10/10

* = The questions were asked in both interviews and the open-ended section

4.3. Conclusion

This chapter presented the findings gathered from both qualitative and quantitative instruments. On the basis of these findings, the discussion section will be included in the next section. Following this, pedagogical implications, limitations of the study and suggestions for the further research parts will be presented.



5. CONCLUSION

5.1. Introduction

This study aimed to explore whether a DS-integrated pedagogy was effective for improving EFL English-major-students' (narrative) writing performance in the Turkish context. The study also investigated the effects of DS on learners' motivation (and its sub-components) and engagement levels. Whether the students' attitudes toward and their self-efficacy beliefs for the integration of educational technology were affected as a result of the participation in the DS intervention was also explored. Lastly, the students' perceptions of the implementation were researched in this study.

This chapter will firstly discuss the findings in the light of the related literature. Then, pedagogical implications of the study will be presented. Following this, the limitations of the study and suggestions for the further study will be included.

5.2. Discussion of the Findings

5.2.1. Discussion on the Findings Related to Research Question 1

The study was conducted in a two-group pre-/posttest research design. The experimental group was exposed to the DS-integrated writing instruction while the control group dealt with traditional paper-pen writing practices. The quantitative data gathered from students' narrative writing samples at the beginning and at the end of the implementation yielded information about the effectiveness of the DS use in the writing instruction compared to its traditional counter. The 2x2 ANOVA results showed that there was a significant *time by group interaction* for the writing score, suggesting that the treatment type had a different effect on writing scores at two time points in the experimental and control groups. To find out the source/s of the interaction, follow-up between-subjects and within-subjects univariate ANOVAs were applied. The within-subjects univariate ANOVAs indicated that both groups improved writing performance at the end of the implementation. But the between-subjects univariate ANOVA results also showed that although there was not a difference between the groups' writing scores at the outset, a significant difference existed between the groups after the treatment. If the mean differences (calculated by extracting the pretest scores from the posttests scores for each group) were explored, it is obvious that the mean difference for the experimental group

($M=14.48$) was greater than the score of the control group ($M=7.60$). All of these findings imply that although both types were effective in developing (narrative) writing skills, the DS-integrated writing instruction type was more effective than its traditional counterpart.

This finding corroborates with those obtained in the prior research (Abdel-hack & Helwa, 2014; Baki, 2015; Ballast et al., 2008; Bandi-Rao & Sepp, 2015; Flihan, 2013; Foley et al., 2014; Foley, 2013; Jesus & Carvalho, 2006; Kulla-Abbott, 2006; Oskoz & Elola, 2014; Yamaç, 2015) which reported that DS was a viable methodology for developing the writing performance.

The first possible cause of the superiority of the treatment over the traditional type of writing instruction can be that for being a more real life tool, DS might have enabled the students to express themselves better. With this tool, maybe for the first time their stories became more realistic and alive for the audience and the intended message became much clearer because the students could use their emotions to reflect their personal experiences. DS allowed the learners to use not only the linguistic mode but also the other modes such as visuals, music or voice-over effectively to send the intended message (Kulla-Abbott, 2006). The students became free from print literacies and added dimensions to their work. “[T]hey thought about implicit and explicit messages of the images they used. (...) The power and the layers of meaning present are impossible to obtain just with a written narrative” (Vinogradova, 2014, p. nd). Thus, they could express their message much more effectively. That is, it is safe to say that DS seemed to expand the repertoire of effective expression by allowing them to add an element of imagery and sound to the storytelling process which causes the story to be both visually and aurally appealing and in turn more realistic both for the writer and for the audience (Simpson, 2011). Therefore, the students in the experimental group who better expressed themselves via this tool than using pen and paper may have developed their writing skills specifically in the narrative writing type more than the other group. Prior studies (Abdel-hack & Helwa, 2014; Bandi-Rao & Sepp, 2015; Kulla-Abbott, 2006; Oskoz & Elola, 2014; Yamaç, 2015) also presented that this tool was effective for specifically narrative writing skills, and therefore these studies underlined the integration of this method to the narrative writing instruction. For example, Kulla-Abbott (2006) noted that when the students in her study were

asked to make a new digital story on environmental topics but not on their true stories as concentrated in earlier tasks,

they didn't feel emotion about it. They couldn't find the "hook" that made them want to "care" about the topic and portray that in their writing. Therefore, they had difficulty trying to persuade people. They became aware, maybe for the first time that something was missing, and in this case it was an emotional connection to the topic that had an impact on their writing, which affected the audience impact as well (p. 216)

This quotation clearly shows that the students were more invested in sharing their own experiences than other topics through DS, which might have led them to be more successful in this writing genre (narrative writing). And this case can be true for the students in this context because some of the experimental group students expressed in the interviews that with the help of DS, they were more eager to engage in the narrative writing type than other writing types because they could express themselves better in this genre.

Moreover, having a larger audience apart from the teacher seems to be effective in these results. Because their classmates could also see and comment on each other's digital stories, the students might have deepened their understanding of the basic conventions of writing "such as audience awareness, exigency, organization, correctness, arrangement" (Takayoshi & Selfe, 2007, p. 5). According to Kulla-Abbott (2006), maybe for the first time, "they considered whom they were writing for (i.e., their audience, friends or family, classmates, or teachers). They also considered for what purpose they were writing, whether to persuade, entertain, make a point, or share about themselves" (p. 213). Therefore, it seems that the experimental group students developed new strategies and approaches to deal with these basic conventions of writing.

The other possible explanation can be made on the basis of the findings of the 2nd research question aiming to determine the effects of the implementation on learners' motivation levels where it was found that the experimental group became more motivated than the control group throughout the implementation. Motivation is one of the most important constructs which direct learners toward specific tasks and in turn promote learning and engagement in the process, and an increase in motivation will probably result in a better performance in a specific skill (LoBello, 2015; Ormrod, 2014). In this respect, the higher level of the experimental group students' motivation than that of the control group students revealed in the findings

of Research Question 2 is presumably the most important cause of the experimental group's more improved writing skills than the control group's.

This explanation finds further evidence in some of the experimental group participants' comments made during the interviews at the end of the implementation. Some of the interviewees stated that because they found the implementation enjoyable and motivating, they did their best for this implementation and accordingly could develop their narrative writing skills more than the other paragraph types.

These findings regarding the above-mentioned interview responses and both groups' motivation scores are consistent with the results of LoBello's (2015) research presenting that the participants in the study showed increased effort, energy, and persistence in activities at the end of the DS implementation, all of which were noted as important indicators of the motivation construct by LoBello. He extended his comments by stating that although students in the traditional writing "behaved in unfocused matter, rushed through tasks, and even disrupted peers in the classroom" (p. 27), during the DS-integrated writing, they showed far more desirable behaviors such as spending increased energy and efforts and persisting in the writing activities.

An additional explanation can be that the primary element of the DS implementation is the *writing* process (Boase, 2008, p. 7); therefore, it "adheres to process writing approaches" (Castaneda, 2013a, p. 59). This implementation "revolves around the narrative" script (Alameen, 2011, p. 356) but not around the use of technological devices. The infusion of technological elements including music, images or voiceover to the story is of secondary importance (Banaszewski, 2002). In agreement with this conclusion, this current implementation also confirmed that the writing process was not negated but reinforced by looping back and forth between the process writing steps such as drafting, editing, revising, and sharing steps to produce an artefact to be showed to the others. Thus, this pedagogy enabled students to deal with all steps of process writing with a deliberate awareness and an in-depth involvement in those procedures (Flihan, 2013), which may have naturally advanced their writing performance more than the control group.

Another factor leading to the superiority of the DS-integrated writing over its counterpart can be attributed to the storyboarding phase, where the students planned their story visually by considering the main structures of the story such as the characters, plot or setting in detail and plan the combinations of their story with the multimedia elements. As evidenced by Kajder (2004) in his study, “in creating the storyboards and examining their scripts closely, students discovered that their scripts needed rewriting and reseeing” (p. 67) as well as pinpointed missing points that are important to developing their plot while it is still in the planning stage (Sylvester & Greenidge, 2009). But in a traditionally composed draft, these gaps or omissions were largely overlooked. Therefore, it seems that in the current study, the elaboration of these elements in the storyboards allowed students to develop the content of the story better as compared to the traditional narrative writing and to understand writing process better, like picturing it in their mind. This finding is also in line with the saying of Simpsons (2011) in the sense that

[t]he tradeoff for using digital storytelling over traditional methods of narrative writing, which is a plus for struggling writers, is that digital storytelling takes the focus off of surface-level issues and puts the focus, instead, on the story's content. The shift of interest, in this case, from low-level writing skills such as spelling, handwriting and grammar to developing a carefully considered plot with well-rounded characters makes it possible for students to focus more on maintaining control of the story (p. 5).

Lastly, the other explanation might be related to the different kinds of feedback (self, peer, & instructor) that were provided for the experimental group throughout the implementation. Students got both constructive feedback during the whole process from their peers and their instructor to make artefacts better and evaluative feedback from the same sources upon their completion of their digital stories in order to progress in the process and correct mistakes for the subsequent digital stories. Students could also self-evaluate their performance after they monitored others' work. This internal reflection process seems to be helpful to better understand their work, to realize the strengths as well as the weaknesses in their work, and to develop their ideas about what they were going to do in the subsequent tasks.

All in all, it is evident that, because of the factors mentioned above, the experimental group improved their writing skills more than the control group at the end of the implementation. As reported by Fries-Gaither (2010, p. 10), all these factors seem to have contributed to the development of “cognitive strategies”

referring to “determining importance, visualizing, inferring, making connections and synthesizing information” and in turn much better writing performance.

In this research, the possible effect of the instruction type on the sub-skills of writing was also analyzed. Firstly, Wilcoxon signed-rank tests were applied and it was found that the control and the experimental groups both improved their scores regarding writing sub-skills after the treatment. Following this, two groups’ pre and posttest results were also compared for each sub-component performing Mann-Whitney U tests, allowing us to conclude if either of the groups scored higher in any of the sub-components. On the basis of the Mann Whitney U tests, it was revealed that although, at the outset, the two groups were in fairly similar levels in terms of each sub-component of writing (except for the component of *Characters and Setting*), at the posttest, the experimental group outperformed the control group in each sub-skill, meaning that even though both treatment types were effective for developing writing sub-skills, the DS-integrated treatment type was more effective than its counterpart in developing those sub-skills.

The possible explanation for the superiority of the treatment instruction over the traditional instruction type in the writing sub-components may be that because of the audience effect, the experimental group students might have paid more attention to all the elements that make up a story than the control group. That is, in addition to the teacher, others including their classmates or people from the social media websites such as Facebook could also see and comment on the digital stories prepared by the students; therefore, the students in the experimental group attempted to do their best work by putting increased efforts and energy to have perfect artefacts at the end. Thereby, the experimental group seems to have concentrated on language skills including grammar, spelling or vocabulary more than the control group did, in turn enhancing those writing sub-skills more than its counterpart.

This explanation was also confirmed by some of the interview responses gathered at the end of the implementation with the experimental group students. These students stated that because their friends would also evaluate their digital stories, while preparing a digital study, they had to check each sentence and almost each word many times in order not to make any mistakes.

As for the other sub-components of writing such as content, structure or cohesion, as suggested before, *storyboarding* where the students focused on the main elements of a story such as characters, plot or setting in detail could be the cause of the experimental group's superiority in these components. Through storyboarding, students sequenced images and ideas in a way that tells a coherent story in the multimedia representation. Here they could see the missing parts of the story, "decide which parts of the story were the most crucial, discuss how they would represent them visually" (Kulla-Abbott, 2006, p. 211), and determine in which plan the intended message could be best transmitted. The recursive cycle of revising, critiquing, and reorganizing these elements (images and ideas) might have allowed them to enrich their content and structure their stories in a coherent way. Thus, they could have improved the writing sub-components of content, organization and unity more than the control group did.

5.2.2. Discussion on the Findings Related to Research Question 2

For this research question, data were collected using both control and experimental groups' pre-/posttest survey results. The collected data were analyzed by using a 2×2 mixed ANOVA to see whether there was a *group* by *time* interaction for the dependent variable (*the motivation score*) and follow up univariate ANOVAs to determine if *time* and/or *group* variables affected the results. The findings of the study indicated that the motivation scores of the two groups were nearly the same at the outset, but at the end, statistical differences existed between the two groups in favor of the experimental group. While the experimental group increased the score, the control group decreased it, suggesting that the DS-integrated writing instruction was more effective in developing motivation than the traditional writing instruction

The first possible explanation can be that in the 21st century, using new digital technologies has been acknowledged as a source of motivation for today's millennials who are exposed to technology at birth and surrounded by it in their daily lives (Afrilyasanti & Basthomi, 2011b; Kajder, 2004; Smeda, 2014). Therefore, DS's interactive and multimedia functionality might have attracted today's generation to tell their personal stories. As suggested by Simpson (2011), the combination of narrative writing with the new technologies might serve the right incentive to motivate and engage students in sharing their stories. This finding

extends the conclusions of the previous research (Afrilyasanti & Basthomi, 2011b; Dong, 2015; LoBello, 2015; Sever, 2014) which noted that as a technology-mediated task, DS is in itself a naturally motivating tool for language learners.

This finding can be also supported by the interview responses conducted with the experimental group students at the end of this implementation. Some of the interviewees responded that they found technology-supported implementations more enjoyable and hence more motivating. That is, they were of the opinion that traditional-writing activities were a bit dull, which may have caused the control group students to lose attention for such activities. On the other hand, as noted by the same interviewees, DS, as a technological tool, appeared to be highly appealing for them.

Moreover, throughout this implementation, the student, himself/herself, was responsible for carrying out all the necessary steps to accomplish the task and therefore, as Xu et al. (2011) suggested, they had to pay more attention to the writing process to be able to generate end-products at the end. Hence, this personalized process allowing the students to present their experiences, reflections and to evaluate their achievements while creating digital stories (Van Gils, 2005) might have created a sense of ownership and in turn increased motivation (Green, 2013; Kulla-Abbott, 2006).

In addition to this, a sense of authentic audience might have motivated the experimental group more than the control group. That is, the knowledge that their stories would be seen and evaluated by their peers seems to be a motivator for the students in the experimental group. In traditional writing class, the control group students wrote for only the teacher; however, in the DS implementation, the audience was beyond the teacher and the students could share their digital stories on Facebook or various social networking sites (Frazel, 2010). By doing so, even the reluctant learners seemed to appreciate this by spending much effort on generating an end-product which would reach a real audience, in turn increasing their motivation and engagement. This conclusion affirms the previous studies (Green, 2013; Hafner & Miller, 2011; Lo & Hyland, 2007; Norton, 2014; Sylvester & Greenidge, 2009) reporting that authoring content for a broad audience positively affected language learners' motivation to write.

Since the motivation section has several subscales indicating different dimensions of the motivation construct such as anxiety, self-efficacy or task value, in addition to analyzing motivation as a single construct, the effect of the treatment type on each subscale was also assessed using a 2x2 MANOVA and follow up independent and paired sample *t* tests. The results demonstrated that after the treatment, the experimental group students became less anxious, but more self-efficacious and had increased levels of intrinsic motivation, task value and control of learning dimensions as compared to the control group students. In this section, the possible explanations for each dimension will be made, respectively.

As suggested above, after the treatment, the experimental group became less *anxious* toward writing than its counterpart although the two groups' anxiety scores were nearly the same at the outset. Moreover, it is important to note that the control group had a higher level of anxiety after this implementation. A possible explanation for this finding can be made on the basis of the results of another motivation dimension, *self-efficacy beliefs*. According to Bandura (1997), a person's self-efficacy determines the extent of his or her anxiety in a given situation and he further explains that demonstrating higher level of self-efficacy is largely associated with having lower level of anxiety. The findings of this study confirm this by revealing that at the beginning of the study, both groups' self-efficacy and anxiety scores were nearly the same. But after the treatment, while the experimental had higher level of self-efficacy but lower anxiety for writing, the control group had lower self-efficacy scores but higher anxiety levels. Depending on this, it is clear that there is a negative relationship between these two constructs.

This finding is further supported by the evidence from the interview responses in that a vast majority of the students felt more efficacious and less anxious toward writing at the end of the implementation. Those interviewees stated that although they had initial fears for writing, they overcame this negative feeling with the help of this implementation in which they gained a feeling of success.

While the traditional type of writing instruction stressed students and constrained their potentials and creativity, in the DS implementation, students felt at ease and invested their passion, knowledge, and experience in doing their best. The lower anxiety but higher self-efficacy scores of the experimental group can be best

explained with a friendly, non-threatening atmosphere created in the DS-implementation process. During this implementation, they were socially interacted with their peers and the instructor in almost each phase of the digital story construction process. That is, from the step of brainstorming ideas to the publishing step, the students collaborated with each other to make their artefacts perfect. Therefore, writing, which had been initially limited to the paper and pen, became a social activity for them. They were no longer under pressure but given an opportunity to be more creative with the continuous feedback gathered by their peers by playing with the material. This conclusion is also affirmed by the work of Clément, Dörnyei, and Noels (1994) that suggested “good classroom atmosphere promotes student involvement and activity while moderating anxiety and promoting self-confidence” (p. 442).

In contrast, in the traditional type of writing instruction, the control group was isolated with a pen and paper and they did not get instant support from anyone in the classroom. They took a blank paper and pen and were required to complete the given assignment within the given time. The students had limited interaction with their peers or their instructor, which may have caused them to be more stressful and less confident for writing.

Additionally, in this implementation, successfully accomplishing the assigned writing tasks seems to have resulted in a boost in confidence for writing and accordingly a decrease in anxiety. As suggested by Bandi-Rao and Sepp (2015), this implementation might have promoted self-efficacy for writing and decreased anxiety because “it leaves students with tangible evidence of their accomplishment: the story they created” (p. 84).

Moreover, Sylvester and Greenidge (2009) express that DS might have paved the way by enabling students who had difficulty in expressing themselves in a foreign language to lower the language barrier. That is, the use of multimedia might have compensated the lack of students who did not have a good command of English while expressing the intended message. Thus, the students who expressed themselves better through pictures and narrations as compared to their performance the pen-paper writing type might have become more confident and less stressful in writing.

Lastly, through storyboarding, students had a “map” to use in their writing, which might have helped them to organize their ideas and see if there were things they could do better. Because they, themselves, edited out mistakes and decided what to do in each step, they had more confidence in almost each phase of the implementation. This confidence may then have been facilitating becoming more comfortable and less anxious writers (Sylvester & Greenidge 2009). Not only through storyboarding, but also in almost each phase of the DS implementation, students had many chances to see any missing elements and to correct the mistakes by looping back and forth through the process writing steps before they finalized their artefacts. This may have in turn resulted in increased confidence and lesser anxiety. This result is echoed in the previous research (Baki, 2015; Dong, 2015; Foley, 2013; Yoon, 2012) which revealed that DS lowered language learners’ anxiety levels but increased their self-efficacy beliefs for writing.

Findings regarding another motivation dimension, *intrinsic motivation* referring to the performing of “an activity for itself, in order to experience pleasure and satisfaction inherent in the activity” (Guay, Vallerand, & Blanchard, 2000, p. 176) are also consistent with what was suggested above for *self-efficacy* and *anxiety*. As Noels, Clément, and Pelletier (2001) noted, intrinsic motivation can be a predictor of reduced anxiety and heightened self-efficacy levels. That is, intrinsically motivating tasks can lower anxiety levels and promote self-efficacy for learning, and according to Norton (2014), DS is one such method which motivates students intrinsically and at the same time reduces their stress and heightens their confidence.

In line with this saying, the results of the current study also showed that the control and the experimental group students’ intrinsic motivation levels were nearly the same before this implementation, but after the treatment the experimental group students increased their intrinsic motivation, while the control group students lowered their scores in this variable. The heightened intrinsic motivation of the experimental students as a result of this implementation can be explained as follows: First, as suggested by Motschnig-Pitrik and Holzinger (2002, p. 2), a student-centered approach provides learners “the freedom to explore areas based on their personal interests” leading to increased levels of intrinsic motivation, and DS is a learner-centered task which places our students at the center of the

learning experience, allowing their voices to be honored and heard (Porter, 2005). In other words, DS allows for student-centered practices that engage learners in a collaborative process where they have become active participants instead of “passive information receivers” (Ohler, 2008). They gained an *ownership* of content, purpose and process by making control of their learning, which is acknowledged as an important mediator of intrinsic motivation (Barrett, 2005). As also confirmed by Gunter (2012), this “*personal investment*” might have resulted in heightened intrinsic motivation. Second, just because DS activities are fun and hence arousing curiosity, the experimental group students might have been motivated intrinsically more than the other group. Third, having a larger audience beyond the teacher might have intrinsically motivated the students because this implementation provided them with a sense of purpose to do their best work, eventually leading to intrinsic motivation. Although these types of activities were challenging enough, they tried to outperform themselves to show their abilities to the others. Lastly, perhaps because they might have evaluated this kind of activities valuable and useful, their intrinsic motivation increased with this implementation because finding a particular task valuable and useful is one way of increasing intrinsic motivation (Yang & Wu, 2012).

This last assertion finds further support from the results obtained for another motivation dimension, namely *task value* dimension referring to the judgments on the interest, usefulness, and importance of the course content (Pintrich, Smith, Garcia, & Mckeachie, 1993). For the task value dimension, students from the two groups had the same scores at the beginning of the study, yet after the implementation, there was a big difference between their scores. The experimental group dramatically increased its scores while the other group substantially decreased the scores. This suggests that the experimental group found the DS-integrated tasks valuable and useful. This finding might be justified by the fact that through this implementation they gained a myriad of necessary skills to be used in their subsequent years. That is, this DS-integrated approach was a multifaceted pedagogy which enabled them to master a number of skills to be applicable to the other courses. Not only writing skills, but also grammar, spelling, text organization, unity, content knowledge, pronunciation, presentation skills, research skills and

interpersonal skills were promoted through this implementation and the students appeared to believe this by evaluating such tasks as valuable and useful.

But this seems not to be the case for the control group. In the traditional way to which the control group was exposed, students could only benefit from pen and paper to transmit their ideas, which is far from the authenticity and limited to one way-sharing. Using only such materials was not capable to express their ideas effectively. And this might be the reason for why they did not evaluate these practices as valuable and useful as the experimental students did.

Another motivation dimension is the *control of learning* component, which is largely linked to autonomous learning (Hafner & Miller, 2011; Thang, Sim, et al., 2014) referring to the “capacity for detachment, critical reflection, decision-making, and independent action” (Little, 1991, p. 4). The findings of this study showed that after the treatment, the control group’s posttest results regarding this variable decreased, while the experimental group’s scores did not vary too much. This finding is surprising in that it was expected for the experimental group to increase its scores in respect of this component at the end of the implementation on the basis of the evidence gathered by the related studies (Hafner & Miller, 2011; Smeda et al., 2014) which confirmed that DS enabled learners to use critical thinking skills in designing a digital story and in turn fostered their independent action. However, as suggested before, there was not a statistical significant difference between experimental group’s pre and posttest results. But if the mean scores were analyzed, it is evident that this group slightly increased their mean scores at the end of the implementation (*Pretest M = 5.04, Posttest M = 5.50*). So depending on this result, it can be noted for the experimental group that although the increase in their gain scores did not seem to be very impressive, there was still an improvement in the aforementioned dimension, providing support for the effectiveness of the method on fostering autonomous learning.

Regarding the control group, the results showed that they decreased their scores after the treatment. Thus, it is obvious that the traditional type of instruction was not effective to enable learners to make control of their learning. Its reason can be the control group students’ heavy dependence on the teacher to move further. That is to say, with the help of the instructor’s feedback, it was possible for them to strive further in this course. However, this is not the case for the experimental

group, because they individually sought ways and strategies to finalize their artefacts. They were involved in every step of the process with an active ownership of learner content, purpose and process by collaborating with others, researching, planning, and revising their digital stories in multiple times to reach a presentable end-product.

Overall, it can be suggested that DS enabled learners to gain control of their own learning, as evidenced by the previous studies (Hafner & Miller, 2011; Thang, Sim, et al., 2014; Xu et al., 2011). Hafner (2011) also noted that through DS the participants took control of many aspects of their learning:

independently practicing and using English in the preparation of their videos, independently exploring the Internet when searching for information, working as a team to monitor each other's learning, eliciting and providing peer support for issues of language and content, utilizing the course Weblog as an online space for reflection on learning" (p. 81).

The last dimension of the motivation construct is the *extrinsic motivation* referring to doing a particular task for an external force such as getting a high mark or approval of others (Dörnyei, 1998). The findings of this study showed that both groups decreased their extrinsic motivation scores at the end of the implementation. This result was expected if it is thought that this implementation was part of the course requirement but free of the formal assessment. The two groups were not graded as a result of participation to this implementation. Therefore, they might not have been motivated for an external reward such as receiving good grades.

5.2.3. Discussion on the Findings Related to Research Question 3

This research question aimed to determine to what extent the students were engaged in this implementation. For this, both qualitative and quantitative data were obtained. The qualitative data were gathered from the semi-structured interviews conducted with 10 experimental group students at the end of the implementation. The quantitative data were yielded by analyzing students' digital stories. The collected data from these two instruments showed that the students were highly engaged into the implementation.

The quantitative data reported that the students consistently increased their engagement scores from the first digital stories to the last ones. The high scores obtained from the digital-story analyses referred to the students' high engagement

levels because it was thought that receiving high grades from digital story analyses can be an indicator of actively participating into the process, keeping on the implementation and doing the best work, taking responsibility for completing all the artefacts, and showing creativity, all of which are the mediators of the engagement construct (Ivala et al., 2013; Lin, 2012; Sadik, 2008).

These findings were also congruent with the qualitative results in the sense that a majority of the interviewees expressed that they actively and enthusiastically participated into the implementation by taking an ownership of content, purpose and process. Moreover, they confirmed that they took responsibility for the implementation and hence tried to do their best from the first work to the last one. From time to time, they needed to work individually or in other times, they collaborated with the instructor or their peers to accomplish their tasks. Additionally, they reported that they stayed on the task despite some challenges such as software problems or lack of Internet access, and spent a great deal of time and put sustained effort on the task both in and outside of the school. All these findings, which are in agreement with the existing research (Banaszewski, 2005; Ivala et al., 2013; Ivala, 2015; Sadik, 2008; Smeda, 2014; Van Gils, 2005; Xu et al., 2011), suggested that this implementation engaged learners to the last minute.

The possible explanations for the heightened level of engagement can be made as follows: Firstly, as confirmed by Smeda (2014), because this implementation is technology-based, today's millennials who are natives to the technology or digital media (Prensky, 2001) might have engaged into this process more than any other previously used traditional writing activities. Some interviewees reported that the use of technology made a task more enjoyable compared to pen-paper format activities. Therefore, they expressed that they were more active in the DS-integrated writing practices than they were in traditional writing activities. That is, their increased level of engagement can be linked to the use of technological devices throughout this implementation.

Another factor that led to the heightened level of engagement can be that because digital story making is a highly personalized experience and "requires students constantly to put themselves (rather than the *content*) at the heart of their studies" (Boase, 2008, p. 5), it might have enabled learners to have internal interactions

between themselves. Having internal interactions through a task is of significance for engagement since it can result in a deeper reflection about the process or the subject matter and a positive change in students' understanding, perspective or the cognitive structure of the mind (Ivala, 2015). Based on the findings revealed in her study, Ivala (2015) noted that while digital story making was found personal, paper-based assignments were thought as factual. One participant in her study reported that

the production of digital stories is very personalized. It comes from your personal perspective and then other people can relate to that (...) whereas when you write something (a paper based assignment) it comes out very factual, especially at this university level, (...) people read something that you've written and they have a slightly different interpretation than you do in your head. Whereas with this (digital story) you've got the images right there and you've got the words and the music. The tone is set. The mood is set and the pictures are there to show things from how you experience it and how you see it. So I think it is much more affective actually (p. 31).

Similarly, in this study, some of the interviewees noted that because DS allowed them to review and reflect on their true stories, they found the implementation personalized and authentic but traditional writing activities more artificial and inauthentic and hence becoming more engaged throughout the implementation.

The additional factor affecting the engagement level of the students can be attributed to the fact that this implementation is a learner-centered methodology (Castaneda, 2013a; Jesus & Carvalho, 2006; Vinogradova et al., 2011) allowing learners to make control of their learning. From the first step (*brainstorming ideas*) to the last one (*publishing the stories and commenting on others' stories*), students, themselves, controlled all the stages of this process through "student-student, student-lecturer, and student-content interactions" (Ivala, 2015, p. 33) to finalize their end-products. That is to say, DS is a highly demanding task which required learners to be highly active and engaged at each stage of the implementation to the last minute. Accordingly, their roles changed "from passive information receivers to active knowledge developers" (Hur & Suh, 2012, p. 324). This conclusion also affirms Jesus and Carvalho (2006), Ivala (2015), Castaneda (2013b), and Sadik (2008), who reported that DS is an effective learner-centered tool that encourages engaged learning by allowing them to be independent learners who take responsibility for and make control of their learning.

In addition to this, this tool also allowed for collaborative environments in which students helped each other with technical, contextual, grammatical or organizational issues. “It is a multi-stage collaborative process through various in-class and out-of-class activities” (Vinogradova, 2014, p. nd). As noted by Standley (2003), Oskoz and Elola (2014), and Smeda et al. (2014), students generally pay more attention to the task and they are more involved in the process while they are working in groups and similar to this conclusion, in this study, the students expressed that they put increased efforts on the task while they were carrying out with their peers, in turn leading to high engagement .

5.2.4. Discussion on the Findings Related to Research Question 4

This research question sought to investigate the possible effects of the DS-integrated implementation on the participants’ self-efficacy beliefs for and attitudes toward technology integration. For this question, both quantitative and qualitative data collection techniques were utilized. The quantitative data were obtained by a questionnaire administered to both groups before and after the treatment. The qualitative data were yielded by the semi-structured interviews conducted with 10 students from the experimental group at the end of the implementation. Since this research question is two-fold, the discussion section for the self-efficacy beliefs and for the attitudes will be handled respectively.

5.2.4.1. Discussion on the Findings Related to the Students’ Self-efficacy of Educational Technology

Computer self-efficacy can be defined as “a judgment of one’s capability to use a computer” (Compeau & Higgins, 1995, p. 192). The collected quantitative data showed that at the beginning of the study, both group students’ computer self-efficacy scores were not very high. In fact this is unexpected because of the general tendency which claims that today’s students are computer savvy (Smeda et al., 2014; Thang, Sim, et al., 2014), and competent in using ICT skills. But it is not safe to generalize this conclusion for all students including the ones who have limited access to technological tools because of personal situations. Moreover, today’s students are largely engaged in using mobile phone or using computer for listening to music or watching films. That is, they do not generally deal with using technology for educational purposes. This also seems to be true for the students in this context who did not scored high at the pretest. Some interviewees even stated

that they did not have an email account before this implementation. But after the current implementation, while the experimental group increased its scores at the posttest, the control group's pre and posttest results did not vary statistically. Overall, the quantitative data showed that DS is an effective technology to improve learners' computer self-efficacy. It is also well documented in the previous research (Castaneda, 2013a; Heo, 2009; Ledong & Morehead, 2006; Thang, Sim, et al., 2014; Wang et al., 2004; Wilson et al., 2014) presenting that DS helped learners to develop technology literacy skills.

The findings of the qualitative analysis also confirmed that a vast majority of the students reported that they became more efficacious for technology use after this implementation. They noted that at the beginning of the implementation, they were anxious for using technology and had initial fears for using technology in class. But with this implementation, they reported that they overcame such negative feelings and improved their self-efficacy beliefs for technology use in their learning.

In fact, such results were expected because through DS students dealt with technology in almost each phase of the implementation to accomplish their tasks. Especially the steps of finding the related multimedia elements such as images or music for the digital stories or publishing the prepared video using the WeVideo software on a social sharing platform enabled the learners to engage in technology. But in traditional writing instruction, the students were not exposed to such technological innovations. Therefore, as Greenfield (2003) pointed out, unlike the traditional methods of learning, computer-assisted learning including the DS methodology seems to be effective for reducing students' anxiety, fear, discomfort, or lack of confidence for technology use.

Another striking finding revealed in this study is that the experimental group students not only increased their self-efficacy but also gained confidence for involving in such subsequent technology-supported implementations later, as expressed in the interviews. This finding is also evidenced in the previous research (Heo, 2009).

5.2.4.2. Discussion on the Findings Related to the Students' Attitudes toward Educational Technology

Kinzie, Delcourt and Powers (1994) argue that people who have high self-efficacy in the use of computers will invest more time and be more willing to learn and do new things with computers. That is, having a heightened level of self-efficacy for technology use can result in holding positive attitudes toward computer technologies, and in turn sustaining more persistence on a task, putting more effort and time into a task. This statement was confirmed in this current study in that the experimental group students who gained a higher-level computer self-efficacy as a result of participating in this implementation also appeared to be more positive towards integrating technology into education than the control group.

The collected quantitative data showed that there were no statistically significant differences between the experimental and the control groups' pretest results. But at the posttest, a significant difference existed between the two groups. While the control group did not change its scores significantly after the implementation, the experimental group scored significantly higher at the posttest.

The qualitative data obtained from the experimental group students' responses during the interviews also evidenced that these students were more positive toward educational technology thanks to the exposure to DS. Likewise, Heo (2009) also proved that the use of DS as a multimedia-based educational technology tool improved learners' educational technology self-efficacy and accordingly promoted their personal dispositions towards technology. Overall, it can be suggested that the heightened self-efficacy of educational technology with the exposure to DS seems to be a predictor of having a more positive stance for the subject matter in question.

5.2.5. Discussion on the Findings Related to Research Question 5

This research question aimed to analyze the participants' perceptions of the DS-integrated writing instruction. For this aim, both quantitative and qualitative findings were yielded. The quantitative data were obtained by administering the perception questionnaire to the experimental group at the end of the implementation. The qualitative data were derived from the open-ended questions section of the perception questionnaire and the semi-structured interviews carried out with 10 students from the experimental group at the end of the study. The discussion

sections regarding the findings obtained from these three instruments are dealt with in this section.

The Quantitative Part. The questionnaire used for obtaining the quantitative data was composed of five different sub-scales namely, *21st century skills*, *self-correction*, *DS-integrated vs. traditional writing*, *motivation*, and *suggestions* subscales. Overall, the mean score of these five sections was 4.02, suggesting that students had a positive stance toward DS-integrated writing. This finding corroborates with the previous studies (Alameen, 2011; Foley, 2013; Kulla-Abbott, 2006; Oskoz & Elola, 2014; Thang, Sim, et al., 2014; Timuçin & Irgin, 2015; Yamaç, 2015) which well documented that students had a favorable opinion of DS-integrated writing. Students' positive stance can be attributed to a number of factors such as its being a technology-supported authentic task, writing for a global audience, or being a learner-centered task but at the same time a collaborative activity.

Out of these five sub-scales, the *21st century skills* subscale got the highest mean score ($M=4.32$), implying that the learners were quite sure that this “multiple technology-modality implementation” (Castaneda, 2013a, p. 57) built a plethora of skills relevant to the 21st century, as evidenced by the other researchers (Castaneda, 2013a; Clemens & Kreider, 2011; Czarnecki, 2009; Gakhar, 2007; Jakes, 2007; Malita & Martin, 2010; Niemi et al., 2014; Smeda et al., 2014; Thang, Sim, et al., 2014; Vinogradova et al., 2011). With regard to the 8 items in this subscale, it is important to note that surprisingly there were no items with the scores in the disagreement line, suggesting that students were quite sure that this tool improved their 21st century skills. Additionally, four items did not also have any neutral responses (Items 36, 37, 38, & 39). This shows that all of the participants in the experimental group unanimously agreed that this type of instruction (DS) was helpful to build 21st century technology literacies (Items 36 & 37) and to provide effective communication relevant to this new era (Items 38 & 39).

21st century skills refer to the concepts of (1) learner-driven knowledge, (2) collaboration, (3) networking, and (4) digital literacy skills (Castaneda, 2013a; Niemi et al., 2014). The first concept is related to the use of critical and creative thinking skills and problem solving skills in learning. Similar to the evidence reported by the researchers (Abdel-hack & Helwa, 2014; Bandi-Rao & Sepp, 2015;

Kulla-Abbott, 2006; Thang, Sim, et al., 2014; Yang & Wu, 2012), this present study also confirmed that the learners used their creative and critical thinking skills as well as problem solving skills while preparing these “open-ended, branching, hyperlinked, cross-media, participatory, exploratory, and unpredictable” (Alexander & Levine, 2008, p. 40) stories. As suggested by Boase (2008, p. 6), “the story in a digital story is subject to purging of every story-to-be-told in whatever form” and the maker thinks critically and creatively about the most effective combinations of the multimedia elements with the script in order to convey the intended message. Similarly, in this current implementation, based on the current researcher’s impression, especially the step of pairing the multimedia elements with the script was actualized within a critical decision-making process.

The second concept regarding the 21st century skills is related to the learning environment allowing for working individually as well as with others. In this study, the students seem to be aware of the fact that the DS-integrated approach enabled them to personalize their implementation but at the same time to contact with their instructor or peers in each phase of the implementation in order to better convey the intended message.

Networking is based on the 21st century communications navigated through different multimedia devices to share experiences and ideas with others. DS enables learners to produce multimedia texts expressed in different modalities and to share these texts with a global audience and the students in this present study appeared to believe that this tool helped them to communicate through different modalities with a larger audience.

The last concept is about the technical skills needed in the 21st century job market including creating, interpreting and evaluating the multimedia content and it is clear that the students of this study were aware of the potential of this tool for building skills relevant to the 21st century.

The second most highly endorsed subscale was the *Self-correction* subscale ($M=4.20$), whose items reflect a particular dimension, one’s self-evaluation of his/her performance and correcting the mistakes or compensating the weakness by himself/herself, by peer or instructor feedback or by viewing other’s performance. Depending on the item-by-item analysis, it was revealed that except for only one

student for only one item (item 15), none of the students disagreed or strongly disagreed with any of the items in this subscale. Moreover, for almost all items (except for item 15), the percentages of the neutral responses were very low (less than 20%). This implies that the vast majority of the learners in this present study appeared to believe that this tool helped them to self-evaluate their performance, notice their mistakes or weaknesses and seek the ways or strategies to correct them through reflection, collaboration, and interpersonal communication. As confirmed by Vinogradova (2014), “students became the main judges of their works” (p. nd)

This finding can further be confirmed by the evidence yielded from some of the interviewees’ responses which were about the positive effect of this implementation on self-evaluating one’s own performance in writing and correcting the mistakes by himself-herself. Some of the interviewees also mentioned about the positive effects of viewing and commenting on others’ videos on correcting themselves. Additionally, in the interviews, it was also revealed that the students found seeing comments made on their videos beneficial because, in light of those comments, they got a chance for self-evaluating their own performance and correcting the problematic parts in turn.

The third highest mean score was of the *DS-integrated vs Traditional Writing* subscale ($M=3.94$), whose all items are based on the superiority of the DS-integrated writing over the print-based writing. The mean score of this subscale falls into the “agree” category, implying that the students were more positive toward DS-integrated writing than its traditional counterpart. This finding supports the existing research (Kulla-Abbott, 2006; Oskoz & Elola, 2014; Timuçin & Irgin, 2015) reporting that students had a more positive stance toward DS-integrated writing than traditional writing practices.

Item-by-item analyses showed that the majority of the students appeared to believe that the DS-integrated pedagogy was more effective than the traditional writing practices in a number of aspects such as allowing the learners to be more creative, successful, effective or confident. As also evidenced by the interview responses, both qualitative and quantitative data reported that the DS-integrated approach was perceived superior to its counterpart in the following points:

- Process writing steps
- Narration
- Developing (narrative) writing
- Expression of the message
- Being easy & challenging
- Organization
- Being active
- Authorship
- Motivation
- Being successful
- Confidence in writing
- Creativity
- Finding easy to write on a topic

The possible explanation related to above findings can be attributed to the factors mentioned for Research Questions 1 and 2 such as being a technology-modality tool hence more motivating and engaging, putting more deliberate effort on process writing steps, having an authentic audience to write for, storyboarding and most importantly expressing more effectively in different modes.

As for the *Motivation* subscale, which had nearly the same mean score ($M=3.93$) with that of the *DS-integrated vs Traditional writing* subscale ($M=3.94$), it is evident that this scale attracted more neutral responses than the other aforementioned subscales. But this scale did not also receive too much disagreement as similar to the mentioned-above scales. Out of 9 items, only three of them (Items 4, 6, & 8) got a very low level of disagreement percentage (less than 10 percent). Overall, these findings indicated that the majority of the students responded to these items positively by agreeing or strongly agreeing that DS-integrated writing instruction was a motivating tool for writing.

Further evidence for this finding comes from the analysis of Research Question 2 reported earlier. It was empirically revealed from the pre and posttest survey

analysis that while the experimental group was more motivated, the control group became less motivated after the implementation.

Regarding the lowest mean score in the perception questionnaire, it was found that this score belongs to the last subscale of the questionnaire, namely the *Suggestions* subscale, which is about the making suggestions related to DS for future courses with a special reference to writing ($M=3.85$). As for the possible explanation for this slightly lower rate of this subscale than the rest can be made on the fact that the process of DS implementation is “rather daunting” despite its manifold benefits (Thang, Sim, et al., 2014, p. 490); therefore, some of the students might have been hesitant to engage in such demanding tasks in the future. Moreover, the lowest rate of the three items in this scale belongs to the one about the use of this tool in others skills apart from writing. Since this was the first time that they had used such a tool so far, the students may not have anticipated how to use this tool in other courses than writing.

But as reported, the mean score of this subscale is not too low. This above-the-average score can still imply that the students had positive attitudes towards using DS in future classes (writing). A striking point related to this scale is that none of the items received any disagreement scores, providing further support for holding positive attitudes toward the integration of DS to the future classes (specifically to the writing).

At the end of the perception questionnaire, there was also an open-ended-questions section. Four questions, asked also during the interviews, were included in this section. Therefore, the discussion regarding this section will be presented in the next part alongside with the discussion of the interview analyses.

The Qualitative Part. The first question asked the interviewees’ perceptions about the effectiveness of the implementation in general and unanimously, all the interviewees appeared to believe that this implementation was effective. Then students’ attitudes toward using DS-integrated activities in writing were asked. Again, unanimously all the interviewees expressed their positive opinions of this tool. Based on these results, it is obvious that the students had positive perceptions of using this methodology in writing, as also confirmed in the quantitative analysis section with a mean value of 4.02.

Following these two questions, the students were also asked to evaluate the advantages or disadvantages of the implementation for writing (*this question was also asked in the open-ended-questions section*). All of the students both in the interviews and in the open-ended-questions section reported that this implementation was advantageous rather than disadvantageous. Some of the students noted that this implementation had advantages for grammar and spelling as also reported in Smeda et al.'s (2014) study. The possible explanation for this can be that students revised their stories many times till they made sure that there were no grammar or spelling mistakes in the sentences. Moreover, by viewing others' stories, they expressed that they had opportunities to see their mistakes. Lastly, their peers made comments on their stories and with the help of others' evaluation, they could correct their mistakes. All in all, they might have improved their grammar and spelling because of its allowance for self-correction of the grammar and spelling mistakes in a number of occasions throughout this implementation.

A majority of the students also reported that this implementation helped them to organize a story more coherently and effectively. Almost all of the students who mentioned about this point addressed the effect of storyboarding on organizational skills. Through storyboarding, the students not only planned their experiences coherently but also sequenced the events emerged in their stories with the related multimedia elements specifically with images (Kulla-Abbott, 2006).

Some of the students also expressed that this implementation helped them to express themselves better and accordingly they improved the narrative paragraph writing type more than the other paragraph types. The possible cause of this can be that students could use more than one mode for expression and therefore their message became more realistic and effective.

Additionally, some students noted that they gained an authorship identity, perhaps because of the fact that their artefacts would be seen by a larger audience. As suggested by Oskoz and Elola "the presence of a wider audience encouraged learners to search for discourse, vocabulary, and a style that could best transmit their message, promoting a strong sense of authorship" (2014, pp. 196–197). Accordingly, this awareness might in turn have helped the students to have positive attitudes toward writing.

Lastly, the positive effect of the implementation on being more involved in and thus gaining more awareness of the process writing steps was also mentioned. This is not surprising, as confirmed by Flihan (2013), because the DS approach did not negate the writing process but reinforced these steps by enabling the learners to move back and forth between those steps to accomplish their tasks.

The other question asked during the interviews was the comparison of DS-integrated and traditional writing activities. As reported in quantitative data analysis part with a mean value of 3.94, the majority of the interviewees also had positive perceptions of the DS-integrated writing than its counterpart. The possible cause of holding positive evaluations on this tool can be attributed to its being more enjoyable, more effective and not being more challenging than traditional activities.

Another question regarding apart from writing what the other language skill/s they improved at the end of the implementation was also asked in both interviews and in the open-ended questions section. The results showed that the majority of the students appeared to believe that this tool helped them in speaking especially in pronunciation. Its possible explanation could be that this methodology required learners to record their voices. Therefore, as expressed by some of the interviewees, the students had to check the pronunciation of many words in a number of times and tried to pronounce each word correctly in order not to make any mistakes. Moreover, they paid more attention to prosodic features such as rhythm, stress, intonation, and tone of voice. In accordance with what Kulla-Abbott (2006) reported in her study, the students in the present study also expressed that they self-evaluated and self-regulated their speech patterns when recording their voices to speak more slowly and with more emotion depending upon the content of their story. These findings are in line with Baghdasaryan (2012), Dong (2015), Afrilyasanti and Basthomi (2011b), and Dunn's (2012) conclusions in that DS was effective for improving learners' oral skills including pronunciation skills.

Moreover, some other interviewees also reported that this implementation improved their listening skills. Its reason can be that because they viewed and commented on others' videos, they could in turn improve this skill.

Furthermore, any obstacles faced with during the current DS implementation were also asked in both interviews and in the open-ended questions section. The

problem of recording voice was the most frequently-mentioned problem as reported in previous research (Bandi-Rao & Sepp, 2015). This finding is not surprising in that in the computer lab, recording voice was meant to be a great challenge for the students because the other students were also studying on their implementation at the same time and they had to re-record a word multiple times on several occasions. Therefore, the students had to find a quiet a place with Internet access to record their voice, seeming to be a great problem for them.

The additional problem was about the software that they had to use for constructing their digital stories. Because they had not used such video-editing programs before, they reported that they had some problems at the beginning. But the interviewees also expressed that once they were acquainted with navigating the tool, they welcomed working on their digital stories using this video-editing program.

The other frequently mentioned problem was steady Internet access. Because most of the students were staying at a dorm while the implementation was being carried out, they had problems in accessing the Internet. WeVideo is an online video-editing tool and without Internet connection, it is not possible to work on this software. Therefore, some students expressed that they forced themselves to finish the implementation at lab but not to extend the work outside of the school.

Additionally, the students were also asked if they would recommend using this tool in writing or in other classes. All of the interviewees stated that they would recommend the use of this tool for future classes. As reported earlier in the quantitative data analysis part, it was found that the *Suggestions* subscale had an above-the-average mean value. Depending on the results of both qualitative and quantitative analysis, it can be concluded that the students had favorable opinions of the use of DS in future classes (specifically in writing). In the interviews, the most popular response for the recommending the use of this tool for others skills apart from writing was the speaking skill with a special reference to pronunciation. As mentioned before, because this tool gave them an opportunity to record their voice, they might have had a positive stance for the use of DS in improving pronunciation skills.

The last question which was asked both in the interviews and in the open-ended questions section addressed whether students had any suggestions regarding the process. But no suggestions were mentioned in either instrument.

(The questions related to the effect of the implementation on motivation, anxiety and self-efficacy for writing were discussed in the 2nd research question discussion section. Similarly, the question regarding the effect of the implementation on engagement was discussed in the 3rd research question discussion part. Lastly, the question asking the effect of DS on self-efficacy beliefs for and attitudes toward technology integration to the learning was discussed in the 4th research question discussion section. Therefore, discussions sections related to these questions will not be repeated here).

5.3. Pedagogical Implications

The analysis of both quantitative and qualitative data revealed important pedagogical implications that can inform those interested in future writing practices in the Turkish EFL context. Because technological changes have shifted the notion of literacy from the conventional sense of reading and writing only printed-texts to reading and writing multimodal texts (Miller, 2009), accordingly writing instruction of English language should change in a way that directs students to be the composers of multimodal texts in which meaning is created through the interaction between verbal and non-verbal elements (visual, audio or spatial etc.) by using multimedia devices. As suggested by Mina (2014, pp. 156–157),

[c]omposition teachers who still valorize print literacy while minimizing digital literacy, or literacy of the screen, may be fighting a lost battle. They cannot resist or ignore the new genres of multimodal texts because these texts are growing prevalent. The different modes of expression used in producing these new genres should no longer be considered aesthetic or decorative (...). These modes are integral components of modern texts, and therefore should be integral to teaching students about meaning-making methods. Restricting teaching writing to a single mode strips away the inventory of literacies that students develop outside class.

At this point, DS, with its multimodal affordances, is one of the few forms to be incorporated into the English composition instruction. Since the findings of this present study regarding the effect of the implementation on writing performance obtained by both empirically testing students' pre-/posttest scores revealed that the experimental group exposed to DS-integrated writing outperformed the control group dealing with the traditional print-based writing activities. Moreover, the experimental group had positive opinions of the use of this tool in writing rather

than traditional activities. Depending on this, it can be underlined that DS is an effective *multimodal narrative writing genre* to be incorporated into today's composition classes. These findings can shed light on those who want to design a multimodal writing curriculum relevant to the 21st century context. However, it is not to say that traditional writing practices should be totally replaced by DS; instead, as noted by Mills (2010), the traditional literacies should be enriched by and incorporated into multiliteracy or multimodal designs rather than replaced by them. Such an innovative approach will not only develop learners' multimodal writing skills but also promote their traditional literacy skills within the same context.

The results of this study also showed that DS-integrated writing was both motivating and engaging since the students had a real purpose and audience to write for. Furthermore, since learners' life experiences were valued and validated in the digital stories that they, themselves, created (Gregori-Signes, 2014), they could build their identities as an author and be more engaged in the writing process. Moreover, it was found that the DS-treatment type increased learners' self-efficacy but decreased their anxiety levels in writing. Thus, to motivate, to engage, and to promote efficacy but to discourage anxiety in the writing process, this technology-enhanced tool can be a real asset.

It was also found that this methodology also built 21st century skills based on effective communication, digital literacies, high productivity and inventive thinking competencies. In this millennium, meeting 21st century skills is seen as a must for students to "survive" and "thrive" in the digital age (Afrilyasanti & Basthomi, 2011a). In this respect, DS seems to be a promising tool for satisfying these purposes. We are in the digital age, yet learners may not be "using digital technologies in the ways they are characterized as doing so in much of the professional literature and in the mainstream media" (Amicucci, 2013, p. 17). Parallel to this, it was found in this current study that not all the learners were comfortable enough to use technology meaningfully and in line with the requirements of their learning practices. But the use of DS also enabled learners to heighten their self-efficacy levels and attitudes toward technology-enhanced tasks. Therefore, this finding will help language educators who want to enhance

their learners' efficacy for and promote more positive attitudes toward technology integration in writing or in other courses.

However, despite the study's positive results, instructors/teachers must be cautious for incorporating this tool since there are some points that need to be considered while planning this pedagogy. Otherwise, this methodology can be overwhelming.

First, since this tool is technology-based, instructors/teachers should have training on the use of this application properly before they start to use it in class. Although it is "not beyond the limits of practicality" (Iannotti, 2005, p. 11), using this kind of tool requires training. As Sadik (2008) and Sepp (2015) noted, the effectiveness of this technology use is largely dependent on if educators have the expertise to customize content for story creation. Thus, lack of necessary technical skills or their perceived incompetence or apprehension with the use of this tool in class can lead to the inefficiency of the tool as a teaching aid.

Second, students' attention should be directed to the *writing* process but not to the infusion of technology devices. The incorporation of technology to this process should always be of secondary importance. Instructors/teachers should give importance to the *process* but not to the *end-product*. "The classroom environment needs to support students' learning *with* digital media rather than simply focusing on learning *from* digital media" and it is the teachers' responsibility to make students "interactive with and producers of digital media, making strategic decisions in their own literacy learning" (Foley, 2013, p. 237) but not "the passive consumers of new digital media" (Ohler, 2008).

Lastly, before starting this implementation, the instructors, teachers or school administrators should make a lay-out in which they plan the needed time, the aim of the implementation and its match with the curricular goals, assessment issues, and the availability of the necessary equipment to implement this tool. Otherwise, the process can be overwhelming if it is not well planned. But when all points are considered in detail before carrying out this implementation, as proposed by Oskoz and Elola (2014, p. 197), from a pedagogical perspective, "the DS technique could reshape not only the types of tasks set in FL advanced writing courses, but also open the writing class to 21st literacy practices".

5.4. Limitations of the Study

This study conducted with the participation of only two classes, one for the experimental and the other for the control group. Therefore, despite its numerous benefits, this small number of the participants might not be a good representative of the Turkish EFL learners, in turn negatively affecting the generalizability of the findings to the larger populations.

Moreover, this study was implemented in class time, and the results regarding writing performance or motivation and engagement levels might have been affected by this factor because an after-class project implementation can produce different results as to the points in question.

Lastly, the novelty factor of the tool may have affected the results. The experimental group students' better writing performance and heightened motivation or engagement levels than the control group can be attributed to the fact that although the students were computer literate, it was the first time that they used DS as a component of the writing curriculum, which may have affected their participation in a positive way. Perhaps when they get familiar with the methodology by using it in the subsequent semesters, the results may not be that positive for the same students.

5.5. Suggestions for Further Study

Because the use of DS in foreign language education is a rather new study field with a limited body of research, there are many opportunities for future scholarship. First, while the results of this study has provided concrete evidence as to the positive effect of the DS-integrated approach on writing performance, more research to be replicated in different contexts is needed (e.g. carrying out a study in other languages or with a larger sample size). Second, because this study is limited to one proficiency level, students from different language proficiencies can yield important findings. For example, future studies exploring if the struggling writers or more advanced learners also benefit from this tool as much as the ones investigated in this present study can add a lot to the literature.

Third, additional research is also needed to see the long-term effects of the implementation on literacy. That is, this present study was conducted in one term

but a longitudinal study carried out at least in one year may lead to increased understandings of the effectiveness of the tool on the variable/s in question.

Additionally, since this research is limited to exploring the effects of the tool on specifically narrative writing skills, further research can be conducted to test the impact of the implementation on other writing genres such as exploratory or comparison & contrast writing types.

There is also a need for a research study which explores the use of this tool in other skills (e.g. in pronunciation) rather than writing since some of the students in this current study noted they also improved their pronunciation skills as a result of participating into this implementation.

Moreover, the findings of this study confirmed that this tool (DS) provides an environment in which students actively make control of their own learning. Depending on this, an empirical study which will specifically test the effect of DS on enhancing autonomous learning can be conducted.

Lastly, because this research study only explored the effectiveness of the methodology from the learners' perspectives, in addition to learners' views, a research study which additionally asks teachers' perspectives can make important contributions to the existing literature. Or preparing a research study with the participation of pre-service language education teachers would add a lot to the literature, because they would evaluate the effectiveness of this tool in the eyes of both learners and teachers.

5.6. Conclusion

The present study has provided information about (a) whether DS use was effective to improve EFL English-major-students' (narrative) writing performance in the Turkish context, (b) the effects of DS on learners' motivation and engagement levels, (c) whether students' attitudes toward and their self-efficacy beliefs for the integration of educational technology were affected as a result of the participation in the DS intervention, and (d) the students' perceptions of the implementation. The resulting information and pedagogical implications proposed in this chapter can be utilized by teachers, administrators, and program developers in designing a multimodal writing curriculum which is relevant to the 21st century literacies.

REFERENCES

- Abdel-hack, E. M., & Helwa, A. A. (2014). Using digital storytelling and weblogs instruction to enhance EFL narrative writing and critical thinking skills among EFL majors at faculty of education. *International Research Journal*, 5(1), 8–41.
- Abdolmanafi-Rokni, S. J., & Qarajeh, M. (2014). Digital storytelling in EFL classrooms: The effect on the oral performance. *International Journal of Language and Linguistics*, 2(4), 252–257.
- AbuSeileek, A. F. (2006). The use of Word processor for teaching writing to EFL learners in King Saud university. *Educational Science & Islamic Studies*, 19(2), 1–15.
- Afrilyasanti, R., & Basthomi, Y. (2011a). Adapting comics and cartoons to develop 21st century learners. *Language in India*, 11, 552–568.
- Afrilyasanti, R., & Basthomi, Y. (2011b). Digital storytelling: A case study on the teaching of speaking to Indonesian EFL students. *Language in India*, 11(2), 81–91.
- Ainley, M. (2004). What do we know about student motivation and engagement? In *Australian Association for Research in Education* (pp. 1–13).
- Alameen, G. (2011). Learner digital stories in a Web 2.0 age. *TESOL Journal*, 2(3), 355–369.
- Alcantud-Díaz, M., Vayá, A., & Gregori-Signes, C. (2014). “Share your experience”. Digital storytelling in English for tourism. *Ibérica*, 27(2014), 185–204.
- Alexander, B., & Levine, A. (2008). Web 2.0 storytelling: Emergence of a new genre. *Educause Review*, 43, 40–56.
- Ali, S., & Kalajahi, R. (2012). Basic considerations in writing instruction & Assessment. *Advances in Asian Social Science*, 1(1), 139–150.
- Amicucci, A. (2013). *A descriptive study of first-year college students' non-academic digital literacy practices with implications for college writing education*. Unpublished Doctoral Dissertation. Indiana University of Pennsylvania, the USA.
- Anastasiadou, A. (2011). The impact of the application of a process writing component on the students' writing output in English as a foreign language. In N. Lavidas, T. Alexiou, & A. Sougari (Eds.), *Major trends in theoretical and applied linguistics* (pp. 11–32). London: Versita.
- Angay-Crowder, T. (2013). Use of digital storytelling for realizing academic literacies in classroom for multilingual writers. [Online: <https://tubaangaycrowder.edublogs.org/author/edrd8310aajt/page/2/>], Retrieved on October 26, 2015.
- Angay-Crowder, T., Choi, J., & Yi, Y. (2013). Putting multiliteracies into practice: Digital storytelling for multilingual adolescents in a summer program. *TESL Canada*, 30(2), 36–45.
- Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the student engagement instrument. *Journal of School Psychology*, 44(5), 427–445.

- Armstrong, K., & Retterer, O. (2008). Blogging as L2 writing : A case study. *AACE Journal*, 16(3), 233–251.
- Aydin, Z. (2011). *Use of wikis in collaborative writing projects*. Unpublished Master's Thesis. Bogazici University, Istanbul, Turkey.
- Baghdasaryan, K. (2012). *The impact of digital storytelling on EFL learners' speaking skills*. Lambert Academic Publishing.
- Baki, Y. (2015). *The effect of digital stories on the sixth grade students' writing process*. Unpublished Doctoral Dissertation. Atatürk University, Turkey.
- Ballast, K. H., Stephens, L. C., & Radcliffe, R. (2008). The effects of digital storytelling on sixth grade students' writing and their attitudes about writing. In K. McFerrin (Ed.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2008* (pp. 875–879). Chesapeake, VA: AACE.
- Banaszewski, T. (2002). Digital storytelling finds its place in the classroom. *Multimedia Schools*, 9(1), 32–35.
- Banaszewski, T. (2005). *Digital storytelling: Supporting digital literacy in grades 4-12*. Unpublished Master's Thesis. Georgia Institute of Technology, the USA.
- Bandi-Rao, S., & Sepp, M. (2015). Creating an effective model for digital storytelling in the ESL writing class. *NYS TESOL Journal*, 2(1), 76–88.
- Bandura, A. (1997). Exercise of personal and collective efficacy in changing societies. In A. Bandura (Ed.), *Self-efficacy in changing societies* (pp. 1–45). New York: Cambridge University Press.
- Bani-Hani, N., Al-Sobh, M., & Abu-Melhim, A.-R. H. (2014). Utilizing Facebook groups in teaching writing: Jordanian EFL students' perceptions and attitudes. *International Journal of English Linguistics*, 4(5), 27–34.
- Banzato, M. (2014). Digital storytelling and key skills: Problems and opportunities. In D. Passey & A. Tatnall (Eds.), *Key competencies in ICT and informatics: Implications and issues for educational professionals and management* (pp. 233–244). London: Springer.
- Barrett, H. (2005). White paper: Researching electronic portfolios and learner engagement. *The REFLECT Initiative*, 1–25.
- Barrett, H. (2006). Researching and evaluating digital storytelling as a deep learning tool. *Proceedings of Society for Information Technology & Teacher Education International Conference*, 1, 647–654.
- Beard, J. P. (2012). *Composing on the screen: Student perceptions of traditional and multimodal composition*. Unpublished Doctoral Dissertation. Georgia State University, the USA.
- Benson, E. (2010). Digital storytelling in the ESL academic writing classroom. *Ohio TESOL Journal*, 2(2), 8–11.
- Black, R. W. (2009). Online fan fiction and critical media literacy. *Journal of Computing in Teacher Education*, 26(2), 75–80.

- Boase, C. (2008). *Digital storytelling for reflection and engagement: A study of the uses and potential of digital storytelling*. [Online: https://gjamissen.files.wordpress.com/2013/05/boase_assessment.pdf], Retrieved on February 20, 2016.
- Boellstorff, T. (2010). *Coming of age in Second Life: As anthropologist explores the virtually human*. (P. U. Press, Ed.). Princeton, NJ.
- Borsheim, C., Merritt, K., & Reed, D. (2008). Beyond technology for technology's sake: Advancing multiliteracies in the twenty-first century. *A Journal of Educational Strategies*, 82(2), 87–90.
- Brett, F. (1995). Multimedia for listening comprehension: The design of a multimedia-based resource for developing listening skills. *System*, 23(1), 77–85.
- Brzoska, K. L. (2009). *Shaping our world: Digital storytelling and the authoring of society*. Unpublished Doctoral Dissertation. California State Polytechnic University, Pomona.
- Bull, G., & Kajder, S. (2004). Digital storytelling. *Learning and Leading with Technology*, 32(4), 46–49.
- Bull, G., Kajder, S., & Albaugh, S. (2005). Constructing digital stories. *Learning & Leading with Technology*, 32(5), 42–44.
- Butler, J. (2012). *Grappling with change: Web 2.0 and teacher education*. In D. Polly, C. Mims & K. A. Persichitte (Eds.), *Developing technology-rich teacher education programs: key Issues*. Hershey, PA: IGI Global.
- Campbell, T. a. (2012). Digital storytelling in an elementary classroom: Going beyond entertainment. *Procedia - Social and Behavioral Sciences*, 69(Icepsys), 385–393.
- Castaneda, M. E. (2013a). Digital storytelling: Buiding 21st century literacy in the foreign language classroom. *The NECTFL Review*, January(71), 55–65.
- Castaneda, M. E. (2013b). "I am proud that I did it and it's a piece of me": Digital storytelling in the foreign language classroom. *CALICO Journal*, 30(1), 44–62.
- Castillo, A. (2007). *The effect of computer-based authentic assignments on learners' foreign language abilities and intrinsic motivation*. Unpublished Doctoral Dissertation. West Virginia University, West Virginia, the USA.
- Chang, Y., & Sun, Y. (2012). Blogging to learn: Becoming EFL academic writers. *Language Learning & Technology*, 16(1), 43–61.
- Chao, Y.-C. J., & Lo, H.-C. (2011). Students' perceptions of wiki-based collaborative writing for learners of English as a foreign language. *Interactive Learning Environments*, 19(4), 395–411.
- Choi, D. (2012). Digital storytelling technology for developing schema for ESL/EFL reading comprehension. *Secondary English Education*, 5(1), 3–17.
- Christensen, M. (2012). *Intermodality in teaching writing*. Unpublished Doctoral Dissertation. University of Nebraska, Lincoln, Nebraska.

- Christopher, L. (2011). Digital storytelling. In G. Kurubacak & V. T. Yuzer (Eds.), *Handbook of research on transformative online education and liberation: Models for social equality* (pp. 408–423). IGI Global.
- Chung, S. K. (2007). Art education technology: Digital storytelling. *Art Education*, 60(2), 17–22.
- Chuo, I. (2004). *The effect of webquest writing instruction on EFL learners' writing performance, writing apprehension and perception*. Unpublished Doctoral Dissertation. La Sierra University, Riverside, CA.
- Clark, M. C., & Rossiter, M. (2008). Narrative learning in adulthood. *New Directions for Adult and Continuing Education*, (119), 61–71.
- Clarke, R., & Adam, A. (2012). Digital storytelling in Australia. Academic perspectives and reflections. *Arts and Humanities in Higher Education*, 11(1-2), 157–176.
- Clemens, S., & Kreider, M. (2011). What's your story? Using digital storytelling to enhance 21st century skills. In P. Lowenthal, D. Thomas, B. Yuhnke, A. Thai, M. Edwards, & C. Gasell (Eds.), *The CU online handbook* (pp. 73–80). Denver, Colorado: University of Colorado Denver.
- Clément, R., Dörnyei, Z., & Noels, K. A. (1994). Motivation, self-confidence, and group cohesion in the foreign language classroom. *Language Learning*, 44(3), 417–448.
- Compeau, D., & Higgins, C. (1995). Computer self-efficacy: Development of a measure and initial test. *MIS Quarterly*, 19(2), 189–211.
- Connolly, E. M. (2008). *From page to screen: Multimodal learning in a high school English class*. Unpublished Doctoral Dissertation. Hofstra University.
- Czarnecki, K. (2009). How digital storytelling builds 21st century skills. *Library Technology Reports*, October, 15–20.
- Davis, A., & Weinschenker, D. (2012). Digital storytelling and authoring identity. In C. C. Ching & B. Foley (Eds.), *Technology, learning, and identity* (pp. 47–74). Cambridge: Cambridge University Press.
- Dellicarpini, M., & College, L. (2012). Action research: Building computer technology skills in teacher education. *Language Learning & Technology*, 16(2), 14–23. Retrieved from <http://llt.msu.edu/issues/june2012/action.pdf>
- Dexter, H., Anderson, R., & Becher, H. (1999). Teachers' views of computers as catalysts for changes in their teaching practice. *Journal of Research on Computing in Education*, 31, 221–239.
- Dexter, S., & Riedel, E. (2003). Why improving preservice teacher educational technology preparation must go beyond college's walls? *Journal of Teacher Education*, 54(4), 334–346.
- Digital Storytelling Association. (2002). The center for digital storytelling. [Online: <http://www.dsaweb.org>], Retrieved on April 20, 2015.

- Dogan, B. (2008). *Implementation of digital storytelling in the classroom by teachers trained in a digital storytelling workshop*. Unpublished Doctoral Dissertation. University of Houston, The USA.
- Dong, Y. (2015). *Using digital storytelling to support EFL learning in China*. Unpublished Master's Thesis. University of Victoria.
- Dörnyei, Z. (1998). Motivation in second and foreign language learning. *Language Teaching*, 31(3), 117–135.
- Dunn, M. (2012). *The effect of Voice-Thread integration on high school students' anxiety and oral proficiency in the foreign language*. Unpublished Doctoral Dissertation. Liberty University, Lynchburg, VA.
- Dupain, M., & Maguire, L. (2005). *Digital story book projects 101: How to create and implement digital storytelling into your curriculum. Paper presented at the Proceedings of 21st Annual Conference on Distance Teaching and Learning*.
- Echevarria, J., Short, D. J., & Vogt, M. (2004). *Making content comprehensible for English language learners: The SIOP model* (2nd ed.). Boston: Pearson Education.
- Elola, I., & Oskoz, A. (2010). Collaborative writing: Fostering foreign language and writing conventions development. *Language Learning & Technology*, 14(3), 51–71.
- Erice, D., & Ertaş, A. (2011). The impact of e-portfolio on foreign language writing skills. *Ankara University, Journal of Faculty Educational Sciences*, 44(2), 73–94.
- Fandiño Parra, Y. J. (2013). 21st century skills and the English foreign language classroom: A call for more awareness in Colombia. *Gist Education and Learning Research Journal*, 7(7), 190–208.
- Felix, U. (1995). Theater Interaktiv: multimedia integration of language and literature. *On-CALL* 9, 12–16.
- Fisher, W. R. (1985). The narrative paradigm. An elaboration. *Communication Monographs*, 52, 347–367. Fisher, W. R. (1987). Technical logic, rhetorical logic, and narrative rationality. *Argumentation*, 1(1), 3–21.
- Fisher, W. R. (1989). Clarifying the narrative paradigm. *Communication Monographs*. [Online: <http://doi.org/10.1080/03637758909390249>], Retrieved on March 23, 2015.
- Flihan, S. (2013). Telling tales with talking texts: Developing language and literacy with digital tools. In S. Huffmann, W. Rickman, J. Whittingham, & C. Wiedmaier (Eds.), *Technology Tools for the Literacy Classroom* (pp. 105–118). Hershey: IGI Global.
- Foelske, M. (2014). *Digital storytelling: The impact on student engagement, motivation and academic learning*. A Master's Review, University of Northern Iowa, Ames.
- Foley, L. (2013). *Digital storytelling in primary-grade classrooms*. Unpublished Doctoral Dissertation, Arizona State University, the USA.

- Foley, L., Guzzetti, B., Agnello, M. F., & Lesley, M. (2014). Teaching writing in the “techno-zone”: Exploring new literacies in a first-grade classroom. In R. Ferdig & K. Pytash (Eds.), *Exploring Multimodal Composition and Digital Writing* (pp. 152–168). Hershey, PA: IGI Global.
- Fortune, R. (2005). “You’re not in Kansas anymore”: Interactions among semiotic modes in multimodal texts. *Computers and Composition*, 22(1), 49–59.
- Frazel, M. (2010). *Digital storytelling guide for educators*. Washington, DC: International Society for Technology in Education.
- Fries-Gaither, J. (2010). Digital storytelling supports writing across content areas. *Ohio Journal of English Language Arts*, 50(1), 9–13.
- Gakhar, S. (2007). *The influence of a digital storytelling experience on pre-service teacher education students’ attitudes and intentions*. Unpublished Master’s Thesis. Iowa State University, Ames, the USA.
- Gallego de Blikebeche, O. (1993). *A comparative study of process versus product approach to the instruction of writing in Spanish as a foreign language*. Unpublished Doctoral Dissertation. Pennsylvania State University, Pennsylvania.
- Generation Ready. (n.d.). Research: Recognising student engagement. [Online: http://readylablearn.generationready.com/resources/pdf/fec_f_research_01.pdf], Retrieved on January 15, 2016.
- Glassman, M., & Kang, M. (2011). The logic of wikis: The possibilities of the Web 2.0 classroom. *International Journal of Computer-Supported Collaborative Learning*, 6(1), 93–112.
- Good, T. L., & Brophy, J. E. (1994). *Looking in classrooms*. New York: HarperCollins College Publishers.
- Grabill, J. T., & Hicks, T. (2005). Multiliteracies meet methods: The case for digital writing in English education. *English Education*, 37(July), 301–311.
- Graham, S., & Troia, G. (2003). Effective writing instruction across the grades: What every educational consultant should know. *Journal of Educational & Psychological Consultation*, 14(1), 75–89.
- Graves, D. H. (1984). A researcher learns to write. In M. Rose (Ed.), (pp. 1–18). New York: Guilford Press.
- Green, L. S. (2013). Language learning through a lens: The case for digital storytelling in the second language classroom. *School Libraries Worldwide*, 19(2), 23–36.
- Greenfield, R. (2003). Collaborative e-mail exchange for teaching secondary ESL: A case study in Hong Kong. *Language Learning & Technology*, 7(1), 46–70.
- Greenhow, C., Robelia, B., & Hughes, J. E. (2009). Learning, teaching, and scholarship in a digital age. Web 2.0 and classroom research: What path should we take now? *Educational Researcher*, 38(4), 246–259.
- Gregori-Signes, C. (2014). Digital storytelling and multimodal literacy in education. *Porta Linguarum*, 22, 237–250.

- Grigsby, Y., Theard-Griggs, C., & Christopher, L. (2015). (Re)Claiming voices: Digital storytelling and second language learners. *Acta Technologica Dubnicae*, 5(1), 60–67.
- Guay, F., Vallerand, R. J., & Blanchard, C. (2000). On the assessment of situational intrinsic and extrinsic motivation: The Situational Motivation Scale (SIMS). *Motivation and Emotion*, 24(3), 175–213.
- Guzzetti, B. J., Elliott, K., & Welsch, D. (2010). *DIY media in the classroom: New literacies across content areas*. New York, NY: Teachers College Press.
- Hafner, C., & Miller, L. (2011). Fostering learner autonomy in English for science: A collaborative digital video project in a technological learning environment. *Language Learning & Technology*, 15(3), 68–86.
- Hanna, D., & Dempster, M. (2012). *Psychology statistics for dummies*. West Sussex: John Wiley & Sons, Ltd.
- Harmer, J. (2003). *The practice of English language teaching* (3rd ed.). Harlow, England: Longman.
- Harris, J. (2005). Our agenda for technology integration: It's time to choose. *Contemporary Issues in Technology and Teacher Education*, 5(2), 116–122.
- Harrison, J. (2011). *Digital storytelling: A multimodal wonderland*. Unpublished Master's Thesis. University of Victoria.
- Heo, M. (2009). Digital storytelling: An empirical study of the impact of digital storytelling on pre-service teachers' self-efficacy and dispositions towards educational technology. *Journal of Educational Multimedia and Hypermedia*, 18(4), 405–428.
- Heo, Y. (2007). *The impact of multimedia anchored instruction on the motivation to learn of students with and without learning disabilities placed in inclusive middle school language arts classes*. Unpublished Doctoral Dissertation. the University of Texas, Austin, the USA.
- Herrera-Ramirez, Y. E. (2012). *Metacognitive awareness and enhanced autonomy through the use of collaborative writing and Storybird*. Unpublished Master's Thesis, La Sabana University, Chia, Colombia.
- Hicks, T., Turner, K., & Stratton, J. (2013). Reimagining a writer's process through digital storytelling. *LEARning Landscapes*, 6(2), 167–183.
- Higginson, S. (2009). *A case study on the impact of weblogs on the writing of low-level learners in the university of Chile*. Unpublished Master's Thesis, University of Leicester, the USA.
- Hijzen, D., Boekaerts, M., & Vedder, P. (2007). No Title. *Learning and Instruction*, 17, 673–687.
- Holland, D., Lachicotte, W., Skinner, D., & Cain, C. (1998). *Identity and agency in cultural worlds*. Cambridge: Harvard University Press.
- Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *The Modern Language Journal*, 70(2), 125–132.

- Hsieh, W. (2012). *Technology-supported project-based learning in a Taiwanese university oral communication course: A case study*. Unpublished Doctoral Dissertation. Alliant International University, San Diego.
- Huang, S.-J. (2014). From text to multimedia: A study of multimedia EFL writing. *Proceedings of CLaSIC*, 162–171.
- Huang, Y.-H. (2012). EFL students' views on writing with pictures, sound, and music. *English Teaching & Learning*, 36(2), 79–123.
- Hull, G. A., & Katz, M. (2006). Crafting an agentive self: Case studies on digital storytelling. *Research in the Teaching of English*, 41(1), 43–79.
- Hung, C. M., Hwang, G. J., & Huang, I. (2012). A project-based digital storytelling approach for improving students' learning motivation, problem-solving competence and learning achievement. *Educational Technology and Society*, 15(4), 368–379.
- Hur, J. W., & Suh, S. (2012). Making learning active with interactive whiteboards, podcasts, and digital storytelling in ELL classrooms. *Computers in the Schools*, 29(4), 320–338.
- Iannotti, E. (2005). How to make crab soup: Digital storytelling projects for ESL students. *Transit*, 1(1), 10–12.
- International Reading Association. (2001). Integrating literacy and technology in the curriculum: A position statement of the International Reading Association. http://doi.org/http://www.reading.org/downloads/positions/ps1048_technology.pdf
- Ioannidis, Y., Raheb, K. El, Toli, E., Katifori, A., Boile, M., & Mazura, M. (2013). One object many stories: Introducing ICT in museums and collections through digital storytelling. *Proceedings of the Digital Heritage 2013*, 1, 421–424.
- Ivala, E. (2015). Digital storytelling as a deep learning opportunity. In J. Condy (Ed.), *Telling stories differently: Engaging 21st century students through digital storytelling* (pp. 27–36). Stellenbosch: Sun Press.
- Ivala, E., Gachago, D., Condy, J., & Chigona, A. (2013). Enhancing student engagement with their studies: A digital storytelling approach. *Creative Education*, 4(10A), 82–89.
- Jakes, D. (2007). Digital storytelling and 21st century skills. *TechForum*, April, 1–9.
- Jesus, A., & Carvalho, A. A. a. (2006). Producing digital storytelling to improve foreign language learning: A multimodal and intersemiotic approach. *Ed-Media*, 3569–3578.
- Jewitt, C. (2006). *Technology, literacy, learning: A multimodal approach*. London: Routledge Farmer.
- Johnson, L., & Smagorinsky, P. (2014). Writing remixed: Mapping the multimodal composition of one preservice English education center. In R. Ferdig & C. Pytash (Eds.), *Exploring Multimodal Composition and Digital Writing* (pp. 263–281). Hershey, PA: IGI Global.

- Jonassen, D. (1999). Designing constructivist learning environments. *Instructional Design Theories and Models: A New Paradigm of Instructional Theory*, 2, 215–239.
- Jonassen, D., Peck, K., & Wilson, B. (1999). *Learning with technology. A constructivist perspective*. Upper Saddle River, NJ: Prentice Hall.
- Joseph, L. (2006). Digital storytelling. *Multimedia & Internet@Schools*, 13(4), 13–16.
- Jung, R. (2015). *Korean English teachers' perceptions about teaching and assessing multimodal composition: A new direction for writing instruction and assessment in the 21st century*. Unpublished Doctoral Dissertation. Florida State University, USA.
- Kajder, S. (2004). Enter here: Personal narrative and digital storytelling. *The English Journal*, 93(3), 64.
- Kapp, K. M. (2014). Using stories for learning: Answers to five key questions. [Online: <http://www.elearningguild.com/research/archives/index.cfm?id=172&action=viewonly>] Retrieved on February 22, 2015.
- Karan-Miyar, D. (2009). Digital storytelling: Using PhotoStory 3 to create digital stories. *Distance Learning*, 6(1), 27–29.
- Kay, R. H. (1998). An exploration of theoretical and practical foundations for assessing attitudes toward computers: The computer attitude measure (CAM). *Computers in Human Behavior*, 9, 371–386. Kenyon, . *Computers in Human Behavior*, 9, 371–386.
- Kearney, M. (2009a). Investigating digital storytelling and portfolios in teacher education. *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2009*, 1987–1996.
- Kearney, M. (2009b). Towards a learning design for student-generated digital storytelling. In *The Future of Learning Design Conference* (Vol. 4, pp. 169–188).
- Kearney, M., & Schuck, S. (2006). Spotlight on authentic learning: Student developed digital video projects. *Australasian Journal of Educational Technology*, 22(2), 1–14.
- Keleş, U. (2013). *The perceptions of ELT students about the use of Web 2.0 tools, particularly wikis, in their future language classrooms*. Unpublished Master's Thesis. Bilkent University, Ankara.
- Kern, R., & Schultz, J. M. (2005). Beyond orality: Investigating literacy and literary in second and foreign language instruction. *Modern Language Journal*, 89, 381–392.
- Khabiri, M., & Rouhani-Tonekaboni, F. (2009). How to boost academic essay writing: A choice between process and product writing. *Journal of Teaching English as a Foreign Language and Literature*, 1(3), 53–74.
- Kim, S. (2014). Developing autonomous learning for oral proficiency using digital storytelling. *Language Learning & Technology*, 18(2), 20–35.

- Kimura, M. (2012). Digital storytelling and oral reading fluency in an English reading class at a Japanese university. *International Journal of Computer Assisted Language Learning and Teaching*, 2(1), 1–17.
- Kinzie, M. B., Delcourt, M. A. B., & Powers, S. M. (1994). Computer technologies: Attitudes and self-efficacy across undergraduate disciplines. *Research in Higher Education*, 35(6), 745–768.
- Kirsch, I., Jamieson, J., Taylor, C., & Eignor, D. (1998). *Computer familiarity among TOEFL examinees*. Princeton, NJ: Educational Testing Service.
- Klaebe, H. G., & Bolland, C. D. (2007). Text meets technology. Creatively writing with digital media. *Writing in Education*, 43, 1–13.
- Kost, C. (2011). Investigating Writing Strategies and Revision Behavior in Collaborative Wiki Projects. *CALICO Journal*, 28(2005), 606–620.
- Kress, G. (1998). Visual and verbal representation in electronically mediated communication: The potentials of new form of text. In *Page to screen: Taking literacy into the electronic era* (pp. 53–79). London.
- Kress, G. (2010). *Multimodality: A social semiotic approach to contemporary communication*. (I. Synder, Ed.). London: Routledge.
- Krueger, K. (2007). ED study slams software efficacy: From eSchool News staff and wire service reports. *eSchool News*. [Online: <http://www.eschoolnews.com/news/topnews/index.cfm?i=46141&CFID=10339838&CFTOKEN=62246735>], Retrieved on May 13, 2015.
- Kulla-Abbott, T. M. (2006). *Developing literacy practices through digital storytelling*. Unpublished Doctoral Dissertation. University of Missouri, St. Louis.
- Kuteeva, M. (2011). Wikis and academic writing: Changing the writer-reader relationship. *English for Specific Purposes*, 30(1), 44–57. <http://doi.org/10.1016/j.esp.2010.04.007>
- Lambert, J. (2006). *Digital storytelling: Capturing lives, creating community*. Berkeley, CA: Digital Diner Press.
- Lanksear, C., & Knobel, M. (2003). *New literacies: Changing knowledge and classroom practice*. Buckingham, UK: Open University Press.
- Lauer, C. (2009). Contending with terms: “Multimodal” and “multimedia” in the academic and public spheres. *Computers and Composition*, 6, 225–239.
- Ledong, L., & Morehead, P. (2006). Digital storytelling: Self-efficacy and digital literacy. In *World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education* (pp. 2159–2164). Chesapeake, VA: Association for the Advancement of Computing in Education (AACE).
- Lee, H. (2012). *ESL learners’ motivation and task engagement in technology enhanced language learning contexts*. Unpublished Doctoral Dissertation. Washington State University, USA.
- Lee, L. (2010). Exploring wiki-mediated collaborative writing: A case study in an elementary Spanish course. *CALICO Journal*, 27(2), 260–276.

- Leech, N. L., Barrett, K. C., & Morgan, G. A. (2005). *SPSS for introductory statistics: Use and interpretation. SPSS for Introductory Statistics* (2nd ed.). Mahwah, N.J: Lawrence Erlbaum Associates Inc.
- Lin, T.-J. (2012). *Student engagement and motivation in foreign language classroom*. Unpublished Doctoral Dissertation. Washington State University, the USA
- Little, D. (1991). *Learner autonomy 1: Definitions, issues and problems*. Dublin: Authentik.
- Lo, J., & Hyland, F. (2007). Enhancing students' engagement and motivation in writing: The case of primary students in Hong Kong. *Journal of Second Language Writing*, 16(4), 219–237.
- LoBello, C. (2015). *The impact of digital storytelling on fourth grade students' motivation to write*. Unpublished Master's Thesis. State University of New York, USA.
- Lowenthal, P. (2009). Digital storytelling: An emerging institutional technology? In J. Hartley & K. McWilliam (Eds.), *Story circle-Digital storytelling around the world* (pp. 252–259). West Sussex: Wiley-Blackwell.
- Lowenthal, P., & Dunlap, J. C. (2010). From pixel on a screen to real person in your students' lives: Establishing social presence using digital storytelling. *Internet and Higher Education*, 13(1-2), 70–72.
- Loyd, B. H., & Gressard, C. (1984). Reliability and factorial validity of computer attitude scales. *Educational and Psychological Measurement*, 44, 501–505.
- Lutkewitte, C. (2010). *Multimodality is ...: A survey investigating how graduate teaching assistants and instructors teach multimodal assignments in first-year composition courses*. Unpublished Doctoral Dissertation, Ball State University, Muncie, Indiana.
- Lutkewitte, C. (Ed.). (2014). *Multimodal composition: A critical sourcebook*. Boston: Bedford/St.Martin's.
- Maina, F. (2004). Authentic learning: Perspectives from contemporary educators. *Journal of Authentic Learning*, 1(1).
- Malin, G. (2010). Is it still considered reading? Using digital video storytelling to engage adolescent readers. *Clearing House*, 83(4), 121–125.
- Malita, L., & Martin, C. (2010). Digital storytelling as web passport to success in the 21st century. In *Procedia - Social and Behavioral Sciences* (Vol. 2, pp. 3060–3064).
- Matsuda, P. K. (2003). Second language writing in the twentieth century. A situated historical perspective. In B. Kroll (Ed.), *Exploring the dynamics of second language writing* (pp. 15–34). New York, NY: Cambridge University Press.
- Mayers, A. (2013). *Introduction to statistics and SPSS in psychology*. Harlow, England: Pearson.
- McKee, D. V., & DeVoss, D. (2007). Digital writing research: Technologies, methodologies and ethical issues. In D. V. McKee & D. DeVoss (Eds.), *New dimensions in computers and composition*. Cresskill, New Jersey: Hampton Press.

- Metiri Group. (2008). *Multimodal learning through media: What the research says*. Cisco Systems.
- Miller, E. (2009). *Digital storytelling*. Unpublished Master's Thesis. University of Northern Iowa, The USA.
- Miller, L. (2010). *Make me a story: Teaching writing through digital storytelling*. Maine: Stenhouse Publishers.
- Mills, K. A. (2010). Shrek meets Vygotsky: Rethinking adolescents' multimodal literacy practices in schools. *Journal of Adolescent and Adult Literacy*, 54(1), 35–45.
- Mina, L. W. (2014). *First-year composition teachers' uses of new media technologies in the composition class*. Unpublished Doctoral Dissertation. Indiana University of Pennsylvania.
- Mitchell, T. R. (1982). Motivation: New direction for theory and research. *Academy of Management Review*, 7(1), 80–88.
- Morgan, H. (2014). Using digital story projects to help students improve in reading and writing. *Reading Improvement*, 1(7), 20–27.
- Motschnig-Pitrik, R., & Holzinger, A. (2002). Centered teaching meets new media: Concept and case study. *Educational Technology & Society*, 5(4), 1–13.
- Murray, J. (2009). *Non-discursive rhetoric: Image and affect in multimodal composition*. New York: SUNY.
- National Commission of Writing. (2006). *Writing and school reform*. [Online: http://www.collegeboard.com/prod_downloads/writingcom/writing-school-reform-natl-comm-writing.pdf], Retrieved on March 20, 2015 .
- National Council of Teachers of English. (1996). *Standards for the English language arts*. [Online: <https://ncte.org/store/standards-for-the-english-language-arts>], Retrieved on March 20, 2015.
- National Council of Teachers of English. (2008). *21st century literacies*. Urbana, IL: NCTE. [Online: <http://www.ncte.org/governance/literacies>], Retrieved on July 10, 2015.
- Nelson, M. E., Hull, G. a., & Roche-Smith, J. (2008). Challenges of multimedia self-presentation: Taking and mistaking the show on the road. *Written Communication*, 25(4), 415–440.
- Neo, M., & Neo, T. (2010). Students' perceptions in developing a multimedia project within a constructivist learning environment. A Malaysian experience. *The Turkish Online Journal of Educational Technology*, 9(1), 176–184.
- New London Group. (1996). A pedagogy of multiliteracies. *Harvard Educational Review*, 66(1), 60–92.
- Nguyen, A. T. (2011). *Negotiations and challenges in creating a digital story: The experience of graduate students*. Unpublished Doctoral Dissertation. University of Houston, USA.

- Niemi, H., Harju, V., Vivitsou, M., Viitanen, K., & Multisilta, J. (2014). Digital storytelling for 21 st-century skills in virtual learning environments. *Creative Education*, 5, 657–671.
- Nikitina, L. (2009). Student video project as a means to practice constructivist pedagogy in the foreign language classroom. *Jurnal Pendidik Dan Pendidikan, Jil(24)*, 165–176.
- Noels, K. A., Clément, R., & Pelletier, L. G. (2001). Intrinsic, extrinsic, and integrative orientations of French Canadian learners of English. *Canadian Modern Language Review/La Revue Canadienne Des Langues Vivantes*, 57(3), 424–442.
- Norton, H. (2014). *Digital storytelling in an L2 context, and its impact on student communication, engagement, and motivation*. Unpublished Master's Thesis. The University of Waikato.
- Nunan, D. (1991). *Language teaching methodology*. London: Prentice Hall International.
- Nystrand, M. (1986). *The structure of written communication: Studies in reciprocity between writers and readers*. Orlando, FL: Academic.
- O'Reilly, T. (2007). What is Web 2.0: Design patterns and business models for the next generation of software. *Communications & Strategies*, 1(1), 17–37.
- Ohler, J. (2008). *Digital storytelling in the classroom: New media pathways into literacy, learning and creativity*. Thousand Oaks, CA: Corwin.
- Okojie, M., Okojie-Boulder, T., & Boulder, J. (2008). Constructivist learning framework and technological application. In L. Tomei (Ed.), *Encyclopeia of information technology curriculum integration* (pp. 150–156). New York, NY: Information Science Reference.
- Ono, Y. (2014). Motivational effects of digital storytelling on Japanese EFL learners. *Proceedings of CLaSIC*, 414–431.
- Ormrod, J. E. (2014). How motivation affects learning and behavior. *Educational Psychology Developing Learners*.
- Oskoz, A., & Elola, I. (2014). Integrating digital stories in the writing Class: Toward a 21st-century literacy. In J. G. Guikema & L. Williams (Eds.), *Digital literacies in foreign language education: Research, perspectives, and best practices* (pp. 179–200). San Marcos, TX.
- Öztekin, E. (2011). *A comparison of computer assisted and face-to-face speaking assessment: Performance, perceptions, anxiety, and computer attitudes*. Unpublished Master's Thesis. Bilkent University, Ankara, Turkey.
- Partnership for 21st Century Skills. (2004). *Framework overview*. [Online: http://www.21stcenturyskills.org/index.php?option=com_content&task=view&id=254&Itemid=120], Retrieved on June 30, 2015.
- Piaget, J. (1950). *The psychology of intelligence*. New York, NY: International Universities Press.

- Pintrich, P., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Education and Psychology*, 82, 33–40.
- Pintrich, P., & Schunk, D. (1996). *Motivation in education: Theory, research & applications*, Ch. 3. Englewood Cliffs, NJ: Prentice-Hall.
- Pintrich, P., Smith, D. A. F., Garcia, T., & Mckeachie, W. J. (1993). Reliability and predictive validity of the motivated strategies for learning questionnaire (MSLQ). *Educational and Psychological Measurement*, 53(3), 801–813.
- Pop, A. (2012). Enhancing English language writing and speaking through digital storytelling. In *The 7th International Conference on Virtual Learning ICVL Proceedings*. Brasov. [Online: <http://www.scribd.com/doc/110541496/Proceedings-of-ICVL-2012-ISSN-1844-8933->], Retrieved on March 20, 2015.
- Porter, B. (2005). *Digitales: The art of telling digital stories*. Denver, Colorado: Bernajean Porter Consulting.
- Prensky, M. (2001). Digital natives, digital immigrants: Part 1. *On the Horizon*.
- Prensky, M. (2005). Computer games and learning: Digital-based games. In *Handbook of Computer Game Studies* (pp. 97–124).
- Ramirez-Verdugo, D., & Belmonte, I. A. (2007). Using digital stories to improve listening comprehension with Spanish young learners of English. *Language Learning & Technology*, 11(1), 87–101.
- Rance-Roney, J. (2008). Digital storytelling for language and culture learning. *Essential Teacher*, 5(1), 29–31.
- Razmi, M., Pourali, S., & Nozad, S. (2014). Digital storytelling in EFL classroom (oral presentation of the story): A pathway to improve oral production. *Procedia - Social and Behavioral Sciences*, 98(2014), 1541–1544.
- Reinders, H. (2011). Digital storytelling in the foreign language classroom. *ELT World Online*, 3, 1–7.
- Robin, B. (2006). The educational uses of digital storytelling. *Information Technology & Teacher Education*, 709–716.
- Robin, B. (2008a). Digital storytelling: A powerful technology tool for the 21st century classroom. *Theory Into Practice*, 47(3), 220–228.
- Robin, B. (2008b). The effective uses of digital storytelling as a teaching and learning tool. In J. Flood, J. B. Heath, & D. Lapp (Eds.), *Handbook of research on teaching literacy through the communicative and visual arts*. (Volume 2). Lawrence Erlbaum Associates, NY.
- Rodríguez Illera, J. L., & Londoño Monroy, G. (2009). Los relatos digitales y su interés educativo. *En Educação, Formação & Tecnologias*, 2(1), 5–18.
- Ross, D. B. (2011). *Digital storytelling: Ordinary voices, extraordinary stories*. Unpublished Doctoral Dissertation. Appalachian State University.

- Rouxel, G. (1999). Path analyses of the relations between self-efficacy, anxiety and academic performance. *European Journal of Psychology of Education, 14*(3), 403–421.
- Russell, V. J., Ainley, M., & Frydenberg, E. (2005). *Student motivation and engagement*.
- Ryan, D. (2000). Peer groups as a context for the socialization of adolescents' motivation, engagement, and achievement in school. *Educational Psychologist, 35*, 101–111.
- Sadik, A. (2008). Digital storytelling: A meaningful technology-integrated approach for engaged student learning. *Educational Technology Research and Development, 56*(4), 487–506.
- Salpeter, J. (2005). Telling tales with technology. *Technology & Learning, 25*(7), 18,20, 22, 24.
- Schank, R. (1990). *Tell me a story: Narrative and intelligence*. Evanston, IL: Northwestern University Press.
- Scott, V. M. (1996). *Rethinking foreign language writing*. Boston, MA: Heinle & Heinle.
- Selfe, C. L. (2004). Students who teach us: A case study of a new media text designer. In A. F. Wysocki, J. Johnson-Eilola, & C. L. Selfe (Eds.), *New Media: Theory and Applications for Expanding the Teaching of Composition* (pp. 43–66). Logan: Utah State UP.
- Sever, T. (2014). *An investigation into the impact of digital storytelling on the motivation level of students*. Unpublished Master's Thesis. Çanakkale Onsekiz Mart University, Turkey.
- Shin, D. S., & Cimasko, T. (2008). Multimodal composition in a college ESL class: New tools, traditional norms. *Computers and Composition, 25*(4), 376–395.
- Shipka, J. (2005). A multimedia task-based framework for composing. *CCC, 57*, 277–306.
- Simpson, T. (2011). A motivation to write: Stepping it up digital storytelling. [Online: http://tammisimpsonportfolio.weebly.com/uploads/1/0/8/2/10829844/te848_digital_story_research_paper.pdf], Retrieved on October 25, 2015.
- Sivin-Kachala, J., & Bialo, E. (2000). *2000 research report on the effectiveness of technology in schools* (7th ed.). Washington, DC: Software and Information Industry Association.
- Skinner, E., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology*.
- Skinner, E., & Hagood, M. C. (2008). Developing literate identities with English language learners through digital storytelling. *The Reading Matrix, 8*(2), 12–38. [Online: http://www.readingmatrix.com/articles/skinner_hagood/article.pdf], Retrieved on October 25, 2015.
- Smeda, N. (2014). *Creating constructivist learning environments with digital storytelling*. Unpublished Doctoral Dissertation. Victoria University.

- Smeda, N., Dakich, E., & Sharda, N. (2014). The effectiveness of digital storytelling in the classrooms: A comprehensive study. *Smart Learning Environments*, 1(6), 1–21.
- Snow, R. E., & Farr, M. J. (1983). Cognitive-affective processes in aptitude, learning, and instruction. An introduction. In R. E. Snow & M. J. Farr (Eds.), *Aptitudes, Learning, and Instruction*. Philadelphia, PA: Lawrence Erlbaum Associates Inc.
- Standley, M. (2003). Digital Storytelling: Using new technology and the power of stories to help our students learn and teach. *Cable in the Classroom*, 16–18.
- Sylvester, R., & Greenidge, W. (2009). Digital storytelling: Extending the potential for struggling writers. *Reading Teacher*, 63(4), 284–295.
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Boston: Pearson.
- Tabatabaei, O., & Assefi, F. (2012). The effect of portfolio assessment technique on writing performance of EFL learners. *English Language Teaching*, 5(5), 138–147.
- Tahriri, A., Tous, M. D., & MovahedFar, S. (2015). The impact of digital storytelling on EFL learners' oracy skills and motivation. *International Journal of Applied Linguistics & English Literature*, 4(3), 144–152.
- Takayoshi, P., & Selfe, C. L. (2007). Thinking about multimodality. In C. L. Selfe (Ed.), *Multimodal composition. Resources for teachers* (pp. 1–12). Cresskill, New Jersey: Hampton Press.
- Tardy, C. (2005). Expressions of disciplinarity and individuality in a multimodal genre. *Computers and Composition*, 22(3), 319–336.
- Tardy, C. (2010). Writing for the world: Wikipedia as an introduction to academic writing. *English Teaching Forum*, 1, 12–27.
- Tatum, M. E. M. (2009). *Digital storytelling as a cultural-historical activity: Effects on information text comprehension*. Unpublished Doctoral Dissertation, University of Miami, Florida.
- Thang, S. M., Lin, L. K., Mahmud, N., Ismail, K., & Zabidi, N. A. (2014). Technology integration in the form of digital storytelling: Mapping the concerns of four Malaysian ESL instructors. *Computer Assisted Language Learning*, 27(4), 311–329.
- Thang, S. M., Mahmud, N., & Tng, C. K. C. A. (2015). Digital storytelling as an innovative approach to enhance learning mandarin as a second language. *Journal of E-Learning and Knowledge Society*, 11(2), 161–175.
- Thang, S. M., Sim, L. Y., Mahmud, N., Lin, L. K., Zabidi, N. A., & Ismail, K. (2014). Enhancing 21st century learning skills via digital storytelling: Voices of Malaysian teachers and undergraduates. *Procedia - Social and Behavioral Sciences*, 118, 489–494.
- Thornbury, S. (1997). *About language: Tasks for teachers of English. Cambridge teacher training and development*. Cambridge: Cambridge University Press.
- Timuçin, M., & Irgin, P. (2015). Digital storytelling: An outlet for expression in EFL context. *International Journal of Languages ' Education and Teaching*, 3(1), 288–302.

- Topkaya, E. Z. (2010). Pre-service English language teachers' perceptions of computer self-efficacy and general self-efficacy. *Turkish Online Journal of Educational Technology*, 9(1), 143–156.
- Tsou, W., Tzeng, Y., & Wang, W. (2006). Applying a multimedia storytelling website in foreign language learning. *Computers & Education*, 47, 17–28.
- Turgut, E. (2010). *Write in class or at home?* Unpublished Master's Thesis. Bilkent University, Ankara, Turkey.
- Uçar, H. (2013). *English language and literature students' perceptions of reflective writing, its effects on engagement in writing and literature*. Unpublished Master's Thesis. Bilkent University, Ankara, Turkey.
- Van Gils, F. (2005). Potential applications of digital storytelling in education. In *3rd Twente Student Conference on IT* (pp. 1–7).
- Vinogradova, P. (2011). *Digital storytelling in ESL instruction: Identity negotiation through a pedagogy of multiliteracies*. Unpublished Doctoral Dissertation. University of Maryland, Maryland, the USA.
- Vinogradova, P. (2014). Digital stories in a language classroom: Engaging students through a meaningful multimodal task. *The FLT MAG*. [Online: <http://fltmag.com/digital-stories/>], Retrieved on March 11, 2015 .
- Vinogradova, P., Linville, H. a., & Bickel, B. (2011). "Listen to my story and you will know me": Digital stories as student-centered collaborative projects. *TESOL Journal*, 2(2), 173–202.
- Vygotsky, L. (1978). *Mind in society*. Harvard University Press.
- Wang, S., & Vasquez, C. (2012). Web 2.0 and second language learning: What does the research tell us? *CALICO Journal*, 29(3), 412–430.
- Wang, L., Ertmer, P. A., & Newby, T. J. (2004). Increasing preservice teachers' self-efficacy beliefs for technology integration. *Journal of Research on Technology in Education*, 36(3), 231–150.
- Wang, S., & Zhan, H. (2010). Enhancing teaching and learning with digital storytelling. *International Journal of Information and Communication Technology Education (IJICTE)*, 6(2), 76–87.
- Ware, P. D. (2006). From sharing time to showtime: Valuing diverse venues for storytelling in technology-rich classrooms. *Language Arts*, 4(1), 45–54.
- Warschuer, M. (2001). Millennialism and media: Language, literacy, and technology in the 21st century. In D. Graddol (Ed.), *Applied linguistics for the 21st century* (pp. 49–59). Milton Keynes, UK: AILA.
- Werner, C. L. (2013). Dear professor X, this is not my best work: Multimodal composition meets (e)portfolio. *Computers and Composition Online*, 1(Fall October).
- West, J. A., & West, M. L. (2009). *Using wikis for online collaboration: The power of the read-write web*. San Francisco: John Wiley & Sons.
- White, R., & Arnt, V. (1995). *Process writing*. Malaysia, CL: Longman.

- Wigfield, A. (1997). Children's motivations for reading and reading engagement. In J. T. Guthrie & A. Wigfield (Eds.), *Reading engagement: Motivating readers through integrated instruction*. Newark, DE: International Reading Association.
- Wilson, J., Stone, M., & Krause, D. (2014). Developing technological capacity in EAL learning environments: The teacher candidate experience. *Education Matters*, 2(1), 123–140.
- Wu, W., & Yang, Y. C. (2006). Using a Multimedia Storytelling to Improve Students' Learning Performance. *Transition*, (1).
- Xu, Y., Park, H., & Baek, Y. (2011). A new approach toward digital storytelling: An activity focused on writing self-efficacy in a virtual learning environment. *Educational Technology and Society*, 14(4), 181–191.
- Yamaç, A. (2015). *The effect of digital storytelling on improving the writing skills of third grade students*. Unpublished Doctoral Dissertation. Gazi University, Ankara, Turkey.
- Yancey, K. B. (2006). Writing in the 21st century. *Written Communication*, 23(4), 1–9.
- Yang, Y. F. D. (2012). Multimodal Composing in Digital Storytelling. *Computers and Composition*, 29(3), 221–238.
- Yang, Y.-T. C., & Wu, W.-C. I. (2012). Digital storytelling for enhancing student academic achievement, critical thinking, and learning motivation: A year-long experimental study. *Computers & Education*, 59(2), 339–352.
- Yılmaz, C., & Erkol, K. (2015). Using Word processor as a tool to enhance the teaching of writing in a Turkish EFL context: An action research. *Journal of Theory and Practice in Education*, 11(1), 346–358.
- Yoon, T. (2012). Are you digitized? Ways to provide motivation for ELLs using digital storytelling. *International Journal of Research Studies in Educational Technology*, 2(1), 25–34.
- Yoon, T. (2014). *Developing multimodal literacy: The application of digital storytelling as a new avenue for effective English learning with EFL elementary school students in Korea*. Unpublished Doctoral Dissertation. University of Massachusetts Amherst, the USA.
- Young, C., Long, S., & Myers, J. (2010). Editorial: Enhancing English language arts education with digital video. *Contemporary Issues in Technology and Teacher Education*, 10(1), 7–19.
- Yunus, M., Salehi, H., Sun, C. H. U. I., Yong, J., Yen, P., Kwan, L., & Li, S. U. (2011). Using Facebook groups in teaching ESL writing. *Recent Researches in Chemistry, Biology, Environment and Culture*, 75–80.
- Zastrow, E., & Generoso, A. (2012). *Visual storytelling and multimedia in the academic setting*. Unpublished manuscript, San Francisco State University.
- Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, 25, 82–91.

Zorigian, K. (2009). *The effects of web-based publishing on students' reading motivation*. Unpublished Master's Thesis. University of North Carolina, Chapel Hill.





APPENDICES

APPENDIX 1. APPROVAL OF THE COMMITTEE ON ETHICS



T.C.
HACETTEPE ÜNİVERSİTESİ
Genel Sekreterlik

Yazı İşleri Müdürlüğü

Sayı : 88600825 / 437-2058

03 08 2013

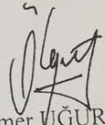
Konu :

EĞİTİM BİLİMLERİ ENSTİTÜSÜ MÜDÜRLÜĞÜNE

İlgi: 05.08.2013 tarih ve 397 sayılı yazınız.

Enstitünüz Yabancı Diller Eğitimi Anabilim Dalı İngiliz Dili Eğitimi Bilim Dalı öğrencilerinden **Sevda BALAMAN UÇAR** tarafından yürütülen "**Dijital Hikâye Anlatımı Yönteminin İkinci Dilde Yazma Becerisine Etkisi**" konulu araştırma Üniversitemiz Senatosu Etik Komisyonunun 27 Ağustos 2013 tarihinde yapmış olduğu toplantıda incelenmiş olup, etik açıdan uygun bulunmuştur.

Bilgi edinilmesini saygılarımla rica ederim.


Prof. Dr. Ömer UĞUR
Rektör a.
Rektör Yardımcısı

Ek: Tutanak

APPENDIX 3. NARRATIVE WRITING OUTCOME RUBRIC

	1	2	3	4	5
<p>Text structure</p> <p>Skill focus: The organization of narrative features including orientation, complication and resolution into an appropriate and effective text structure.</p>	<ul style="list-style-type: none"> – minimal evidence of any structural components of a time-sequenced text 	<ul style="list-style-type: none"> – little evidence of narrative structure, eg a story beginning only or a 'middle' with no orientation – a recount of events with no complication – note that not all recounts are factual 	<ul style="list-style-type: none"> – contains a beginning and a complication – where a resolution is present it is weak, contrived or 'tacked on' (e.g. <i>I woke up, I died, They lived happily ever after</i>) 	<ul style="list-style-type: none"> – contains orientation, complication and resolution – detailed longer text may resolve one complication and lead into a new complication or layer a new complication onto an existing one rather than conclude 	<ul style="list-style-type: none"> – coherent, controlled and complete narrative, employing effective plot devices in an appropriate structure, and including an effective ending
<p>Ideas</p> <p>Skill focus: The creation, selection and crafting of ideas for a narrative.</p>	<ul style="list-style-type: none"> – ideas are very few and very simple – ideas appear unrelated 	<ul style="list-style-type: none"> – ideas are few, not elaborated or very predictable 	<ul style="list-style-type: none"> – ideas show some development or elaboration – all ideas relate coherently to a central storyline – some ideas may contain Unnecessary elaboration 	<ul style="list-style-type: none"> – ideas are substantial and elaborated – ideas effectively contribute to a central storyline – the story contains a suggestion of an underlying theme 	<ul style="list-style-type: none"> – ideas are generated, selected and crafted to explore a recognizable theme – ideas are skillfully used in the service of the storyline
<p>Character/ Setting</p> <p>Skill focus: Character: The portrayal and development of character. Setting: The development of a sense of place, time and atmosphere.</p>	<ul style="list-style-type: none"> Minimal evidence of character or setting 	<ul style="list-style-type: none"> – only names characters or gives their roles (e.g. <i>father, the teacher, my friend, dinosaur, we, Jim</i>) AND/OR – only names the setting: (e.g. <i>school, the place we were at</i>) Setting is vague or confused 	<ul style="list-style-type: none"> – suggestion of characterization through brief descriptions or speech or feelings, but lacks substance or continuity AND/OR – suggestion of setting through very brief and superficial descriptions of place and/or time 	<ul style="list-style-type: none"> – characterization emerges through descriptions, actions, speech or the attribution of thoughts and feelings to a character AND/OR – setting emerges through description of place, 	<ul style="list-style-type: none"> – effective characterization. Details are selected to create distinct characters. AND/OR – maintains a sense of setting throughout. Details are selected to create a sense of place and atmosphere.
<p>Vocabulary</p> <p>Skill focus: The range and precision of language choices.</p>	<ul style="list-style-type: none"> – very short script few content words 	<ul style="list-style-type: none"> – mostly simple verbs, adverbs, adjectives or nouns – may include two or three 	<ul style="list-style-type: none"> – precise words or word groups (may be verbs, adverbs, adjectives or nouns) 	<ul style="list-style-type: none"> – sustained and consistent use of precise words and phrases that enhance the meaning or mood 	<ul style="list-style-type: none"> – a range of precise and effective words and phrases used in a natural and

		precise words			articulate manner Language choice is well matched to genre.
Cohesion Skill focus: The control of multiple threads and relationships over the whole text, achieved through the use of referring words, substitutions, word associations and text connectives.	Minimal evidence of cohesion	– links are missing or incorrect – short script Often confusing for the reader.	– some correct links between sentences (do not penalize for poor punctuation) – most referring words are accurate Reader may occasionally need to re-read and provide their own links to clarify meaning.	– cohesive devices are used correctly to support reader understanding – accurate use of referring words Meaning is clear and text flows well in a sustained piece of writing.	– a range of cohesive devices is used correctly and deliberately to enhance reading An extended, highly cohesive piece of writing showing continuity of ideas and tightly linked sections of text.
Sentence structure Skill focus: The production of grammatically correct, structurally sound and meaningful sentences.	– minimal evidence of correct sentences	– some correct formation of sentences Some meaning can be construed. – in general, control is very limited	– most simple sentences are correct Meaning is predominantly clear. – correct sentences are predominantly simple	– most simple and compound sentences correct – some complex sentences are correct Meaning is predominantly clear.	all sentences are correct Writing contains controlled and well-developed sentences that express precise meaning and are consistently effective.
Mechanics: a-Punctuation	– minimal evidence of correct punctuation	– some correct use of capital letters to start sentences OR full stops to end sentences Punctuation is minimal and of little assistance to the reader.	– some accurately punctuated sentences (beginning and end) – some noun capitalization where applicable Provides some markers to assist reading.	– some correct punctuation across categories (sentences mostly correct with some other punctuation correct) OR – accurate sentence punctuation with no stray capitals, nothing else used. Provides adequate markers to assist reading.	writing contains accurate use of all applicable punctuation Provides precise markers to pace and control reading of the text
b-Spelling	Minimal evidence of conventional spelling	few examples of conventional spelling	correct spelling of – most simple words – some common words (errors evident in common words)	correct spelling of – most simple words – most common words	correct spelling of – all words – at least 10 difficult words – some challenging words

APPENDIX 4. DIGITAL STORYTELLING EVALUATION RUBRIC

	4	3	2	1
Point of view	The point of view is well developed and contributes to the overall meaning of the story.	The point of view is stated but does not connect with each part of the story, although an attempt is made to connect it to the overall meaning of the story.	The point of view is stated but no attempt is made to connect it to the overall meaning of the story.	The point of view is only hinted at, or is difficult to discern.
Content	Contents create a distinct atmosphere or tone that matches different parts of the story. The images may communicate symbolism and/or metaphors.	Contents create an atmosphere or tone that matches some parts of the story. The images may communicate symbolism and/or metaphors.	An attempt was made to use contents to create an atmosphere/tone but it needed more work. Image choice is logical.	Little or no attempt to use contents to create an appropriate atmosphere/tone.
Creativity	Complete originality in composition and delivery, strong evidence of critical thinking skills.	1 element is not original in composition and delivery, some evidence of critical thinking skills.	2 elements are not original in composition and delivery, little evidence of critical thinking skills.	3 or more elements are not original in composition and delivery, and no evidence of critical thinking skills.
Organization (Storyboard)	Complete and detailed evidence of planning throughout entire storyboard including sequencing, pacing and consistent storytelling.	Evidence of planning through 2/3 of storyboards including sketches, sequencing, pacing and storytelling.	Evidence of planning through up to 1/3 of storyboard including sketches, sequencing, pacing and storytelling.	Little to no evidence of planning including minimally completed sketches, sequencing, pacing, and storytelling.
Images	Images create a distinct atmosphere or tone that matches different parts of the story. The images produced follow the correct procedure outlined.	Images create an atmosphere or tone that matches some parts of the story. Images loosely follow the procedure outlined.	An attempt was made to use images to create an atmosphere/tone but needed more work. Image choice is illogical.	Little or no attempt to use images to create appropriate atmosphere/tone
Clarity of Voice	Voice quality is clear and consistently audible throughout the presentation.	Voice quality is clear and consistently audible throughout the majority (85- 95%) of the presentation.	Voice quality is clear and consistently audible through some (70-84%)of the presentation.	Voice quality needs more attention.
Meaningful Audio	Music stirs a rich emotional response that matches the	Music stirs a rich emotional response that somewhat	Music is okay, is not distracting but it does not add much to the story. Not	Music is distracting, inappropriate OR was not used.

	storyline well. Images coordinated with the music.	matches the story line. Images mostly coordinated with the music.	coordinated with the images.	
Language	Grammar and usage were correct and contributed to clarity, style and character development.	Grammar and usage were typically correct and errors did not detract from the story.	Grammar and usage were typically correct but errors detracted from story.	Repeated errors in grammar and usage distracted greatly from the story.
Pacing and narrative	The pace (rhythm and voice punctuation) fits the story line and helps the audience really "get into" the story.	Occasionally speaks too fast or too slowly for the story line. The pacing (rhythm and Voice punctuation) is relatively engaging for the audience.	Tries to use pacing (rhythm and voice punctuation), but it is often noticeable that the pacing does not fit the story line. Audience is not consistently engaged.	No attempt to match the pace of the storytelling to the story line or the audience.
Economy of story detail	The story is told with exactly the right amount of detail throughout. It does not seem too short nor too long.	The story composition is typically good, though it seems to drag somewhat OR needs slightly more detail in one or two sections.	The story needs more editing. It is noticeably too long or too short in one or more sections.	The story needs extensive editing. It is too long or too short to be interesting.

APPENDIX 5. PRE-/POSTTEST SURVEY (ENGLISH VERSION)

Dear Student,

This questionnaire was designed to collect data for a thesis conducted at Hacettepe University, ELT department PhD program. Your responses toward the questionnaire will be kept confidential and used for only scientific purposes. There are no right or wrong answers. Therefore, please give your true answers sincerely.

Instructor Sevda Balaman Uçar

Part A: Personal Information

Name/Surname

Gender:

Age:

Part C: This part aimed to determine your experience in computer and internet use.

Computer experience: less than 1 year 1-3 years 3-5 years 5-7 years more than 7 years

Daily computer usage: less than 1 hour 1-3 hours 3-5 hours more than 5 hours

Internet experience: less than 1 year 1-3 years 3-5 years 5-7 years more than 7 years

Daily internet usage: less than 1 hour 1-3 hours 3-5 hours more than 5 hours

Have you ever received an ICT course? Yes No

Do you have computers at your dorm or home? Yes No

Do you have an access to internet? Yes No



Part D: This part aimed to assess your self-efficacy beliefs for technology integration into your learning. Please use the scale below:

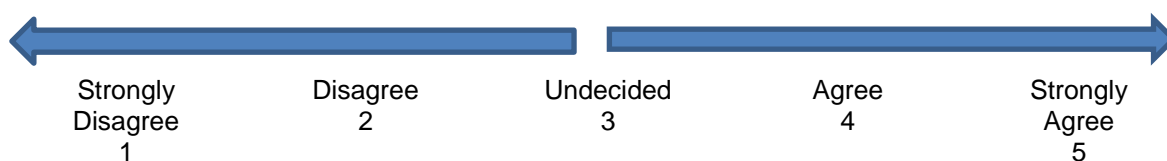


Strongly Disagree Disagree Undecided Agree Strongly Agree
 1 2 3 4 5

1. I feel confident that I have all the skills necessary to use the computer for learning English.	1	2	3	4	5
2. I have difficulty in understanding technical details about computers.	1	2	3	4	5
3. I feel confident that I can successfully learn relevant subject content with appropriate use of technology.	1	2	3	4	5
4. I feel confident in my ability to evaluate software for learning.	1	2	3	4	5
5. I feel confident I can overcome the problem by myself when I have difficulty with the computer.	1	2	3	4	5
6. I feel confident that I can evaluate sources for my research using technological devices.	1	2	3	4	5
7. I feel confident I can consistently use educational technology in effective ways while learning English.	1	2	3	4	5
8. I feel confident about selecting appropriate technology for my assignments when the teacher asks.	1	2	3	4	5
9. I feel confident about producing technology-based implementations.	1	2	3	4	5
10. I feel confident that I will be more comfortable using technology in my learning.	1	2	3	4	5
11. I feel confident that I will be more responsive to teacher's wishes in technology-based assignments.	1	2	3	4	5
12. I feel confident that, as time goes by, my ability to use technology in learning language will improve.	1	2	3	4	5
13. I feel confident that I can select and make choices with multimedia such as pictures and music for a implementation.	1	2	3	4	5
14. I feel confident that I can do research for a topic using digital technologies.	1	2	3	4	5
15. I feel confident that I can evaluate sources (Google vs.) for my research using technological devices.	1	2	3	4	5
16. I feel confident that I can make effective presentations using digital technologies when the teacher wants.	1	2	3	4	5

Part E: This part aimed to assess your attitudes toward technology integration into your learning.

Please use the scale below:



1. I hate using computers in courses. RC	1	2	3	4	5
2. I look forward to using computers for any work of mine.	1	2	3	4	5
3. It is possible to have the same effectiveness in education and work environments without computers. RC	1	2	3	4	5
4. Our life speeds up and gets easier thanks to the computer.	1	2	3	4	5
5. I find working on the computer very boring. RC	1	2	3	4	5
6. I wish computers were not this involved in our lives. RC	1	2	3	4	5
7. I think working on the computer is rather enjoyable.	1	2	3	4	5
8. Computers are an indispensable part of education and business life.	1	2	3	4	5
9. The internet saves us from a lot of tiring stuff.	1	2	3	4	5
10. I don't work on the computer if it is possible to complete a task in some other way. RC	1	2	3	4	5
11. Computers are my best friends.	1	2	3	4	5
12. For me, the amount of getting pleasure from a course depends on how much a teacher uses technology in class.	1	2	3	4	5
13. For me, the amount of getting pleasure from a course depends on how much a teacher wants us to use technology in class.	1	2	3	4	5
14. I am aware of the fact that computers give me opportunities to learn new different thing related to my education.	1	2	3	4	5
15. Using computers in my learning makes me stressed. RC	1	2	3	4	5
16. Because I don't trust in my abilities using computers, I am scared of using computers not to fall into funny situations. RC	1	2	3	4	5
17. I am scared of using computers because of making irreversible mistakes RC	1	2	3	4	5
18. It is possible to do the same thing by myself rather than using computers.. RC	1	2	3	4	5
Doing assignment using computers -----.					
19. more enjoyable	1	2	3	4	5
20. more boring RC	1	2	3	4	5
21. more useful.	1	2	3	4	5
22. more anxious RC	1	2	3	4	5
23. easier.	1	2	3	4	5

APPENDIX 6. PRE-/POSTTEST SURVEY (TURKISH VERSION)

Değerli öğrenci,

Bu anket, Hacettepe Üniversitesi İngiliz Dili Eğitimi bölümü doktora programında yürütülen bir tez çalışmasında kullanılmak üzere hazırlanmıştır. Ölçekte yer alan sorulara verdiğiniz yanıtlar gizli tutulacaktır ve sadece araştırma maksatlı kullanılacaktır. Bu soruların herkes için geçerli doğru yanıtları bulunmamaktadır. Bu nedenle lütfen aşağıda verilen tüm soruları dikkatle okuyarak cevabınızı, ifadenin karşısındaki seçeneklerden sizin için en uygun olanı işaretleyerek belirtiniz.

Okutman Sevda Balaman Uçar

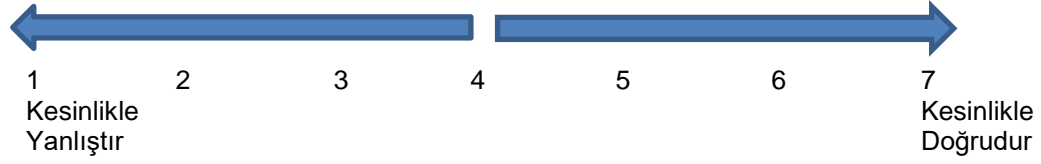
Bölüm A: Kişisel Bilgiler

Adı/Soyadı

Cinsiyet:

Yaş:

Bölüm B: Bu anket yazma dersine karşı sahip olduğunuz motivasyon düzeyinizi belirlemek amacıyla oluşturulmuştur. Doğru ya da yanlış cevap yoktur. Lütfen aşağıdaki ölçeği kullanarak soruları yanıtlayınız.



1	Yazma dersinde beni zorlayan, fakat aynı zamanda da geliştiren konuları tercih ederim; böylece yeni şeyler öğrenebilirim.	(1) (2) (3) (4) (5) (6) (7)
2	Uygun bir şekilde çalışırsam, bu dersteki tüm yazma aktivitelerini başarıyla yapabilirim.	(1) (2) (3) (4) (5) (6) (7)
3	Yazma dersi sınavında, yazdığım yazıların diğer öğrencilerin yazılarından daha kötü olduğunu düşünüyorum.	(1) (2) (3) (4) (5) (6) (7)
4	Yazma dersinde öğrendiklerimi, diğer derslerde de kullanabileceğimi düşünüyorum.	(1) (2) (3) (4) (5) (6) (7)
5	Yazma dersinden yüksek bir not alacağıma inanıyorum.	(1) (2) (3) (4) (5) (6) (7)
6	En zor konularda bile, yazma aktivitelerini başarıyla yapabileceğime inanıyorum.	(1) (2) (3) (4) (5) (6) (7)
7	Yazma dersinde, yüksek not alabilmek benim için en önemli şeydir.	(1) (2) (3) (4) (5) (6) (7)
8	Yazma dersi sınavında, bir konu hakkında yazı yazarken, sınavda yazmam gereken, fakat yazamayacağımı düşündüğüm diğer soruları düşünerek kaygılanırım.	(1) (2) (3) (4) (5) (6) (7)
9	Eğer bu dersteki bir konuyu öğrenemiyorsam, bu benim hatamdır (öğretmenin ya da kitabın değil).	(1) (2) (3) (4) (5) (6) (7)
10	Bu dersin konularını öğrenmek benim için önemlidir.	(1) (2) (3) (4) (5) (6) (7)
11	Bu derste benim için en önemli şey, not ortalamamı yükseltmektir, yani bu dersteki asıl amacım yüksek bir not almaktır.	(1) (2) (3) (4) (5) (6) (7)
12	Çok çalışırsam bu dersin tüm konularını anlayarak, verilen her konuda rahatlıkla yazı yazabileceğime inanıyorum.	(1) (2) (3) (4) (5) (6) (7)
13	Bu derste diğer öğrencilerden daha yüksek not almak istiyorum.	(1) (2) (3) (4) (5) (6) (7)
14	Bu derste öğretmenin anlatacağı en karmaşık konuları bile anlayabileceğime inanıyorum.	(1) (2) (3) (4) (5) (6) (7)
15	Bu derste, yazması daha zor olsa bile merak uyandıran konularda yazı yazmak isterim.	(1) (2) (3) (4) (5) (6) (7)
16	Çok çalışırsam bu dersin tüm konularını anlayıp verilen hemen her konuda yazı yazabileceğimi düşünüyorum.	(1) (2) (3) (4) (5) (6) (7)
17	Bu derste beni en çok tatmin eden şey konuyu mümkün olduğu kadar kapsamlı bir şekilde anlamaya çalışmaktır.	(1) (2) (3) (4) (5) (6) (7)
18	Bu dersin ödevlerini çok güzel yapacağıma ve sınavlarımın mükemmel geçeceğine inanıyorum.	(1) (2) (3) (4) (5) (6) (7)
19	Bu derste işlenen konuların faydalı olduğunu düşünüyorum.	(1) (2) (3) (4) (5) (6) (7)
20	Elimde olsa, yüksek bir notu garantilemese bile, daha çok öğrenmemi sağlayacak ödevleri seçerim.	(1) (2) (3) (4) (5) (6) (7)
21	Yazma dersinde, verilen konular hakkında yazılar yazmak hoşuma gidiyor.	(1) (2) (3) (4) (5) (6) (7)
22	Bu derste işlenen konuları anlamak ve verilen ödevleri yapmak benim için çok önemlidir.	(1) (2) (3) (4) (5) (6) (7)
23	Yazma dersi sınavında stresten kalbimin hızlı hızlı attığını hissedirim.	(1) (2) (3) (4) (5) (6) (7)
24	Bu derste öğretilen becerilerle çok iyi yazılar yazabileceğimden eminim.	(1) (2) (3) (4) (5) (6) (7)
25	Ailemin, arkadaşlarımla ve başka insanların, yazma yeteneğimi görmesi için, bu derste başarılı olmak istiyorum.	(1) (2) (3) (4) (5) (6) (7)
26	Dersin zorluğunu, öğretmenini ve becerilerimi dikkate aldığımda, yazma dersinde başarılı olacağımı düşünüyorum.	(1) (2) (3) (4) (5) (6) (7)
27	Bu derste başarılı olacağımdan eminim.	(1) (2) (3) (4) (5) (6) (7)
28	Sınavdayken kendimi huzursuz ve sıkıntılı hissedirim.	(1) (2) (3) (4) (5) (6) (7)
29	Eğer bu derste başarısız olursam bu yeterince çalışmadığım içindir.	(1) (2) (3) (4) (5) (6) (7)
30	Yazma dersinin içeriği ilgimi çekiyor.	(1) (2) (3) (4) (5) (6) (7)

Bölüm C: Bu kısım sizin bilgisayar ve internet kullanma tecrübenizi belirlemeyi hedeflemektedir.

Bilgisayar kullanma tecrübeniz: ____ 1 yıldan az ____ 1-3 yıl ____ 3-5 yıl ____ 5-7 yıl
____ 7 yıldan fazla

Günlük bilgisayar kullanma süreniz: ____ 1 saatten az ____ 1-3 saat ____ 3-5 saat ____ 5
saatten fazla

İnternet kullanma tecrübeniz: ____ 1 yıldan az ____ 1-3 yıl ____ 3-5 yıl ____ 5-7 yıl
____ 7 yıldan fazla

Günlük internet kullanma süreniz: ____ 1 saatten az ____ 1-3 saat ____ 3-5 saat ____ 5
saatten fazla

Daha önce bilgisayar teknolojileri dersi aldınız mı? ____ Evet ____ Hayır

Kaldığınız yerde bilgisayar kullanımına olanak var mı? ____ Evet ____ Hayır

Bu bilgisayar/larda internet erişiminiz var mı? ____ Evet ____ Hayır



Bölüm D: Bu anket sizin bilgi ve iletişim teknolojilerini kullanımına karşı öz yeterlik düzeyinizi ölçmeyi hedeflemektedir. Soruda geçen ifadeye **kesinlikle katılmıyorum (1)**'i; **kesinlikle katılıyorum (5)**'i işaretleyin.



Kesinlikle Katılmıyorum
Katılmıyorum
Kararsızım
Katılıyorum
Kesinlikle Katılıyorum

1
2
3
4
5

1. Eğitimimde bilgisayar kullanmak için, gerekli tüm becerilere sahip olduğuma eminim.	1	2	3	4	5
2. Bilgisayarlar hakkındaki teknik detayları anlamakta güçlük çekiyorum.	1	2	3	4	5
3. Uygun teknolojik araçları kullanarak, eğitimimle ilgili konu içeriklerini başarılı bir şekilde öğrenebileceğime eminim.	1	2	3	4	5
4. Eğitimim için, gerekli yazılımları (software) değerlendirme yeteneğime güveniyorum.	1	2	3	4	5
5. Bilgisayarda bir problemle karşılaştığımda, kendi başıma çözebilmede kendime güveniyorum.	1	2	3	4	5
6. Teknoloji tabanlı proje hazırlarken, web üzerindeki gerekli bilgileri kullanabileceğime eminim.	1	2	3	4	5
7. Eğitimle ilgili teknolojileri/teknolojik araçları, sürekli olarak etkili bir şekilde kullanabilmede kendime güveniyorum.	1	2	3	4	5
8. Öğretmen istediğinde, sınıf içi çalışmalarım için uygun teknolojiyi/teknolojik araçları seçebileceğime eminim.	1	2	3	4	5
9. Teknoloji-tabanlı projeler üretmede kendime güveniyorum.	1	2	3	4	5
10. Zamanla, eğitimimde teknoloji kullanımında, kendimi daha rahat hissedeceğime eminim.	1	2	3	4	5
11. Zamanla, öğretmenin istediğine yakın teknolojik tabanlı ödevler hazırlayabileceğimden eminim.	1	2	3	4	5
12. Zamanla, öğrenimimde, teknoloji kullanma yeteneğimin daha iyi olacağından eminim.	1	2	3	4	5
13. Bir proje için gerekli resim, müzik veya video gibi multimedya uygulamaları seçmede/kullanmada kendime güveniyorum.	1	2	3	4	5
14. Teknolojik araçları kullanarak bir konu üzerinde araştırma yapabilmede kendime güveniyorum.	1	2	3	4	5
15. Araştırmam için web kaynaklarını (Google veya AltaVista gibi) etkili bir şekilde değerlendirebileceğime eminim.	1	2	3	4	5
16. Öğretmen istediğinde teknolojik araçları kullanarak etkili sunumlar yapabileceğime eminim.	1	2	3	4	5

Bölüm E: Bu anket sizin bilgi ve iletişim teknolojilerini kullanımına karşı tutumlarınızı ölçmeyi hedeflemektedir. Soruda geçen ifadeye **kesinlikle katılmıyorum** (1)'i; **kesinlikle katılıyorum** (5)'i işaretleyin.



Kesinlikle Katılmıyorum
Katılmıyorum
Kararsızım
Katılıyorum
Kesinlikle Katılıyorum

1
2
3
4
5

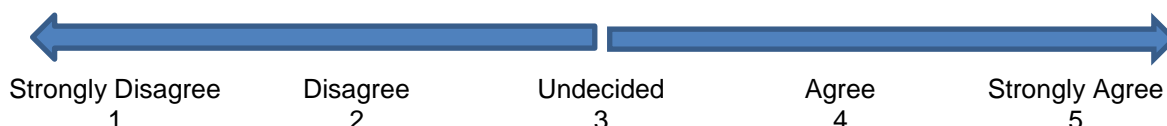
1. Derslerde bilgisayar kullanmak zorunda olmaktan nefret ederim. RC	1	2	3	4	5
2. Herhangi bir çalışmamda bilgisayar kullanmayı dört gözle beklerim.	1	2	3	4	5
3. Eğitim ve çalışma ortamlarında bilgisayarlar olmasa da aynı verim alınabilir. RC	1	2	3	4	5
4. Bilgisayar sayesinde eğitim hayatımız hızlanıyor ve kolaylaşıyor.	1	2	3	4	5
5. Bilgisayarda çalışmak bana çok sıkıcı gelir. RC	1	2	3	4	5
6. Keşke bilgisayarlar eğitim hayatımıza bu kadar dahil olmasaydı. RC	1	2	3	4	5
7. Bilgisayarda iş/ödev yapmanın çok eğlenceli olduğunu düşünüyorum.	1	2	3	4	5
8. Bilgisayarlar eğitim hayatının vazgeçilmez birer parçasıdır.	1	2	3	4	5
9. Derslerde bilgisayar kullanmak bizi yorucu birçok işten kurtarır.	1	2	3	4	5
10. Eğer başka bir şekilde halletmem mümkünse, ödevlerimi/işimi bilgisayarda yapmam. RC	1	2	3	4	5
11. Bilgisayar benim en iyi arkadaşımdır.	1	2	3	4	5
12. Bir derste, öğretmen ne kadar çok bilgisayar kullanırsa o dersten o kadar çok zevk alırım.	1	2	3	4	5
13. Bir derste, öğretmen ne kadar çok bilgisayar kullanmamızı isterse, o dersten o kadar zevk alırım.	1	2	3	4	5
14. Bilgisayarların, eğitimimle alakalı birçok yeni şeyin öğrenilmesinde, bana olanaklar sunduğunun farkındayım.	1	2	3	4	5
15. Öğrenimimde bilgisayar kullanmak, bende stres oluşturur. RC	1	2	3	4	5
16. Bilgisayar kullanma yeteneğime güvenmediğimden, diğer öğrencilere karşı komik duruma düşmemek için, bilgisayar kullanmaktan çekinirim. RC	1	2	3	4	5
17. Düzeltmeyeceğim hatalar yapma korkusuyla, derslerimde/ödevlerimde bilgisayar kullanmaktan çekinirim. RC	1	2	3	4	5
18. Bilgisayar kullanılarak yapılabilecek birçok şeyi, kendim de iyi bir şekilde yapabilirim. RC	1	2	3	4	5
Bilgisayar kullanarak ödev hazırlamak -----.					
19. daha eğlencelidir	1	2	3	4	5
20. daha sıkıcıdır RC	1	2	3	4	5
21. daha verimlidir.	1	2	3	4	5
22. daha kaygı vericidir. RC	1	2	3	4	5
23. daha kolaydır.	1	2	3	4	5

APPENDIX 7. THE PERCEPTION QUESTIONNAIRE (ENGLISH VERSION)

This questionnaire aimed to explore the effectiveness of the implementation based on using a digital storytelling approach to develop narrative writing skills. Your responses will be kept confidential and will only be used for scientific purposes.

Inst. Sevda Balaman Uçar

Please use the scale below for your responses:



Part 1: Motivation					
1. I was motivated to do this implementation because it had a real purpose, leading to meaningful language use in writing.	1	2	3	4	5
2. I was actively engaged in writing because I was learning by doing, instead of passively receiving knowledge from the teacher.	1	2	3	4	5
3. This implementation made me want to do my best because it had a real audience apart from the teacher.	1	2	3	4	5
4. I enjoyed working on this implementation because it was not the typical writing exercise.	1	2	3	4	5
5. I was satisfied with my contribution to the implementation.	1	2	3	4	5
6. Learning new topics through this implementation was fun.	1	2	3	4	5
7. It was motivating to direct my own movie.	1	2	3	4	5
8. It was motivating to have a chance to express my own voice in my writing skill with digital stories (because I decided on what to write and how to write by myself).	1	2	3	4	5
9. I was motivated to do this implementation because Digital Stories became a vehicle for me to coherently present and justify my artefacts, facilitating recollection and synthesis of experiences.	1	2	3	4	5
Part 2: Self-correction					
10. Through this implementation, my classmates were able to view my presentation and were able to evaluate my writing so that I could learn my own weaknesses in writing.	1	2	3	4	5
11. The Digital Stories initiated my self-evaluation of the experiences as depicted in my artefacts.	1	2	3	4	5
12. This implementation helped me learn from my classmates and correct my mistakes by viewing their implementations.	1	2	3	4	5
13. This technology allowed me to write individually. If I made a mistake, I could re-do it without pressure.	1	2	3	4	5
14. Practicing peer feedback allowed me to focus on the implementation more.	1	2	3	4	5
15. Giving feedback to others helped me self-evaluate my writing.	1	2	3	4	5
16. Peer feedback reinforced my writing by letting me know about the strengths and weaknesses of my implementation.	1	2	3	4	5
17. This implementation enabled me to evaluate my own performance.	1	2	3	4	5
18. Doing assignments in this implementation helped me to learn from my own mistakes.	1	2	3	4	5
Part 3: Comparing writing through DS to traditional writing					

19. This implementation helped me more to organize my ideas in writing than traditional paper-based assignments.	1	2	3	4	5
20. I was more aware of the importance of the stages of writing such as planning, editing, or revising.	1	2	3	4	5
21. The digital story improves my narrative writing skills more than traditional paper-based assignments.	1	2	3	4	5
22. Improving writing with digital storytelling is more enjoyable than traditional paper-based assignments.	1	2	3	4	5
23. Digital storytelling activities are more effective than traditional paper-based assignments in improving writing.	1	2	3	4	5
24. I feel like it is easier to write on a topic using Digital Storytelling.	1	2	3	4	5
25. Improving writing with digital storytelling is more challenging than traditional paper-based assignments.	1	2	3	4	5
26. I feel more motivated to write in general in digital storytelling activities than traditional writing activities.	1	2	3	4	5
27. I feel that my writing skill is improved more using digital storytelling than using traditional paper-based assignments	1	2	3	4	5
28. I am more creative in writing using digital storytelling than I am in traditional paper-based assignments	1	2	3	4	5
29. I can reflect my ideas and experiences in my writing much more effectively using digital storytelling than traditional paper-based assignments.	1	2	3	4	5
30. I am more active in writing classes based on the digital storytelling implementation than those based on traditional paper-based assignments.	1	2	3	4	5
31. I am more confident in writing classes based on the digital storytelling implementation than those based on traditional paper-based assignments.	1	2	3	4	5
32. I am more successful in writing classes based on the digital storytelling implementation than those based on traditional paper-based assignments.	1	2	3	4	5
33. It increased my authorship more.	1	2	3	4	5
Part 4: 21st century skills					
34. This implementation helped me identified my deficiencies in digital literacy skills and remedy them while working on a meaningful implementation.	1	2	3	4	5
35. This implementation strengthened collaboration.	1	2	3	4	5
36. This implementation strengthened my confidence for technology skills.	1	2	3	4	5
37. This implementation helped me evaluate and use digital tools and resources that match the work I am doing.	1	2	3	4	5
38. This implementation helped me communicate information and ideas in a variety of forms and for various purposes	1	2	3	4	5
39. Bu proje farklı çoklu ortam öğelerini (resim, fotoğraf, video vb.) birbiri ile ilişkilendirmeme olanak sağladı.	1	2	3	4	5
40. This implementation helped me exhibit a positive attitude toward using technology.	1	2	3	4	5
41. This implementation developed my critical thinking skills because the implementation required planning, researching collaboration, problem solving, drafting, feedback and revision.	1	2	3	4	5
Part 5: Suggestions					
42. I recommend that teachers should use digital storytelling activities so as to teach writing in EFL classes.	1	2	3	4	5
43. I would like to see digital stories used in other courses when I go to my faculty.	1	2	3	4	5
44. I would prefer classes that use digital stories over other classes that do not use them	1	2	3	4	5

Part 6: Answer the following questions

1. What are the advantages/disadvantages of this current Digital storytelling implementation used to improve writing skill?

2. Do you think that Digital Storytelling implementation reinforced your writing?

Which language skills were also improved at the end of the implementation? (give examples)

3. Are there any problems that you encountered implementing this implementation?

4. Do you have any suggestions related to the implementation?

APPENDIX 8.THE PERCEPTION QUESTIONNAIRE (TURKISH VERSION)

Bu anket, dijital hikâye anlatımı ile yazma becerisini geliştirmek için oluşturulan bir projenin etkinliğini ölçmek için hazırlanmıştır. Vereceğiniz yanıtlar kimseyle paylaşılmayacak; sadece araştırma amaçlı kullanılacaktır.

Okutman Sevda Balaman Uçar

Lütfen vereceğiniz cevaplar için aşağıdaki ölçeği kullanınız:



Kesinlikle Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle Katılıyorum
1	2	3	4	5

Bölüm 1: Motivasyon					
1.Yazma dersinde İngilizcenin anlamlı bir şekilde kullanılmasına fırsat verdiği için bu projeyi oluşturmak motive ediciydi.	1	2	3	4	5
2. Bilgiyi pasif bir şekilde öğretmenden almak yerine yaparak öğrendiğim için dijital hikâyeye dayanarak yazma derslerine aktif bir şekilde katıldım.	1	2	3	4	5
3. Öğretmenin yanı sıra gerçek bir okuyucu/izleyici kitlesine sahip olduğum için, bu proje bende elimden gelenin en iyisini yapma isteği uyandırdı.	1	2	3	4	5
4. Tipik bir yazma aktivitesi (sadece kağıda dayalı) olmadığı için bu projede çalışmaktan zevk aldım.	1	2	3	4	5
5.Bu projeye olan katılımım tatmin ediciydi.	1	2	3	4	5
6. Bu proje ile yeni konular öğrenmek eğlenceliydi.	1	2	3	4	5
7. Kendi videomu oluşturmak motive ediciydi.	1	2	3	4	5
8. Dijital öyküler aracılığıyla yazma dersinde kendi sesimi duyurma fırsatına sahip olmak motive ediciydi (çünkü ne yazacağıma ve nasıl yazacağıma kendim karar verdim.)	1	2	3	4	5
9. Dijital hikâyeler, duygularımı, anılarımı ve kişisel deneyimlerimi gözden geçirip sentezleyerek tutarlı bir şekilde ifade etmeye yardımcı bir araç olduğum için bu projeyi gerçekleştirmekte istekliydim.	1	2	3	4	5
Bölüm 2: Kendi Kendine Düzeltme					
10. Bu proje aracılığıyla, arkadaşlarım benim çalışmalarımı görüp değerlendirebildiği için, yazılarımda bana ait olan eksiklikleri/zayıflıkları onlardan öğrenebildim.	1	2	3	4	5
11. Bu proje, kişisel deneyimlerimi ve anılarımı kendi kendime tekrar değerlendirmeme olanak sağladı.					
12. Bu proje sınıf arkadaşlarımdan bir şeyler öğrenmeme ve onların projelerini inceleyerek kendi hatalarımı düzeltmeye yardımcı oldu.	1	2	3	4	5
13. Bu proje bireysel olarak yazılar yazmama olanak sağladı. Eğer bir hata yaparsam, herhangi bir baskı olmaksızın çalışmamı yeniden yapıp, hatamı düzeltebilme olanağı sağladı.	1	2	3	4	5
14. Arkadaşlarımla birbirimizin yaptıklarına yorum yapmamız projeye daha da odaklanmama olanak sağladı.	1	2	3	4	5
15. Arkadaşlarımla hazırladığımız videolara yorum yapmak, pek fayda sağlamadı.	1	2	3	4	5
16. Arkadaşlarımla hazırladığımız videolara yorum yapmak, kendi videolarımdaki eksik veya güçlü yanları görmemi sağladı.	1	2	3	4	5

17. Bu proje, yazma dersindeki performansımı değerlendirmemde bana olanak sağladı.	1	2	3	4	5
18. Bu proje yazma becerisindeki eksikliklerimi görme olanağı sağladı.	1	2	3	4	5
Bölüm 3: Geleneksel (sadece kağıt-kaleme dayalı) yazma etkinliklerindense,					
19. dijital hikâye anlatımına dayalı yazma derslerinde (özellikle de storyboard kullanarak) fikirlerimi daha iyi organize edebildim.	1	2	3	4	5
20. dijital hikâye anlatımına dayanan bu projeye yazı yazma süreçlerini (drafting, editing, revising, etc.) daha iyi kavradım.	1	2	3	4	5
21. dijital hikâye anlatımına dayalı bu projeye betimleyici (narrative) yazma becerileri daha çok gelişti.	1	2	3	4	5
22. dijital hikâyeleme yöntemine dayanan yazma dersleri daha eğlenceliydi.	1	2	3	4	5
23. dijital hikâyeleme yöntemine dayanan yazma dersleri daha etkiliydi.	1	2	3	4	5
24. dijital hikâyeleme tekniği ile bir konu hakkında yazı yazmak daha kolaydı.	1	2	3	4	5
25. dijital hikâyeleme yöntemiyle yazma becerilerimi geliştirmek daha zordu.	1	2	3	4	5
26. dijital hikâyeleme tekniğini kullanarak yazı yazmak benim için daha motive ediciydi.	1	2	3	4	5
27. dijital hikâyeleme tekniğini kullanarak yazma becerilerimi daha çok geliştirebildim.	1	2	3	4	5
28. dijital hikâyeleme tekniğini kullanarak yazı yazmada daha yararlıydım.	1	2	3	4	5
29. dijital hikâyeleme tekniğini kullanarak fikirlerimi ve tecrübelerimi yazılarımda daha etkili bir şekilde yansıtabildim.	1	2	3	4	5
30. dijital hikâyeleme tekniğine dayanan yazma derslerine daha aktif katılım sağladım.	1	2	3	4	5
31. dijital hikâyeleme tekniğine dayanan yazma derslerinde kendime daha güvenliydim.	1	2	3	4	5
32. dijital hikâyeleme tekniğine dayanan yazma derslerinde daha başarılıydim.	1	2	3	4	5
33. bu projeye yazarlık kimliğimi daha çok geliştirebildim.	1	2	3	4	5
Bölüm 4: 21. Yüzyıl becerileri					
34. Bu proje, dijital teknolojileri etkin kullanma konusunda eksiklerimi tanıma ve bu eksikleri giderme olanağı sağladı.	1	2	3	4	5
35. Bu proje, arkadaşlar arasındaki işbirlikçi öğrenmeye faydalı oldu.	1	2	3	4	5
36. Bu projeye, teknolojik araçları kullanmadaki becerilerim arttı.	1	2	3	4	5
37. Bu proje, çalışmama en uygun teknolojik materyalleri seçip kullanabilme yeteneğimi geliştirdi.	1	2	3	4	5
38. Bu proje, bilgileri, duygu ve düşünceleri sadece yazı ile değil de başka araçlarla (müzik, resim vb.) da ifade edebilme olanağı sağladı.	1	2	3	4	5
39. Bu proje farklı çoklu ortam öğelerini (resim, fotoğraf, müzik, hikaye, video vb.) birbiri ile ilişkilendirmeme olanak sağladı.	1	2	3	4	5
40. Bu proje sonrasında, teknolojik materyalleri kullanmaya karşı daha pozitif bir tutum içindeyim.	1	2	3	4	5
41. Bu projeye, planlama, araştırma, işbirliği, problem çözme, düzenleme, dönüt alma gibi eleştirel düşünme becerilerimi daha çok geliştirdim.	1	2	3	4	5
Bölüm 5: Öneriler					
42. Öğretmenlerin, yazma dersinde dijital hikâyeleme yönteminden faydalanmasını tavsiye ederim.	1	2	3	4	5
43. Yazma dersinin dışında başka derslerde de dijital hikâyeleme yönteminden faydalanılmasını isterim.	1	2	3	4	5
44. Dijital hikâye tekniğini kullanan dersleri kullanılmayanlara tercih ederim.	1	2	3	4	5

Bölüm 6: Lütfen aşağıdaki sorulara cevap veriniz:

1. Dijital Hikâyeleme yöntemine dayanan bu projenin **yazma** becerilerinizi geliştirmede avantajları/dezavantajları nelerdir?

2. Bu proje yazma becerilerinizi geliştirdi mi? (lütfen açıklayınız)

2.1. Başka hangi becerileriniz (konuşma, dinleme vs.) bu proje sayesinde gelişti? (Lütfen örnekler veriniz)

3. Bu projeyi hazırlarken zorluklar yaşadınız mı? (lütfen açıklayınız)

4. Bu projeye dair herhangi bir öneriniz var mı?

APPENDIX 9. INTERVIEW QUESTIONS (ENGLISH VERSION)

1. How effective was the DS implementation?
2. What are your attitudes towards improving your writing skill through DS activities?
3. What are the advantages /disadvantages of the current implementation for writing?
 - 3-a) Do you think this implementation helped you more motivated toward writing? More efficacious? Less anxious?
4. How do you compare the effectiveness of DS-integrated writing with traditional paper-pen writing practices?
5. To what extent are you engaged in DS-supported writing activities?
6. Apart from writing, what other language skill/s did you improve at the end of the implementation?
7. Does this implementation affect your self-efficacy for and attitudes toward technology integration into your learning (writing)?
8. Are there any obstacles faced with during the current DS implementation?
9. Do you recommend teachers use more DS activities in teaching writing or in any other skills in the future?
10. Do you have any suggestions?

APPENDIX 10. INTERVIEW QUESTIONS (TURKISH VERSION)

1. Bu proje sence ne kadar etkiliydi?
2. Yazma dersinde dijital hikâye kullanımı konusunda ne düşünüyorsun?
3. Bu projenin yazma dersine avantajları-dezavantajları nelerdir?
 - 3-a) Bu projeyle yazma dersine karşı daha mı çok motive oldun? Kendini daha mı iyi yazıyor hissediyorsun? Daha mı az streslisin?
4. Geleneksel yazma dersiyle dijital hikâye tabanlı yazma dersinin etkililiğini nasıl karşılaştırırsın?
5. Dijital hikâye tabanlı yazma aktivelerine katılımını nasıl değerlendirirsin?
6. Yazma dersine ek olarak bu projeyle başka dil becerilerin gelişti mi?
7. Bu projeyle teknolojik uygulamalara karşı bakış açın ve de kendine güvenin değişti mi?
8. Proje sırasında karşılaştığın herhangi bir zorluk var mıydı?
9. İleride yazma dersinde ya da diğer derslerinde, öğretmenlerin bu teknikten yararlanmasını tavsiye eder misin?
10. Bu projeye dair herhangi bir önerin var mı?

APPENDIX 11. A STORYBOARD EXAMPLE

BEING ANGRY BUT ALSO FEELING SORRY AT THE SAME TIME

Characters

Me, my brother, my mother, and old lady

.....

.....

Time & Setting

My room in my house and outside

.....

.....

Problem

My brother was annoying and broke my doll. So I hurt him. But because my mother was angry with me, I went outside. But this time I got lost since I got away from home.

.....

.....

Main Idea

Some events can make you annoyed but it is important to be calm in such situations not hurting anybody else.

.....

.....

Plot

While I was playing with my friend, my brother came by our side and started to disturb us. He broke my doll. So I hurt him. Because my mother got angry with me, I ran away from the house. Because of this anger, I moved away. I did not notice where I was going.

When I came to myself, I understood that I got lost. I was too scared. Thanks to the help of an old lady, my mother came and took me home. At the end, I noticed my mistake: I should have behaved in a more mature way.

.....

.....

.....

Ending

I had two feelings at the same time: My anger turned into being sorry because of having hurt my little brother. I promised myself not to do the same again in such situations.

.....

.....



1- I think I experienced the angriest moment of my life because of my little brother.



2- One day, I was playing with my friends in my room. We were having good time until my little brother came to my room.



3- He started to disturb us by making annoying jokes and playing with our toys. Then, he suddenly broke my baby doll.



4- I got extremely annoyed and because of this anger I pushed him to the floor.



5- He was hurt. A few minutes later, his finger started to bleed.



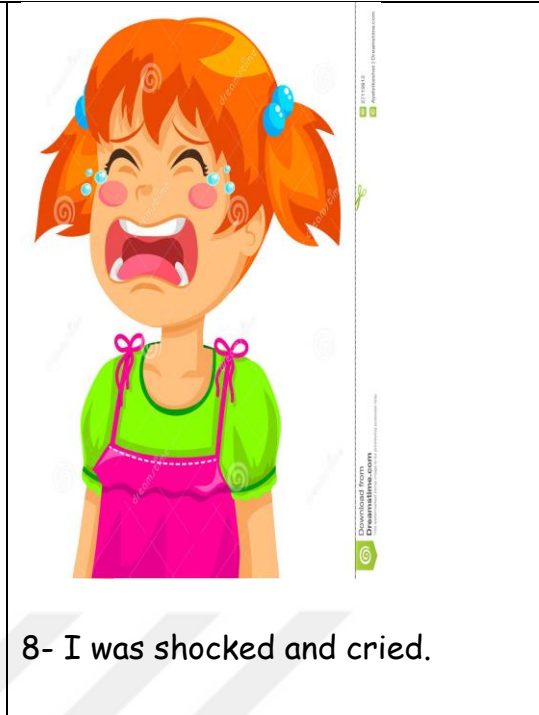
6- He cried loudly.



Download from
Dreamstime.com

2023/7
Pixel2023/Dreamstime.com

7- After that, my mother came to my room and shouted at me.



Download from
Dreamstime.com

8- I was shocked and cried.

9-Then, I left my room and went out. I started to run away. I was so angry so I didn't notice where I went.



10- When I came to myself, I understood that I got lost. I cried again and looked around to find someone to help me. At the same time I tried to remember the way I followed. But I couldn't 😞





11- A woman approached and asked me why I was crying. I told her everything. She gave me her mobile and asked my mother's phone number and I gave her the number. So she called my mom.



12- After a few minutes later my mother came to take me home. She spoke with me fondly. Then we hugged each other. We also apologized to each other.



13- When we arrived home, I also apologized to my little brother.

14- This event was unforgettable for me because I felt two feelings at the same time. Initially I was so angry with my little brother, but then I felt very sorry for him. I promised myself that I should be much calmer in such situations not to hurt my little brother again.



APPENDIX 12. SAMPLE DIGITAL STORIES

1st example:

 **Attila Selvi**
29 Aralık 2015

<https://www.wevideo.com/view/550758235>



Biggest Favor That I
Created with WeVideo
wevideo.com

 Nazlı Karataş ve 3 diğer kişi 2 Yorum 25 gördü

 Beğen  Yorum yap  Paylaş

 **Attila Selvi**
Thank you man. Happy new year ^_^
Çevirisine Bak

2nd example:

 **Özlem Menez**
19 Aralık 2015



BAD JOKE FROM MY FRIENDS
Created with WeVideo
wevideo.com

 Yaren Aka ve 8 diğer kişi  1 Yorum  25 gördü

 Beğen  Yorum yap  Paylaş

3rd. example:

 **Burcu Karakaya**
10 Aralık 2015



 Sen, Yaren Aka ve 10 diğer kişi  1 Yorum  26 gördü

 **Beğen**  **Yorum yap**

 **Rabia Turan**
I think images are suitable for your story 4
Your background is suitable 4... [Devamını Gör](#)
[Çevirisine Bak](#)

APPENDIX 13. SAMPLE COMMENTS MADE FOR DIGITAL STORIES VIA FACEBOOK

1st:



Eyüp Alçık

Let's start with your voice.It's alright but your subtitles and voice are not suitable because you start to read the story and the subtitles come up but their endings are not the same.And you'd better use "I" instead of "i".The other problem I can see is I couldn't see the title of your story,I think you should add it.Overall your story deserves 3.I believe that you can do it better.

Çevirisine Bak

4 Aralık 2015 · Beğenmekten Vazgeç · 2 · Yanıtla



Yunus Emre

Thanx for the constructive criticism. I will work on it to make it better.

Çevirisine Bak



Eyüp Alçık

It was not a criticism :) It was a critique bro

Çevirisine Bak

2nd:

 **Elif Çakmak ve 4 diğer kişi**

26 kişi gördü.



Elif Çakmak

Yaren, it's a good job :) I very liked this. Your story and pictures are connected with each other and your voice clear. Really, you're enjoyed, but you can add background music. Nevertheless, it's good. I give to you 3 :))

Çevirisine Bak

3 Aralık 2015 · Beğenmekten Vazgeç ·  2 · Yanıtla



Yaren Aka

You can be sure that I 'll be more careful next time.

Thanks for your comment. 😊

Çevirisine Bak

3 Aralık 2015 · Beğenmekten Vazgeç · Yanıtla

3rd:



Yunus Emre

Your background is good. So My point is 4. Images are suitable My point is 4 again. Your voice is clear and easy to understand so my point is 4. Your grammar is perfect. My point is 4 :) Happy new year :)

Çevirisine Bak

31 Aralık 2015 · Beğen · 1 · Yanıtla



Muhammet Aydın

Thanks dude :) Happy New Year

Çevirisine Bak

31 Aralık 2015 · Beğen · Yanıtla



Attila Selvi

First, I like the story and its content. That's cool. So, it's 4! Second, you are unwilling to read the words and it might have been more realistic this is why I'm gonna have to give 3 points. Third one is your video organization. You did it well, so 4 points!

Çevirisine Bak

31 Aralık 2015 · Beğen · 1 · Yanıtla



Muhammet Aydın

Thank you for comment :)

Çevirisine Bak

APPENDIX 14. ORIGINALITY REPORT

Turnitin Document Viewer - Internet Explorer
https://turnitin.com/dv?o=688500618&s=3&u=1025212600&lang=en_us

Sevda Thesis Sevda Thesis - DUE 08-Aug-2016 Roadmap Paper 1 of 1

Originality GradeMark PeerMark

THE IMPACT OF DIGITAL STORYTELLING ON ENGLISH AS A FOREIGN LANGUAGE LEARNERS' WRITING SKILLS
BY SEVDA BALAMAN UÇAR

turnitin 16% SIMILAR OUT OF 0

Match Overview

1	Submitted to Bilkent U... Student paper	1%
2	Submitted to TechKno... Student paper	1%
3	etd.lib.metu.edu.tr Internet source	1%
4	www.thesis.bilkent.edu.tr Internet source	1%
5	Submitted to National I... Student paper	<1%
6	tammisimpsonportfolio... Internet source	<1%
7	ijjalw.org Internet source	<1%
8	www.toowongss.eq.ed... Internet source	<1%

THE IMPACT OF DIGITAL STORYTELLING ON ENGLISH AS A FOREIGN LANGUAGE LEARNERS' WRITING SKILLS

DİJİTAL ÖYKÜLEMENİN İNGİLİZCEYİ YABANCI DİL OLARAK ÖĞRENEBEN ÖĞRENCİLERİN YAZMA BECERİLERİNE OLAN ETKİSİ

Sevda BALAMAN UÇAR

Submitted to the Graduate School of Educational Sciences of Hacettepe University in Partial Fulfillment of the Requirement for the Doctoral Degree in English Language Teaching

PAGE: 1 OF 206

Text-Only Report

CURRICULUM VITAE

Personal Information

Name/Surname	Sevda BALAMAN UÇAR
Place of Birth	Sivas
Date of Birth	20/09/1982

Education

High School	Prof. Dr. Necati Erşen Anatolian Teacher High School	2000
Bachelor of Arts (BA)	Hacettepe University/ELT Department	2000-2005
Master of Arts (MA)	Bilkent University/ MA TEFL (with scholarship)	2008-2009
PhD	Hacettepe University/ELT Department	2010-2016
Foreign Languages	English (advanced) French (intermediate)	

Work Experience

Instructor	Cumhuriyet University/School of Foreign Languages	2005- present
-------------------	---	---------------

Academic Studies

Publications

Books
Balaman-Uçar, S. (2011). <i>Motivation and Instructional Activities: An insight into the link</i> . Lap Publishing.
Conference Proceedings
Balaman-Uçar, S. (2010). Motivation and instructional activities. <i>The Sixth International ELT Research Conference: Current Trends in SLA Research & Language Teaching, 14-16 May 2010, Ephesus-Selçuk, İzmir/Turkey</i> .
Balaman-Uçar, S. (2010). Self-efficacy and its relationship with the strategy use among Turkish university EFL students. <i>Second Foreign Language Teaching Symposium: A proactive look at English Language Teaching Programs in the Preparatory Schools of Universities, 28-29 May, 2010, Çankaya University, Ankara-Turkey</i> .

Conferences/Workshops

"Developing Bottom-up Skills in Reading: Building Vocabulary and Improving Fluency", November 26,2008, (Guest Lecturer: Bill Snyder, Columbia University), Bilkent University
"Teaching and Assessing EFL Pronunciation", June 6 2009, (Guest Lecturer: Colleen Meyers, University of Minnesota), Bilkent University.
"English for Academic Purposes Seminar-Workshop Program", 4-5 June 2011, organized by METU, Bolu-Turkey
"Türkiye'de yabancı dil eğitimi eğilimi ne olmalı?" 12-13 November, 2012, Hacettepe University, Ankara-Turkey

Certificates

Language, Life and Culture in the UK Today, 12-16 September 2011, Lake School of English Oxford, Oxford-the UK
--

Contact Information

<i>Email address</i>	sevdabalamanucar@gmail.com
<i>Date of Defense</i>	13/06/2016

