



**The Impact of Using Computers on the Writing
Performance of Tenth Grade Students in the Institute of
Applied Technology (IAT) in Abu Dhabi, United Arab
Emirates (UAE)**

تأثير استخدام الكمبيوتر على الأداء الكتابي لطلاب الصف العاشر في معهد
التكنولوجيا التطبيقية في ابوظبي - الامارات العربية المتحدة

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**Dissertation Submitted in Partial Fulfillment of the Requirements of
the Degree of Master of Education in Teaching English as a Second
Language (TESOL)**

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March 2012

DISSERTATION RELEASE FORM

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Dedication

**To my parents, my lovely wife Maha, my sons
Karam and Ryan and my brothers and sisters
whose encouragement inspired me with deep love,
gratitude and respect.**

Acknowledgements

I would like to express my sincere thanks and gratitude to all those who contributed to the success of this work. First, I would like to acknowledge The British University in Dubai for providing me with the supervision and the facilities to produce this work and realize my dream.

I would like to thank my supervisor Dr. Amanda Howard for her feedback, support, patience and for finding the time to read the draft and give her valuable comments which enabled me to produce this work. My profound thanks and appreciation are extended also to other professors and teachers for their support and for guiding me through writing the proposal of this dissertation.

I also thank my colleagues in the English Department at the Institute of Applied Technology for their support and invaluable remarks.

Last but not least, I would like to thank my parents, my lovely wife, my sons, and my sisters and brothers, who deserve particular recognition for their support, understanding, and encouragement.

TABLE OF CONTENTS

| | Title | page |
|----------|---|------|
| | Dissertation Release Form | i |
| | Dedication | ii |
| | Acknowledgements | iii |
| | Table of Contents | iv |
| | A List of Tables | vii |
| | A list of Appendices | viii |
| | English Abstract | ix |
| | Arabic Abstract | x |
| 1 | Chapter One: Introduction | |
| 1.1 | Background and Need for the Study | 1 |
| 1.2 | Statement of the Problem | 3 |
| 1.3 | Purpose and Questions of the Study | 4 |
| 1.4 | Significance of the Study | 5 |
| 1.5 | Definition of Terms | 6 |
| 2 | Chapter Two: Review of Related Literature | |
| 2.1 | Introduction | 7 |
| 2.2 | Discussion of the differing variables of research into computer-assisted composition practice | 7 |
| 2.2.1 | Research on Writing | 7 |
| 2.2.2 | Research on Computers and Writing | 9 |
| 2.3 | Different Perspectives on Computer-aided Writing | 14 |

| | | |
|----------|--|----|
| 2.3.1 | Computer-aided Writing | 14 |
| 2.3.2 | Computers and the Writing Process | 18 |
| 2.3.3 | Resistance of Computer-Assisted Writing | 21 |
| 2.4 | Summary of Related Literature | 21 |
| 3 | Chapter Three: Methodology | |
| 3.1 | Introduction | 22 |
| 3.2 | Participants of the Study | 23 |
| 3.3 | Research Instrument | 24 |
| 3.3.1 | Software Teaching and Learning Programs | 24 |
| 3.3.1.1 | Validity of the Software Programs | 24 |
| 3.3.2 | Textbook Learning Material | 25 |
| 3.3.3 | The Writing Achievement Test | 25 |
| 3.3.3.1 | Test Administration | 26 |
| 3.3.3.2 | Test Validity | 26 |
| 3.3.3.3 | Test Reliability | 27 |
| 3.3.4 | Evaluation Instrument: Writing Rubric | 27 |
| 3.4 | Procedures of the Study | 29 |
| 3.5 | Ethical Issues | 30 |
| 3.6 | Data Collection | 32 |
| 3.7 | Data Analysis | 32 |
| 4 | Chapter Four: Findings and Discussion | |
| 4.1 | Findings of the Study | 33 |
| 4.1.1 | Findings Relating to Question One | 35 |
| 4.1.2 | Findings Relating to Question Two | 36 |
| 4.1.3 | Findings Relating to Question Three | 39 |

| | | |
|----------|--|----|
| 4.1.4 | Summary of Findings | 41 |
| 4.2 | Discussion | 42 |
| 5 | Chapter Five: Conclusion, Implications, Limitations and Recommendations | |
| 5.1 | Implications of the study | 50 |
| 5.2 | Limitations | 51 |
| 5.3 | Recommendations | 52 |
| 5.3.1 | Recommendations to the Institute of Applied Technology | 52 |
| 5.3.2 | Recommendations for Further Research | 53 |
| 5.4 | Conclusion | 53 |
| | References | 57 |
| | Appendices | 64 |
| | Appendix A: Checklist of Composition Evaluation | 65 |
| | Appendix B: Student Test | 71 |
| | Appendix C: Teacher Survey | 74 |
| | Appendix D: The Computer-Oriented Approach Software and Hardware | 76 |
| | Appendix E: Consent Form | 79 |

A LIST OF TABLES

| TABLE | | |
|-------|---|----|
| 1 | Means and Standard Deviations of the Control and Experimental Groups with regards to Students Scores in Pre- and Post-Tests | 34 |
| 2 | Analysis of Covariance (ANCOVA) for the Performance of the Two Groups in the Post-Test (Total Score) Using the Pre-Test as Covariance | 36 |
| 3 | Analysis of Covariance (ANCOVA) for Students Performance in the Local Aspects and its Sub-Levels | 37 |
| 4 | Analysis of Covariance (ANCOVA) for Students Performance in the Global Aspects and its Sub-Levels | 39 |
| 5 | Percentage of Improvement in Students Writing Performance | 41 |

A LIST OF APPENDICES

| | | |
|----------|--|----|
| APPENDIX | | 64 |
| A | Checklist of Composition Evaluation | 65 |
| B | Students Test | 71 |
| C | Teachers Survey | 74 |
| D | The Computer-Oriented Approach Software and Hardware | 76 |
| E | Consent Form | 79 |

ABSTRACT

The Impact of Using Computers on the Writing Performance of Tenth Grade Students in the Institute of Applied Technology in Abu Dhabi, United Arab Emirates

By

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Dr. Amanda Howard

The purpose of this study is to investigate the effect of using computers on the writing performance of tenth grade, English as a Foreign Language (EFL), students at the Institute of Applied Technology (IAT) in Abu Dhabi, United Arab Emirates (UAE). In order to achieve this purpose, the study sought to answer the following question: Are there any significant differences at ($\alpha = 0.05$) between the writing performance, linguistic level, and rhetorical level of tenth grade Emirati, EFL students who are trained to write through computers, and that of those who are trained to write in the traditional way?

To answer this question, English writing was taught to two different groups of tenth grade, EFL students at the Institute of Applied Technology (IAT) in Abu Dhabi. At the end the experiment, the data collected was analyzed by computing the *Analysis of Covariance (ANCOVA)*, using the scores of both groups in the pre-test as a *Covariate*. The findings of the study indicated that using the computer, as a writing tool, had a significant effect on student writing performance, at both levels: the local (linguistic aspects), and global (rhetorical aspects).

Based on the findings of the study, this researcher recommends the use of computers in the teaching of English language writing to improve the quality of tenth grade Emirati, EFL student written work. The researcher also recommends that these students should be trained to use methods in the writing of the English language *with* the aid of computers.

ملخص

تأثير استخدام الكمبيوتر على الأداء الكتابي لطلاب الصف العاشر في معهد التكنولوجيا التطبيقية في أبو ظبي – الامارات العربية المتحدة

إعداد

بشار أبو شنار

مشرف الرسالة

د. أماندا هاوارد

سعت هذه الدراسة إلى استقصاء أثر استخدام الكمبيوتر على الأداء الكتابي لطلاب الصف العاشر في معهد التكنولوجيا التطبيقية في أبو ظبي – الإمارات العربية المتحدة. من أجل تحقيق هذا الهدف، سعت الدراسة للإجابة عن السؤال التالي:

هل يوجد فروقات ذات دلالة إحصائية عند مستوى الدلالة ($\alpha = 0.05$) في التعبير الكتابي من حيث المستوى اللغوي والمستوى البلاغي بين أداء الطلاب الذين تعلموا الكتابة باستخدام الكمبيوتر وبين أداء الطلاب الذين تعلموا الكتابة باستخدام الطريقة التقليدية القديمة.

للإجابة عن هذا السؤال، تم تدريس التعبير الكتابي لمجموعتين من طلاب الصف العاشر في معهد التكنولوجيا التطبيقية لفصل واحد. في نهاية الدراسة، تم جمع البيانات وتحليلها من خلال (تحليل التباين المشترك) عن طريق استخدام نتائج الامتحان القبلي لكلا المجموعتين كمتغير مستقل. وقد أظهرت نتائج الدراسة أن الكمبيوتر يعتبر أداة تعليمية ذات تأثير إيجابي على مستوى أداء الطلاب في التعبير الكتابي على المستويين اللغوي والبلاغي (الشكلي والمضمون).

استنادا إلى نتائج الدراسة أنفة الذكر، يوصي الباحث باستخدام الكمبيوتر في تدريس الكتابة من أجل تطوير نوعية التعبير الكتابي لطلبة الصف العاشر في دولة الامارات العربية المتحدة ويوصي أيضا بتدريب الطلاب على استخدام الأساليب الحديثة في تعلم التعبير الكتابي من خلال الكمبيوتر.

Chapter One

1. Introduction

1.1 Background and Need for the Study

It is nowadays acknowledged that writing is a complex, integrated set of processes that is both interactive and recursive. The skill of writing requires students to generate ideas and to be able to express them logically and coherently. The writing process not only serves as a means for learners to reflect on their thoughts, it also serves as a means to give their thoughts greater intellectual space to develop, and to extend and to deepen these thoughts (Rice and Burins, 1986, p. xii).

According to Al-Khuli (1996, p.70), writing is one of the essential skills involved in comprehensively mastering a foreign language because it is such a vital medium of conveying academic messages. Language learners, if they aspire to be fully linguistically competent, must learn to communicate in writing, what they wish to say, interpreted and supported through their own world knowledge, in a way that is clear to the reader. They should thus learn to depend not only on the spoken mode to communicate, but also on the written mode because it is the latter which serves as a more creative, reflective and permanent documentation of human interaction.

This study was conducted at IAT, a preparatory secondary school that accepts Emirati, EFL students from ninth to tenth grades. English is the medium of instruction at IAT in all disciplines. In the first two years, students are exposed to a battery of intensive English classes. In the second year, English for academic purposes is the focus of English instruction, with a strong emphasis on academic writing. The students' writing development prepares them for academic testing, formal writing and their overall improvement in the English language.

The reason for Emirati, EFL student writing difficulties is that Emirati learners have been exposed to the traditional approach of composition instruction, in

which the teacher roughly explains what features characterize a good text, after which the learners are then immediately instructed to write a short paragraph following those ‘rules’. Teachers will then evaluate the writing based on its approximation of the previously instructed ‘rules’. The teachers’ subsequent feedback focuses more on the ‘rules’ than the learners’ written content. Teachers hope that a student’s next written piece will be automatically better, and that the learner might try to improve on those issues highlighted by the teacher.

Research has shown that this approach to writing has not proved to be effective. Evidence supports that if teachers want their students to improve, they cannot restrict their teaching strategy to product-oriented instruction. Weiss (1989, pp.45-59) suggests that a process-oriented teaching strategy is more effective. In a process-oriented approach, the writing process is mapped out distinctly in stages for students to follow. Learners are guided by the teacher along the way about how to draft the different writing stages to ensure that an acceptable text is produced.

There is no question about whether computers will be used for instructional purposes. Rather, the point to be made is how the use of computers for instructional purposes will support and enhance learning in Emirati, EFL schools. It is acknowledged in the field of education that student learning is greatly enhanced when they are actively involved in the learning process, and when they are given the opportunity to participate in dialogue with teachers and peers. However, it is difficult to create and to maintain the desired interactive, EFL writing environment in Emirati schools. Unless alternative solutions to current teaching practices are established, Emirati, EFL student writing will not be noticeably improved. It is expected that computers can offer the solution by providing a new, fun, and interactive learning environment.

In support of computer-enhanced, EFL writing instruction, there already exists some written documentation. This literature will be taken up more fully in “Chapter Two” of this dissertation, entitled “Review of Related Literature.” For the purposes

of “Chapter One,” it suffices to say that much of this corpus of writing research has not been based on the EFL secondary school in the UAE or the wider Arab world. Thus the need for, and emphasis of, this writer’s research and dissertation: Are there any significant differences at ($\alpha = 0.05$) between the writing performance, linguistic level, and rhetorical level of tenth grade Emirati, EFL students who are trained to write through computers, and that of those who are trained to write in the traditional way?

1.2 Statement of the Problem

Writing is one of the most essential skills that EFL learners are required to develop. However, evidence shows that Emirati, EFL students still lack the skills to write English effectively after years of instruction in their schools. This situation is ascribed to a number of factors. The manner in which English is taught is believed to be a decisive factor. Although the current Emirati English language syllabus is based upon the communicative approach to second/foreign language teaching and learning, in practice the skill of writing is still transmitted in the ‘traditional’ manner. Teachers dictate the ‘rules’ of a writing task, assign their students a topic, and instruct them to write a composition about it. Afterwards, the teachers evaluate their students’ final written products, focusing heavily on the mechanics of the writing, such as points of grammar, vocabulary, spelling and punctuation. It cannot come as a surprise that many Emirati, EFL students fail to express themselves properly in writing (Al-Sharah, 1998) when only one aspect of the writing process seems to be so heavily focused on by teachers.

Based on a pilot study conducted by this researcher to investigate Emirati, EFL student abilities in writing English, it has been concluded that a great number of Emirati students do not write English well. Furthermore, this researcher’s interviews with his colleagues have confirmed that Emirati students do not seem able to put their thoughts, ideas and opinions down effectively on paper. Therefore, there is a need for the teaching of writing to be made more effective for Emirati, EFL students.

In fact, the findings of this researcher's study corroborate Farghal's (1992, p.46) conclusions in that, traditionally, mechanics and grammar served as the basis for teacher evaluation of student writing. Until recently, little attention has been paid to the overall integration of student writing. Likewise, 'school' writing has rarely been pleasurable or seen as a means of the student-writer's self-expression. In a word, students are too infrequently taught or permitted to write like writers!

This researcher has identified an additional obstacle to the delivery of effective writing instruction. It is the lack of instructional time that English language teachers have in order to provide high-quality feedback. Teachers are only able to provide general comments, instead of adequately addressing each student's individual writing. This is the result of the large number of students in each class.

Nowadays, the educational system in the UAE is concerned with equipping students with means of adopting computer education curricula. This Ministry of Education at the moment is in the process of upgrading the educational system through the introduction of a computerized syllabus, and the teaching of English to lower grade levels. Such interest reflects the UAE educational community's desire to shape technology-driven English language programs.

The present study attempts to investigate the effect of using computers on the writing performance of tenth grade students. The use of computers as a writing tool is believed to help students to write better, and consequently, is a factor in solving the problems of writing in Emirati schools.

1.3 Purpose and Questions of the Study

As noted above, EFL writing classes in Emirati schools confront many difficulties. The use of computers in teaching EFL writing is expected to assist in solving these difficulties. It does not try to replace the writing practices in the traditional classroom. Rather, it seeks to find new ways of using technology to enhance the process of teaching writing, and then to provide teachers with basic

guidelines for integrating computers into Emirati English language composition classrooms. In other words, this quantitative study aims to investigate the effect of using computers on the writing performance of 10th graders. More specifically, the study seeks to answer the following three questions:

1. Are there any significant differences at ($\alpha = 0.05$) between the writing performance of the students who are trained to write through computers, and that of those who are trained to write in the traditional way?
2. Are there any significant differences at ($\alpha = 0.05$) between the writing performance, on the linguistic level, of the students who are trained to write through computers, and that of those who are trained to write in the traditional way?
3. Are there any significant differences at ($\alpha = 0.05$) between the writing performance, on the rhetorical level, of the students who are trained to write through computers, and that of those who are trained to write in the traditional way?

1.4 Significance of the Study

This quantitative study on the effect of computers on student writing performance is expected to serve two goals: to help with integrating technology into EFL language writing program, and to find solutions to some of the problems of EFL writing in Emirati schools.

The choice of the topic for this quantitative study is motivated by several factors: First, the study responds to the increased demand for the use of computers in education to meet the new educational needs. Second, the study may motivate other researchers to reconsider the methods of teaching EFL writing. Third, the computerized procedures might prove to be a source of excitement and motivation for Emirati students in their EFL writing classes.

1.5 Definition of Terms

The following terms are generally used in essay and composition writing. They are operationally defined in this study to facilitate the reading of this dissertation.

- Rhetoric:** The complex network of relationships within a text. It is the structure of the underlying ideas, and the connections the writer makes between them. It focuses on how to express oneself correctly and effectively in relation to the topic of the text, the writer's purpose in writing the text, and the writer's audience (Nodoushan, 2010, p.113).
- Unity:** Clarity in writing is achieved through the unity of paragraphs. Unity is guaranteed when there is a thesis statement which is supported by primary and secondary details. Unity is evident when each sentence and paragraph pertain to one central idea (Witte and Faigley, 1981, p.201)
- Coherence:** Coherence in paragraphs makes the writing integrated, consistent, and intelligible. A writer ought to think about what he wants to say before he begins to write and keep his reader in mind as he writes (McCulley, 1985).
- Order:** This aspect is the sequence of the sentences within a paragraph. In a well-constructed paragraph, sentences must follow a consistent order (Oshima and Hogue, 2004, p. 45)
- Continuity:** It is the result of unity and coherence. These essential elements move the paragraph in one continuous direction, and make it easy for the reader follow. (Campbel,1995, p.78)
- Organization:** A single entity and a unified whole, made of a number of parts, or sentences, that are well ordered and fitted together. They cohere, or hold together, in one continuous unit (Frase,1969, p.396)

Chapter Two

2. Review of Related Literature

2.1 Introduction

Research on the relationship between computers and various aspects of the writing process has grown significantly over the last few years. The focus of this research has been on four specific elements. These elements are: the equipment, the software, the pedagogy, and the teacher.

In the early 1980s, researchers began to examine various aspects of computer-assisted writing. These researchers were interested in the effects of computers on the development of the writing process, the written work done by students, the attitudes of students and teachers toward this computer-assisted instruction, and the effects of computer-assisted writing on the interaction between students and teachers. Another major concern among these researchers was the identification of variables that affect the cognitive and metacognitive processes associated with written writing.

2.2 Discussion of the differing variables of research in computer-assisted writing practice

2.2.1 Research on Writing

Writing is a fundamental life skill which all students must develop to proficiency during their years in elementary school. In order to achieve proficiency, students must be provided many opportunities to practice and perfect their writing. Teachers should avoid assigning irrelevant writing topics to their students. Instead, students should be encouraged to write about a variety of meaningful topics (Brashears, 2005). Culham (2003) suggests, “We must build curriculum that maintains a shared view of what ‘good’ writing looks like that remains constant throughout the school years, K to 12” (p. 13). In order to create good writers, teachers should tailor the writing criteria to fit the individual student’s strengths and

weaknesses (Lentz, 2004). Therefore, writing instruction should be meaningful, consistent, and include a variety of techniques and strategies.

Language writing has seen a variety of strategies over the past fifty years, which according to Silva (1990), has resulted in a ‘merry-go-round’ of approaches that have left EFL and ESL teachers bewildered and unconfident (p.18). The controlled, ‘rules’-based, writing approach focused on the lexical and syntactic features of writing. In turn, the traditional rhetoric approach sought to address and organize the composition as a whole. Finally, the process approach focused on the behavioral aspects of writing and how the final product was achieved. Most recently, there has been a push to address the differences in English between academic and specific purposes. Silva (1990) concludes that each of the popular writing approaches that have surfaced is “narrowly construed” and focuses only on single elements of writing (p.20).

Teaching language skills, in general, and the skill of writing, in particular, has been gaining great attention in applied and theoretical linguistics studies. Recently, White (2001) has viewed teaching the writing skill as in interaction between language and thought, whose result is a systematic piece of writing, in accord with the standard rules of language. Several factors may affect this process. These factors are: the student writer’s own input into his/her writing, the writer’s interpretation of the world and reality around him/herself, the methods of teaching writing received by the writer, and the interaction of all these components.

Fathman and Whalley (1990) recognize feedback as the main dilemma that many writing teachers face when giving writing instruction. Typically, writing feedback has either focused on form or on content. Despite more recent approaches that put more emphasis on the process of writing, teachers still tend to give feedback that is focused on form or the grammatical and syntactic features. The more traditional approach to giving feedback has been what Hairston (1986) described as

the teacher giving meticulously annotated comments on student papers, holding conferences and believing that the learners writing will improve.

2.2.2 Research on Computers and Writing

Early research studies on computers and writing conducted during the 1980s show that the focus was primarily on writing as a product. These same early studies went on to define the key features of integrating the computer in writing classes and developed general strategies of how to evaluate editing and word-processing programs and their applications. Following on, general theoretical and empirical studies examined the actual task of teaching or delivery, which also included technological developments taking place at that time. As new technological tools were developed, studies began to re-focus on evaluating these new features. As a result, this generated new interest in interdependent or co-operative learning. Various researchers were also interested in human-computer interaction (Herrmann, 1990, p.125).

Technology can have the ability to increase student motivation and student engagement. However, the debate over its genuine effectiveness on student learning still continues. While most research shows conclusive evidence that technology, particularly computers, can increase student achievement in areas such as math fact fluency, the research supporting increases in the quality of student writing is relatively inconclusive. Some suggest that technology is merely a delivery system and does not benefit students in any other way (Burner, n.d.). However, one study conducted on the use of laptops with writing showed that students were able to write in a “greater amount of diversity and formats” and writing submitted by these students was of greater quality (Warschauer, 2006). Warschauer also reveals the three main factors contributing to this increase in quality: support tools, feedback and revision, and formatting. Computers, when used with writing, can also offer students reinforcement when receiving feedback. Instead of seeing a paper covered with corrections, the computer offers a less personal way to offer critical feedback

(Ramirez, 2007). Using computers during the writing process also offers students the opportunity to create authentic pieces of writing in an electronic format, thereby, allowing students to store, revise, edit, and reflect on their writing (Little, 2006). Coley (1997) claims, "Students also learn more and like their classes better when their classes incorporate computer-based instruction."

Sullivan (1989) was one of the researchers most interested in human-computer interaction. She states in her article, "Human-Computer Interaction Perspectives on Words-Processing Issues," that computer word-processing programs and writing research can be classified by the goals researchers seek to fulfill: goals of improving teaching and learning, goals of understanding learning (skill acquisition), goals of improving user interface design, and goals of evaluating and developing new products. However, these goals can also be seen as being interdependent. For example, the goal of a study could be to improve training materials. This may be classified as a training study. However, if the goal is to address different ways of learning, then it could be classified as a learning, or skill acquisition, study. In the end, the same study might address all of the goals of improving teaching education and understanding learning.

Researchers started to raise questions focused on the potential effects computer programs would have on the writing process, the written products, and the attitudes of students who wrote with computers. They started to investigate whether students, who were in the process of learning and developing writing strategies, could simultaneously learn to manage the technological operation of computers. Furthermore, the research attempted to answer these general questions: Could schools manage to make computer technology available to students and if so, to which students, and for what purposes? Researchers also raised the following specific questions to explore the effect of computers on the writing process and student writing: (1) what aspects of the mechanical strategies of computers are students able to learn? Under what conditions, and within what time span, can students the mechanical strategies of computers (2) what advantages, and

disadvantages, do computers offer to student? (3) What impact does the act of writing, while using a computer, have on the student's processing of the writing task? Does it make revision easier? Do students revise, edit, re-read, or plan more, less, or differently, when they use computer? (4) Do computers qualitatively change the student writing process? If so, in what ways does composing change? (5) Do students like writing with computers? Under what conditions, and for what reasons, do students like, or dislike, writing with computers? (6) When they use computers, do students produce better quality writing? If so, how does this happen, and under what conditions does it occur?

Cochran-Smith, et al (1991) address some of the unanswered questions of researchers, educators, and teachers about the role of computers as a tool for school writing. The focus is mainly on students and teachers who were observed and interviewed over a two-year period. The researchers claim that there was general interest in the technology that had come to the fore during the last quarter of the twentieth century. Cochran-Smith, among others, concluded that word processing so simplifies written expression that writing would become enormously more accessible and relevant to multitudes of people who had never imagined themselves 'touching-pen-to-paper'. Aside from the democracy of written expression that new technology would unleash, even established writers would look at their tomes with greater impermanency, and hence, be inclined to revise, edit, copy and paste in an effort to discover and to mold deep, more meaningful text. Obviously, the technology would help to expand written expression (p.27).

Strickland (1987) reported that he had employed a 2x2 multi-factored instruction mode or approach of both the traditional classroom and computer-assisted classroom in order to investigate the amount, and corresponding quality, of student ideas which were generated through the use of computers in class. Strickland chose an English 101, first year writing class of students enrolled at a private, urban two-year college in Buffalo, New York, in the autumn of 1983, as subjects for his study. Strickland came to the conclusion that computer-assisted instruction must avail itself

of its inherent potential to provide idea-generating strategies, which are impossible to be replicate using traditional pen and paper tools. Selfe and Wahlstrom (1985) also believe that computers will become forceful tools which can help many more 'common' people to self-express efficiently, and with less drudgery, that they could have done before (p.65).

Computers are expected to solve many problems in writing. First, instructors no longer need to feel uncomfortable or hesitant about asking a student to revise a paragraph, or to provide additional evidence for a statement. Second, the computer encourages students to view and to follow the progress of their work due to the flexibility of the medium in which it is stored. Third, it is simple to remove electronically other obstacles that impede success for students in EFL writing. For example, spelling and style checkers enable students to correct some of the mechanical errors that teachers find intolerable. Fourth, each paper, regardless of how many drafts, is neatly printed and easily read.

In Montague's view (1990, p.19), learning is an interchangeable process that requires the learner to be challenged and cognitively engaged. Montague believes that computers will allow learners to assume a greater sense of ownership as regards the cognitive, as well as affective, learning outcomes. The impact of computers on the general intellectual and affective development of students should be significant, particularly in regard to the motivational aspects of learning. These attributives should be easily applicable to the specific field of writing.

Hawkins and Scheingold (1986, p.50) state that the incorporation of computers in the classroom affects several aspects of the teaching process such as curriculum design, learning interactions, and the assessment and monitoring of student progress. The utilization of computers shifts the emphasis away from passive, merely receptive learning towards an active learning style that demands the understanding, synthesizing and interpreting of information. Additionally, Hawkins and Sheingold hold the view that computers provide a allow for a more creative

setting in which students might explore their capabilities, further develop their thinking and deepen problem solving abilities. Collaborative learning, and by extension, writing, become the basis of teaching. Teachers, too, undergo changes in their roles. They become less the providers of content-specific knowledge, and more the facilitators of the students' acquisition of that knowledge (Moran, 1990, 1998).

Subsequently, much attention was paid to the publishing industry's new range of resource books and textbooks which offered new teaching approaches to teaching writing skills using computers. Perrin (1988) examines ten handbooks published in 1985 and 1986 by nine major publishers to identify the specific ways in which the computer has played a role in writing. Perrin notes that, although authors and publishers acknowledge the necessity for instruction in word-processing and writing, they do not offer fully developed discussions or ideas regarding this point.

In order to determine the overall efficacy of computers in writing instruction, Holdstein and Redman (1985) conducted a research at the Illinois Institute of Technology. In their investigation, they used two classes of English 101: one with about 25 students, the other with 12. At the end of their experiment they concluded that the use of computers would foment in students the notion that writing is fun and, perhaps for the first time in human history, not anxiety-provoking. Their caveat, however, is that no matter how sophisticated the technology in use, the first goal of any instructor remains the same: Cajole a student draft, regardless of how crude it may be, typed and saved (p.46).

Other researchers focused on computer-enhanced revision strategies. Hult (1988) examined text excerpts at the first and second draft stages produced by to illustrate her conclusions. Hult, too, reports that even though word-processors cannot teach writing, word-processing can be a time-saving aid for students. Hult warns, however, that students must still understand the principles of effective revision in order to apply them to writing with a word-processor (p.28).

Other researchers in the field, such as Duin and Gorak (1992), were more interested in the collaborative process that takes place when the teaching of writing skills becomes integrated with computer technology. They reported that they found the collaborative process vital in order to develop guideline textbooks for computers and writing.

At the same time, several researchers started to raise questions about how students used computers within, and in relation to, classroom settings with Stine (1989), also cited in Moran (1990), reaching the conclusion that computer assisted writing classes will have to become more student-centered by their very nature (p.61).

Moran's (1990) own experiences with a ten-week writing class using stand-alone Digital Dec-Mate workstations, led him to conclude that teachers need to stay focused on the deeper aim of helping students to acknowledge the potential that they, as writers, have (p.68) within the context of a student-centered classroom. Moran (1998, p.45) goes on to describe his classroom role while teaching writing with the aid of computers over eight years. He characterized himself as being an itinerant editor and assistant scribe, who would check in with the author, or groups of writers, as they drafted. He was no longer the central focus point of 'his' class. He writes that in such a class setting, the teacher is released, even freed, and no longer solely responsible for a class's progress!

2.3 Different Perspectives on Computer-aided Writing

2.3.1 Computer-aided Writing

Instructors of English believe that computer writing programs have a significant effect on student writing, according to Sommers (1990). Sommers drew such a conclusion when she reviewed Hawisher's and Sele's book, which focuses on two perspectives of computer-aided composition: the psychological perspective and the instructional perspective. The psychological perspective focuses on how well

computers can support cognitive processes to develop automated aids for tasks that people frequently do. The instructional perspective, on the other hand, focuses on teaching with automated aids; that is, on installing hardware and software to support classroom activities and to speed up learning (pp.89-93).

In "Studies in Word Processing," Hawisher (1986) provides an analysis of research studies of computers and writing, based on the two perspectives above by examining selected quantitative and qualitative studies. Hawisher finds a broad range of positive results. She also points to emerging trends and offers valuable recommendations for future research.

Rodrigues, Dawn and Raymond (1989) declare that teachers are, in fact, teaching more when they integrate the use of computers, rather than when they do not. In essence, 'computer-enhanced' teachers are teaching a new way of thinking about, and working with, writing. Thinking of text as fluid and adjustable is a new way of thinking about communication as dynamic and purposeful, they claim (p.14). The researchers also drew the conclusion that teachers should learn how to create exciting computer environments in their classrooms, and that these environments are already beginning to have a powerful impact on some writing programs. This same paper also aims to explore how teachers have responded to the technology-in-writing challenge. They feel that instructors who reframe their teaching, due to the available technology, will fashion dynamic classroom ambiances for writing (p.13).

Balester, et al (1992, pp.25-40) mention that the basic advantage of using computers in the writing process is that they encourage collaboration and experimentation. Handa (1990, p.24) states that the computer based, collaborative approach heightens the student's responsibility for learning outcomes by emphasizing the student text itself, instead of the teacher's traditional critique of it. If computers can be successfully used to facilitate the generation and distribution of both original student writing, and written student responses to that writing, students grow aware of themselves as they respond to the words and phrases of their peers.

Hence, students grow more aware of how their own words are read. As such their writing takes on new meaning as something concrete and utilized, as opposed to being just one more assignment for a teacher.

The 21st century style of learning has moved away from the non-collaborative framework of the 19th century. Adams, Nicholls and Brindley (2007, p.22) suggest that the older models of English language instruction do not take into account “the revolutionary effect of the new technologies on language, which properly used, provide much more potential for effective collaborative work” (Ibid. p.22). They also assert that with the creation of the printing press, writing became individualistic and moved away from collaborative approaches. Now, as new technologies become increasingly influential, the benefit of collaborative writing has again been realized (Ibid. p.29). The authors further explain how much of today’s writing takes place in a ‘post-print’ age where electronic mails and ungrammatical text messaging are used collaboratively. Most tasks in the professional world are completed as a collaborative effort, so a collaborative learning style is a valid methodology.

Collaborative writing in the workplace, through the medium of computers, demands the teaching of writing with the aid of computers. In particular, new strategies and procedures for teaching writing, through the electronic medium, need to be innovated in order to improve Emirati, EFL writing. The teaching of EFL writing has, until recently, placed the mechanics of grammar in the forefront; thus, Emirati, L2 [second language] learners were trained and urged to write errorless compositions, no matter how impersonal these were, because grammatical accuracy was the major objective of writing.

It is amply reported that most students come into writing classrooms with plenty of fears already: fear of exposure, fear of disapproval, fear of pondering deeply and reflectively, and fear of failure. From their experience in designing Compuwrite programs at Central Michigan University, Dinan, et al (1986) report that

there exists a clear need to incorporate computers into writing classrooms in a non-menacing manner (p.33). Additionally, they provide guidelines for integrating computers into writing classrooms. The essential point is that the students and their writing products remain the main focus of the lesson. Teachers should stick to what is basic for their students to know when introducing the features of word-processing, as students do not need to know very much about the technicalities of computers to use word processing in developing their writing skills. Moreover, teachers should proceed slowly when treating with fundamental computer technology that will serve the purposes of the lesson. It is an ineffective strategy to introduce too many functions to students at once as it gives them too much to assimilate at one time. A teacher's main concern should be to have the students write with as little interference from the machine as possible (pp.33-34).

Computers should not be an additional burden; rather more, the only purpose of computers should be to assist student writing development. Teachers can use computers to enhance student motivation to write and communicate. Warschauer (1996) highlighted this point in his research study which involved ESL and EFL students. His research concerned the effect on these students' motivational levels when using computers for writing and communication in the language classroom. His 30-question survey investigated student motivational levels by interviewing a broad range of 167 students, attending 12 university academic writing courses, in Hong Kong, Taiwan and the United States.

Warschauer determined that students from a very broad socio-economic background possessed positive attitudes toward the use of computers for writing in the ESL and EFL classrooms. The students in Warschauer's study stated that the sense of personal empowerment which they felt when utilizing computers for writing was a strong contributive factor for their optimistic outlook toward the presence of computers in the writing classroom (pp.10-11).

2.3.2 Computers and the Writing Process

The majority of research into computer assisted writing processes has focused on the following variables: the numbers and kinds of revisions students made when using word processing tools, the profiles of students who used computers most effectively, and which instructional interventions encourage most revising on computers. There are mixed results in the research that explores the effects of computers on the number of revisions. Some studies indicate significant increase in revisions made with computers, while others indicate that there is little or no difference in the number of revisions. Duin (1987) commented on the above observation in her article, "Computer Exercises to Encourage Rethinking and Revision," in which she drew on her teaching experience on the University of Minnesota's composition program, comprising eight advanced composition courses, adapted to various disciplines.

Success with computers in writing depends on student willingness to exchange traditional composing tools for computers and, on their abilities to adapt normal composing strategies with the computer program. Pufahl (1986) concludes that this transition takes place because of prior knowledge of both medium. Efficaciousness with computers depends on several interrelated factors such as the types of assigned writing tasks, the features of computer programs, and the individual styles and strategies of the students (p.27). A computer, by itself, will not induce students to draft, revise and edit their work. It is a student's prior knowledge of computers, as well as an awareness of what is expected of them as writers, that induces them to draft, revise and edit.

Researchers such as Burns (1983), who is directing programs in research and development in applied artificial intelligence, have explored the use of computer technology as instructional interference during student use of computers. Such studies begin with the assumption that computers free students to think more about their writing by relieving much of the physical burden of writing. Woodruff's

research (1982) on technological interference, establishes several conclusions and best practices based on this assumption. First, as they write, experienced students engage in an inner, self-monitoring dialogue. A way to assist weaker students improve their writing is to provide them with concrete examples of experienced students' internal revision processes. Since computers can provide writers with a model of revision, they make writing more facile. In turn, the computer can permit students to approach their writing tasks with higher level thinking strategies than they would otherwise be able to use (p.140).

Supporting these observations, Palmquist, et al (1998) employed observational tools such as interviews, teacher self-reports, classroom observation and analysis of class materials and arrived at the conclusion that the process of writing became an objective one during which students became more stimulated and motivated to write. Palmquist's observes weaker students, 'armed' with computers, are more willing to revise and edit. Instead of attending to surface-structure weaknesses, some students find themselves redrafting whole paragraphs because with computer help, they see their texts differently than before. Students examine a word, sentence, and paragraph in a manner that they would not have in years past (p.11).

With regard to the effects of computers on student written products, literature in this field indicates that using computers in classroom or computer laboratory situations affects both the quality and quantity of student written products. Two related measures of quantity have been assessed such as: the length of the individual texts or the overall quantity of writing produced. The purpose of McAllister's (1985) study was to test whether the instrument of composition (computer, typewriter, hand) influenced teacher perception of quality. The subjects for McAllister's experiment were thirty writing teachers at Southeastern Louisiana University. Each subject received a packet containing instructions, the same student's essay, and rating scale. McAllister reports that definite conclusions about the effects of computers on the quality of writing are not likely to be possible to ascertain as quality of writing is a

complex and slippery notion. Despite this, there is some evidence across groups of teachers and writers that using computers can help produce more attractive texts with fewer errors (pp.36-40). In conclusion, writing ‘quality’ is correlated to the appealing appearance of tidy writing contexts.

Other researchers focus on the effects of computers on student attitudes in informal interviews as well as written surveys. Students and teachers report that they like using computers and generally they have positive attitudes toward writing with computers. Joram, et al (1990), as a case in point, conducted research into younger student attitudes towards using computer word processing programs. They interviewed a randomly chosen, even gender mix, of 14 male, and 15 female, grade eight students from a middle-class junior high school. These students were individually given a short 45 minute test and interview, and the subsequent findings showed that students generally prefer using computers for revising purposes during the composition process (pp.55-72).

In his article, “Reflections on Research on Writing and Technology for Struggling Writers,” Charles A. MacArthur (2009) provides a list of several computer applications which can help disabled students improve their writing. He states that program’s like *Word Processing*, *Spelling Checker* and *Word Prediction* help students transcribe and revise their work. He recommends that schools and the educators should provide an access to and help students to acquire these computer applications so that they can improve their writing skills.

An important part of the impact of computer technology in classrooms is the special teachers' interpretations of it. In his report for the Alaska State Department of Education, Parson (1985), also cited in Cochran-Smith, et al (1991), stated that teachers who had common training in both process-writing, as well as word-processing, could ideally teach both skills in order to meet the needs of individual student needs, while maintaining with their own curricular pace and emphasis (p.60).

2.3.3 Resistance to Computer-Assisted Writing

In contrast, Nydhal's (1991) evinces skepticism about the value of word-processing in the writing process. He compared former research into word-processing and writing with the situation today, and what might follow in the future. He noted that empirical research has not provided any positively solid evidence of the benefits of word-processing on writing (p.25). Holdstein (1987), also cited in Nydhal, claims that there is scant and inconclusive evidence that computers can make students write better (p.25). Moreover, Gerrard (1991) raises points in order to resist computer-assisted writing after being involved in a conference on college writing. Gerrard boldly argues that there is no reason for humanists to fear the mechanizing force of the computer. Computer-assisted writing is an annoyance. The computer and its accouterments are not only frivolous, but over-priced. Computer aficionados have not proven that students write better due to technology (pp. 5-15).

2.4 Summary of Related Literature

It can be seen that using computers for writing does affect the composing processes of students. However, the effect is a complex one that is mediated by many other interrelated factors about which we need to know more. Moreover, research indicates clearly that writing quality is bound up with the nature of instruction and writing contexts. There is much that we still do not know about the effects of computers on student written work, student attitudes, teacher goals, and classroom organization and interaction.

There are very few studies on the use of computers for educational purposes in both the UAE and the wider Arab world. In fact, more studies are needed about the effects of computers on student EFL writing performance in the UAE and the wider Arab world. To that end, this writer's study, herein, will focus on the impact of using computers in the EFL writing classroom in a particular secondary school in the UAE.

Chapter Three

3. Methodology

3.1 Introduction

This research aims to investigate the effect of using computers on the writing performance of tenth grade Emirati, EFL students in the Institute of Applied Technology (IAT) in Abu Dhabi, United Arab Emirates (UAE). The experiment took the full second term of the academic year 2011 to 2012. The *independent variable* of this study is the method of teaching writing, which operated at two levels: (1) the traditional approach, and (2) the computer-oriented approach. The *dependent variable* is writing performance, which has two levels: (1) the linguistic (local) aspects, and (2) the rhetorical (global) aspects.

The research conducted was a quantitative, quasi-experimental study. Creswell (2002) states that a quasi-experimental study tries to determine whether any program has the intended effect on a study's participants. For this reason, a quantitative, quasi-experimental approach was chosen to investigate the effect of using computers on the writing performance of tenth grade Emirati, EFL students. This study included all the key components of a quantitative, quasi-experimental approach: (1) pre-and post-tests; (2) an experimental group and a control group; and (3) random assignment of study participants. Moreover, this study is integrated with figures and results, which reinforce the findings of the study, and allow statistical analysis to take place.

This chapter presents the methodology of the present study. It describes the participants of the study, the research instrument, test validity and reliability, research design, data collection, and statistical analysis.

3.2 Participants of the Study

The participants of the study ranged between the ages of fourteen and sixteen and were randomly selected from five different tenth grade sections at the IAT. IAT is a vocational institute that accepts both Emirati males and females after passing the eighth and ninth grades. Before being accepted into IAT, students are given a placement test, which aims to identify the student's level in English, mathematics and science. During the ensuing academic year, students take a foundation course in English with the *New Headway, Plus, Pre-Intermediate* course textbook in order to begin to prepare themselves for the standardized International English Language Testing System (IELTS) examination, which they will take in grade twelve in preparation for tertiary education.

The study was conducted over the thirteen weeks, second term, during 2011 to 2012 academic year. IAT is considered to be an ideal place to conduct this research because it contains a sufficient number of tenth grade sections, which allows for the possibility of random selection. Each section contains approximately twenty-five students. In addition, the school is equipped with computer laboratories that contain computers that have up-to-date software packages and are linked to the Internet, which, as a result, offers all the right conditions for teachers and learners to undertake computer-assisted writing practice.

For the purpose of the study, 37 tenth graders were chosen out of the five tenth grade sections. These students were then distributed into two groups: control and experimental. The control group included 20 students and the experimental group consisted of 17 students. The control group was exposed to only traditional, non-technological methods of writing instruction, whereas the experimental group was exposed to computer assisted writing instruction.

3.3 Research Instrument

In order to conduct the research, a software teaching and learning program, course textbook learning materials, the test and the evaluation instrument were used.

3.3.1 Software Teaching and Learning Programs

For the purpose of the study, two widely available word-processing programs were used: *Windows-based Microsoft Word* and *Daedalus Integrated Writing Environment (DIWE)*. Both software applications were licensed to the school.

There are three reasons for using these two computer software applications. First, the focus should be on the process of writing, which can be illustrated and annotated using *Microsoft Word* by both students and teachers. Second, *DIWE* provides students with exciting and useful idea-stimulating features, such as the *interchange, mail, invent, respond* and *write* options. When integrated into *Microsoft Word*, both software applications become more powerful tools to teach writing. Third, the study attempts to expose Emirati, EFL students to a variety of well established procedures to learn writing through computers, in addition to exposing them to well designed writing software. The computer-oriented approach software and hardware used in the experiment are illustrated in Appendix D.

3.3.1.1 Validity of the Software Programs

Microsoft Word is known worldwide and accepted as a valid word processing tool. However, the *DIWE* is less well known. Therefore, in order to establish the content and to construct validity of the target software, it was examined by a jury of three specialists in EFL methodology, as well as three computer experts. The review conducted by these six specialist was also to insure that the input to both groups were the same. This feedback was, in turn, used to aid in the determination of the writing objectives. The review also helped in choosing tasks, activities, linguistic content, application drills and evaluation exercises. Additionally, this researcher did the following to build and to construct the research instrument validity:

1. Carried out analysis of the writing lessons in the *New Headway, Plus, Pre-Intermediate* course textbook in order to determine the educational objectives of each lesson.
2. Constructed the theoretical framework of the program concerning the instructions to be taken into account.
3. Supplied a variety of tasks, based on the course textbook and workbook, to be done by students as a formative evaluation.
4. Checked the program and reviewed them for correcting errors before and during the experiment.
5. Submitted the entire course material, as well as the *DIWE* program, to three computer experts in order to analyze whether the course material could be computerized.

3.3.2 Textbook Learning Material

A sub-focus of this study is on the writing lessons throughout this *New Headway, Plus, Pre-Intermediate* course textbook. The lessons and objectives are outlined in the *Curriculum Document* issued by the *Assessment and Curriculum Department* at IAT. The course textbook consists of fourteen units and each unit contains different activities and tasks which cover the four language skills: speaking, listening, reading and writing. In addition, grammar and vocabulary are reinforced. Each unit contains one writing topic. Thus, there are fourteen different writing topics.

3.3.3 The Writing Achievement Test

The writing assessment used in this study was designed in accordance with the writing objectives and sub-skills that are included in the *New Headway, Plus, Pre-Intermediate* course textbook. At the beginning of the test, the instructions of the examination were introduced. The test consisted of two writing prompts. The first prompt is a narrative writing which grants the students a free writing opportunity to recount a trip that they have made. The second prompt is a chart and graph-based

expository writing. In this latter prompt, the students are requested to analyze the information in a chart, or graph, and to pass this information to an expository writing passage. The students were asked to answer both prompts in a one-hour period. The total score of the test was out of 50 marks (See Appendix B.).

3.3.3.1 Test Administration

In order to determine the effects of computer-assisted language learning, assessments were administered to the experimental and control groups at the beginning, and end, of the term, as a pre-test and post-test, respectively.

1. A pre-test was given to each student in the experimental and control groups before the implementation of the computerized program in the study.
2. A post-test was given to each student in the experimental and the control group after they had been instructed for the term.
3. Students' test papers were marked twice by two qualified, volunteer teachers based on a *Checklist of Composition Evaluation* which is illustrated in Appendix A. If there was a disagreement in the marking, the average of the two marks was given.

3.3.3.2 Test Validity

A team of English language teachers and specialists afterwards validated the test content. The team was directed to validate the content of the test with regard to test instructions, the relevance of the questions to content, and their suitability to the research goals and objectives. It is also to be noted that the remarks of the referees, their notes and suggestions, were taken into consideration by this author for the purposes of the study.

3.3.3.3 Test Reliability

The test reliability was obtained through the test-retest method on a pilot group of 20 students, who were randomly chosen from the population of the study. The test was repeated on the same group to check the reliability after two weeks. This follow-up step ensured that test instructions, content, form and allotted time proved suitable. The test reliability coefficient of the test was computed with the following results: *Cronbach Alpha* indicated that it was (0.98) for the control group, while it was (0.97) for the experimental group. The amendments dealt with the following issues: questions of the test, quality and quantity of the test items, the course objectives and the course content.

3.3.4 Evaluation Instrument: Writing Rubric

The writing rubric used was a *Checklist of Composition Evaluation* (Appendix A), which assessed the linguistic and rhetorical aspects of writing. As stated previously, a pre-test and post-test were administered. The same rubric was used in both the pre-test and post-test to accurately show the effects of the study. While the linguistic aspect of rubric was divided into word choice, sentence structure, and conventions; the rhetorical aspect was also divided into ideas and content, organization, and coherence and continuity. Two main levels were formed of twenty-three items called *evaluation traits*. These evaluation traits established a criterion for marking and evaluating the students' performance. Each item is defined in terms of what a 'good' piece of writing should present.

Each item in the *Checklist of Composition Evaluation* is graded on a scale of 1 to 5: 1 being the weakest performance, 5 for the best.

The distribution of questions over the *Checklist of Composition Evaluation* is as follows (Appendix A):

- 1) Level 1: The linguistic (local) aspects of writing of three sub-levels: word choice, sentence structure, and convention. Where:

- a. Sub-level 1 treats word choice, it shows the students' ability to write a clear message and their ability to opt for lively, action verbs and specific, concentrated nouns. Word choice indicates whether students paint clear images in their writing and avoid vague words and redundancy (Questions 1-5).
- b. Sub-level 2 is concerned with sentence structure and focuses on whether each written sentence is easy to read and stands alone. This sub-level also addresses whether students are using correct grammar and variation in sentence length and structure (Questions 6-8).
- c. Sub-level 3 covers writing conventions, which include correct punctuation, spelling, straight margins, and overall neat appearance (Questions 9-11).

Level 2: The rhetorical aspects of writing consist of three grading scales: ideas and content, organization, and coherence and continuity. Where:

- a. Sub-level 1 focuses on ideas and content. It investigates whether ideas and content are interesting, clear, detailed, or purposeful (Questions 12-15).
- b. Sub-level 2 discusses organization and stresses the notions of effective title, reader orientation, clarity of main ideas, and clever conclusion (Questions 16-19).
- c. Sub-level 3 seeks coherence and continuity elements that include the use of strong transitions, completeness of the written text, and whether ideas are relevant and necessary (Questions 20-22).

The *Checklist of Composition Evaluation*, too, was revised, amended and approved by a jury of judges formed by three EFL teachers. Some *Checklist of Composition Evaluation* items were added, while others were omitted.

3.4 Procedures of the Study

The following steps were followed chronologically in applying the experiment.

1. An official permission was obtained from the Institute of IAT administration.
2. This researcher trained the assisting teacher(s) and provided them with feedback about the most appropriate methods for teaching writing via the target software.
3. A check on the school computer laboratory (lab) was made to be sure that all computers would be operating correctly. It was found that an old version of *Microsoft Word* had been installed in some computers; therefore, the option to use the language check feature didn't work. Spelling, style and grammar checkers were reinstalled. The computer lab was connected with the Internet. The *DIWE* program, which was chosen for the present study, was installed on each computer.
4. The installation of the target software took place at the computer lab at IAT. The experimental group was taught by their teacher. Again, the experiment took place during the second term for the academic year 2011 to 2012.
5. An introductory lesson about *Microsoft Word* and *DIWE* was given by this researcher to familiarize the experimental group with the purpose of the research and to assure them of the confidentiality of the new method by which they would learn the writing skill.
6. Throughout the term, the *experimental group* was taught English language writing using the computerized approach, while the *control group* was taught by using the traditional procedures and techniques.
7. This researcher initially developed a survey which asked a sample group of tenth grade English teachers in IAT schools to describe and to explain the methods, processes, strategies, and procedures and techniques they used in their writing classes (See Appendix C.) in order to ensure the accuracy of information about the traditional procedures and techniques used in writing

classes. English teachers at IAT are provided with guidelines of traditional procedures and techniques to be employed while teaching writing.

8. To ensure the equivalence and homogeneity of the two groups, this researcher conducted one-way *analysis of covariance (ANOVA)* on students' final first semester results in English writing. Afterwards, the *control group* was trained to write English composition in the traditional way, and the *experimental group* was trained to write English composition with the aid of computers.
9. This researcher devised an assessment tool which performed the dual function of both pre- and post-test to ascertain and examine both study groups' written performance at the beginning of term. This test was developed by this researcher and subsequently amended and revised four times before approval was granted by the *Assessment and Curriculum Department* at IAT (See Appendix B.).

3.5 Ethical Issues

For the purpose of this study, safeguarding procedures were taken to insure that the study was ethically sound. This was done in three categories: obligations to this writer's employer, obligations to this writer's colleagues who assisted, and obligations to this writer's students who were the subjects of this study.

Before starting this study, this researcher was aware of all obligations related to the employer, as it would be the employer's school wherein this study would be realized. First, the nature of this study was clarified to the writer's employer. Accordingly, an official proposal outlining the entire study was submitted by this researcher to his employer in order that the study could be conducted at the educational institution, or school, wherein this writer is employed. Permission for this study was granted by this researcher's employer. Henceforth, this study was duly carried out in accord with the agreement established between this writer and his employer. Although this researcher's initial proposal of study contained all the steps

and procedures of said study, this researcher endeavored to apprise his employer periodically, throughout this study, in order to minimize any possibility of misunderstanding. At the conclusion of this study, all of this researcher's results were duly divulged to his employer, as was agreed at the initial proposal stage, and, also in keeping with the original agreement, the results of this study are to remain confidential, and limited exclusively to only this dissertation publication.

As regards this researcher's colleagues who assisted in the study, all information regarding the nature of this study, in its entirety, was willingly and openly stated beforehand to the researcher's colleagues. This researcher collaborated with said colleagues regarding the research survey document, class management, the didactic methodologies to be utilized, as well as the timely provision of all equipment, class materials and training. This researcher was particularly keen to minimize the risk of physical and mental harm that may have resulted at different stages of the research. Caution was taken as regards using the computer for an over-long period of time. Advice was also given as a precaution to one's being surrounded by ample electric devices and current in the computer lab(s) for prolonged periods of time.

The subjects of the study, this writer's students, were informed of the entire nature, purpose and procedure of the study well before the commencement of said study. To this end, the researcher devised a consent form document, which the student-subjects were requested to sign, in a good-faith effort to incorporate them willingly into this study (See Appendix E.). This researcher made every effort to explain to the student-subjects, all of the consequences of participating in the study. Every good-faith effort was made to inform fully both the experimental group of students, as well as the control group of students, as regarded participation in this study. Moreover, this research at all times endeavored to protect the student-subjects from any possible harm. To this end, this researcher took all available and necessary steps to avoid the publication of student-subject names, marks, comments and general, as well as specific, study results.

3.6 Data Collection

The two groups of students were asked to write a well-organized composition about two familiar topics (See Appendix B.). At the beginning of the semester, the two groups were asked to write using pen and paper. The students of the experimental group at the end of the semester were asked to write with the aid of the computers, whereas the of the control group were asked to use pen and paper again.

This researcher and two IAT English language teachers carried out the evaluation of the students' written texts. They considered the evaluation traits in the *Checklist of Composition Evaluation*: ideas and content, organization, word choice, sentence structure, conventions, and coherence and continuity. All the written texts were read in their entirety and re-read three times when necessary.

3.7 Data Analysis

The independent variable of this study is the method of teaching writing which has two levels: the *traditional approach* and the *computer-assisted approach*. The *dependent variable* is writing performance, which also has two levels: the linguistic (local) aspects and the rhetorical (global) aspects. Two statistical analyses were employed in this study: *Descriptive Statistics* and *Analysis of Covariance (ANCOVA)*. *Descriptive Statistics* was obtained to describe the properties of all of the variables involved and to calculate the means and the standard deviations of student performance in the writing tests. An *Analysis of Covariance (ANCOVA)* was used to test if there are statistically significant differences in the writing performance of the students who are trained to write through computers, and that of those who are trained to write in the traditional way.

Chapter Four

4. Findings and Discussion

4.1 Findings of the Study

The purpose of the study was to investigate the effect of using computers on the writing performance of tenth grade Emirati, EFL students in the IAT in Abu Dhabi. Therefore, the results presented in this chapter, which are based on the evaluation of the students' written texts with respect to the linguistic and rhetorical aspects of writing indicated in (Appendix A), are the answers to the three questions of the study.

1. Are there any significant differences at ($\alpha = 0.05$) between the writing performance of the students who are trained to write through computers, and that of those who are trained to write in the traditional way?
2. Are there any significant differences at ($\alpha = 0.05$) between the writing performance on the linguist level of the students who are trained to write through computers, and that of those who are trained to write in the traditional way?
3. Are there any significant differences at ($\alpha = 0.05$) between the writing performance on the rhetorical level of the students who are trained to write through computers, and that of those who are trained to write in the traditional way?

At this stage the researcher feels it is necessary to refer to the results of the descriptive statistics before presenting the findings of the experiments for purposes of validity and reliability. These results describe the properties of all the variables involved, and are also used to calculate the adjusted means and standards deviations of students' performance in the writing tests, and which were computed by the *Analysis of Covariance*. As a result, the two groups were

made equivalent, with the higher adjusted means indicating better performance whenever statistically significant differences became apparent.

Table 1 below shows the *Means and Standard Deviations* of the control and the experimental groups with regards to student scores in linguistic (local) and rhetorical (global) aspects of writing in the pre- and the post-tests. With regard to the performance of the two groups in the writing test, writing pre-test, described in Chapter 3 it is apparent from table 1 below that the students of the experimental group scored higher than those of the control group in both local and global aspects of writing (3.8 and 3.3 respectively). Furthermore, the means and standard deviations of both local and global aspects of writing sub-levels were also computed as illustrated in Table 1 below to answer the three questions of the study.

Table 1

Means and Standard Deviations of the Control and Experimental Groups with regards to Student Scores in Pre- and Post-Tests

| Aspects of Writing Performance | Group | | | | | | | |
|--------------------------------|--------------------|-----------|----------------|-----------|-------------------------|-----------|----------------|-----------|
| | Control Group N=17 | | | | Experimental Group N=20 | | | |
| | Mean | | Std. Deviation | | Mean | | Std. Deviation | |
| | Pre-test | Post-test | Pre-test | Post-test | Pre-test | Post-test | Pre-test | Post-test |
| 1. Local Aspects | 2.2 | 3.4 | 0.7 | 0.4 | 1.9 | 4.0 | 0.4 | 0.3 |
| Word Choice | 2.3 | 3.3 | 0.7 | 0.4 | 1.8 | 3.7 | 0.4 | 0.3 |
| Sentence Structure | 2.3 | 3.4 | 0.8 | 0.4 | 1.9 | 3.9 | 0.5 | 0.4 |
| Conventions | 2.2 | 3.6 | 0.8 | 0.4 | 1.8 | 4.7 | 0.4 | 0.2 |
| 2. Global Aspects | 2.5 | 3.2 | 0.6 | 0.4 | 1.8 | 3.6 | 0.4 | 0.3 |
| Ideas and Content | 2.1 | 3.4 | 0.7 | 0.4 | 2.0 | 3.7 | 0.5 | 0.4 |
| Organization | 2.3 | 3.2 | 0.6 | 0.4 | 1.6 | 3.6 | 0.4 | 0.3 |
| Coherence & continuity | 2.0 | 3.1 | 0.7 | 0.3 | 1.7 | 3.6 | 0.4 | 0.4 |
| Local & Global Aspects | 2.2 | 3.3 | 0.7 | 0.4 | 1.8 | 3.8 | 0.4 | 0.3 |

With regard to the local aspects of writing, table 1 indicates that the mean of the experimental group is higher than that of the control group (4.0 and 3.4, respectively).

The local aspects of writing, as indicated in the *Checklist of Composition Evaluation*, include three sub-levels: word choice, sentence structure and conventions. With respect to the word choice, table 1 shows that the students of the experimental group scored higher than the students of the control group (with means of 3.7 and 3.3). The same applies to the other two sub-levels: sentence structure and conventions.

Referring to the rhetorical aspects of writing, Table 1 also shows that the experimental group scored higher than the control group (3.6 and 3.3, respectively). This applies to the sub-levels of the rhetorical aspects: ideas and content (3.7 and 3.4), organization (3.6 and 3.2), and coherence and continuity (3.6 and 3.1).

To find out if those differences in means were significant, the Analysis of Covariance was computed. Tables 2,3, and 4 below show the results of the analysis.

4.1.1 Findings Relating to Question One

Are there any significant differences at ($\alpha = 0.05$) between the writing performance of the students who are trained to write through computers, and that of those who are trained to write in the traditional way?

Table 2

Analysis of Covariance (ANCOVA) for the Performance of the Two Groups in the Post-Test (Total Score) Using the Pre-Test as Covariance.

| Level | Source of Variance | | Sum of squares | df | Mean square | F | P |
|--------------|--------------------|----------|----------------|----|-------------|--------|--------|
| Total Scores | Covariance | Pre-Test | 0.0007773 | 1 | 0.000777 | 0.006 | 0.938 |
| | Main Effect | Group | 2.65 | 1 | 2.65 | 21.203 | 0.000* |
| | Residual | | 4.249 | 34 | 0.126 | | |
| | Total | | 6.9 | 36 | 0.192 | | |

* P < 0.01

The results of the *ANCOVA*, as indicated in Table 2 above, show that there is a significant difference between the two approaches ($F=21.203$, $P < 0.01$). This difference is in favor of the experiment group as the mean of the experimental group is 3.8, while for the control group it is 3.3. The *Analysis of Covariance* was extended to include the two main levels of the test: the local aspects and the global aspects of writing as shown in Table 3 and Table 4 below.

4.1.2 Findings Relating to Question Two

Are there any significant differences at ($\alpha = 0.05$) between the writing performance on the linguist level of the students who are trained to write through computers, and that of those who are trained to write in the traditional way?

Table 3

*Analysis of Covariance (ANCOVA) for Students' Performance in the Local Aspects
and its
Sub-levels.*

| Level | Source of Variance | | Sum of squares | do | Mean square | F | P |
|-----------------------|--------------------|-----------------------------|----------------|----|-------------|-------|--------|
| Local Aspects | Covariance | Pre-Test Local Aspects | 0.001792 | 1 | 0.001792 | 0.015 | 0.904 |
| | Main Effects | GROUP (Post-test) | 3.961 | 1 | 3.961 | 32.48 | 0.000* |
| | Residual | | 4.147 | 34 | 0.122 | | |
| | Total | | 8.110 | 36 | 0.225 | | |
| 1. Word Choice | Covariance | Pre-Test Word Choice | 0.171 | 1 | 0.170 | 1.034 | 0.316 |
| | Main Effects | GROUP (Post-test) | 1.850 | 1 | 1.850 | 11.28 | 0.002* |
| | Residual | | 5.576 | 34 | 0.164 | | |
| | Total | | 7.596 | 36 | 0.211 | | |
| 2. Sentence Structure | Covariance | Pre-Test Sentence Structure | 0.03378 | 1 | 0.03378 | 0.192 | 0.664 |
| | Main Effects | GROUP (Post-test) | 2.562 | 1 | 2.562 | 14.6 | 0.001* |
| | Residual | | 5.967 | 34 | 0.176 | | |
| | Total | | 8.563 | 36 | 0.238 | | |
| 3. Conventions | Covariance | Pre-Test Conventions | 0.796 | 1 | 0.796 | 7.371 | 0.010 |
| | Main Effects | GROUP (Post-test) | 11.045 | 1 | 11.045 | 102.3 | 0.000* |
| | Residual | | 3.671 | 34 | 0.108 | | |
| | Total | | 15.512 | 36 | 0.431 | | |

* P < 0.01

The first main level of Checklist of Composition Evaluation is concerned with local aspects of writing. As can be seen in Table 3 above, there are differences between the writing performance on the linguist level ($F=32.48$, * $P < 0.01$) between the students who were trained to write with the aid of computers and those who were taught to write in the traditional way. This difference is in favor of the experimental group as the mean score indicates ($4.0 > 3.4$).

The students' performance in the local aspects of writing can be seen clearly in Table 3. With regards to the first sub-level of the local aspects of writing, Table 3 indicates there is significant difference between the writing performances at the word choice sub-level ($F=11.28$, * $P < 0.01$). This difference is in favor of the experimental group as the mean of the experimental group is 3.7 while for the control group it is 3.3.

With regard to the second sub-level of the local aspects (sentence structure), the Analysis of Covariance showed that there significant difference in the writing performance at the sentence structure sub-level between the experimental group and the control group ($F=14.60$, * $P < 0.01$). The mean of the experimental group is 3.9 while for the controlled group it is 3.4.

Concerning the last sub-level of the local aspects of writing (conventions), Table 3 shows that there is a significant difference in the writing performance on the conventions sub-level between students who were trained with the aid of computers and those who were trained to write without using computers. ($F=102.3$, * $P < 0.01$). This difference is in favor of the experimental group as the mean of the experimental group is 4.7 while for the control group it is 3.6 which still further proves the superiority in performance of those students trained to write with the aid of computers

4.1.3 Findings Relating to Question Three

Are there any significant differences at ($\alpha = 0.05$) between the writing performance on the rhetorical level (global aspects) of the students who are trained to write through computers, and that of those who are trained to write in the traditional way?

Table 4

Analysis of Covariance (ANCOVA) for Students' Performance in the Global Aspects and its Sub-levels.

| Level | Source of Variance | | Sum of squares | do | Mean square | F | P |
|---------------------------|--------------------|----------------------------|----------------|----|-------------|-------|---------|
| Global Aspects | Covariance | Pre-Test Global Aspects | 0.01758 | 1 | 0.01758 | 0.119 | 0.733 |
| | Main Effects | GROUP (Post-test) | 1.598 | 1 | 1.598 | 10.77 | 0.002* |
| | Residual | | 5.043 | 34 | 0.148 | | |
| | Total | | 6.659 | 36 | 0.185 | | |
| 1. Ideas and Content | Covariance | Pre-Test Ideas and Content | 0.05919 | 1 | 0.05919 | 0.288 | 0.595 |
| | Main Effect | GROUP (Post-test) | 1.147 | 1 | 1.174 | 5.719 | 0.022** |
| | Residual | | 6.98 | 34 | 0.205 | | |
| | Total | | 8.214 | 36 | 0.228 | | |
| 2. Organization | Covariance | Pre-Test Organization | 0.09193 | 1 | 0.09193 | 0.582 | 0.451 |
| | Main Effects | GROUP (Post-test) | 1.646 | 1 | 1.646 | 10.42 | 0.003* |
| | Residual | | 5.373 | 34 | 0.158 | | |
| | Total | | 7.111 | 36 | 0.198 | | |
| 3. Coherence & Continuity | Covariance | Pre-Test Coh. & Cont. | 0.193 | 1 | 0.193 | 1.01 | 0.322 |
| | Main Effects | GROUP (Post-test) | 1.915 | 1 | 1.915 | 10.05 | 0.003* |
| | Residual | | 6.481 | 34 | 0.191 | | |
| | Total | | 8.589 | 36 | 0.239 | | |

* $P < 0.01$

** $P < 0.05$

The second main level of the Checklist of Composition Evaluation is global aspect. Global aspects are also divided into three sub-levels: ideas and content, organization, and coherence and continuity. Table 4 informs that there is a significant difference in the writing performance on the rhetorical level (global aspects) between students who were trained with the aid of computers and those who were trained to write without using computers ($F=10.77$, * $P < 0.01$). This difference is also in favor of experimental group as the mean of the experimental group is 3.6 while for the controlled group it is 3.2.

The first sub-level of the global aspects is ideas and content. It is clear in Table 4 that there is a significant difference between the writing performance on the ideas and content sub-level in favor of the experimental group ($F=5.719$, * $P < 0.05$). The mean of the experimental group is 3.7 while the controlled group mean is 3.4.

Organization is the second sub-level of the global aspects of writing. The Analysis of Covariance reveals that there is a significant difference between the two groups in this respect as shown in Table 4 above ($F=10.42$, * $P < 0.01$). This difference is also in favor of the experimental group as the mean of the experimental group as the mean of the experimental group is 3.6 while for the control group it is 3.2.

The third and last sub-level of the global aspects of writing is coherence and continuity. As indicated in Table 4 above, there is a significant difference between the two groups in this sub-level ($F=10.05$, * $P < 0.01$). The experimental group's mean is 3.6 while that of the control group is 3.1.

Table 5*Percentage of Improvement in Students' Writing Performance*

| Aspects of Writing Performance | Group | | Percentage of Improvement +/- |
|---------------------------------|-----------------------|----------------------------|-------------------------------|
| | Control Group N=17 | Experimental Group N=20 | |
| Local and Global Aspects | 3.3 | 3.8 | 13.1% |
| Local Aspects | 3.4 | 4.0 | 15.0% |
| Word Choice | 3.3 | 3.7 | 10.81% |
| Sentence Structure | 3.4 | 3.9 | 12.82% |
| Conventions | 3.6 | 4.7 | 23.40% |
| Global Aspects | 3.2 | 3.6 | 11.11% |
| Idea and Content | 3.4 | 3.7 | 8.10% |
| Organization | 3.2 | 3.6 | 11.11% |
| Coherence and Continuity | 3.1 | 3.6 | 13.88% |

Table 5 shows the percentage of improvement in the students' achievement when comparing the adjusted means of the two groups. As indicated in Table 5 above, the students who were trained to write with the aid of computers (the experimental group) showed improvement in their performance in both linguistics and rhetorical aspects of writing by 13.10% and 11.11% respectively. The results in Table 5 will be employed in the next chapter to help interpret the results to the three questions.

4.1.4 Summary of Findings

The findings of the research can be summarized by the following; through the comparison of grand means it has been shown that students who were trained to write with the aid of computers performed significantly better overall, as well as in linguistic and rhetorical aspects, than those students who were not.

4.2 Discussion

The discussion in this chapter addresses the literature, methodology and findings of this study, which are based on the following three questions:

1. Are there statistically significant differences in the writing performance of tenth grade students that can be attributed to the teaching method?
2. Are there statistically significant differences in the writing performance of tenth grade students in the linguistic aspects that can be attributed to the teaching method?
3. Are there statistically significant differences in the writing performance of tenth grade students in the rhetorical aspects that can be attributed to the teaching method?

Based on the findings relating to question one, which asks if there were any significant differences in the students' writing performance that could be attributed to the teaching method under discussion, Table 5 shows that the students in the experimental group performed significantly higher than those in the control group and, accordingly, this could be interpreted as a result of the method of instruction.

One of the methods used with the control group was the use of a collaborative work environment. It is believed that the teaching of writing with the aid of computer stipulates the collaborative method of instruction. Students learn better when writing is taught as a process in decentralized classrooms (Sommers, 1984). The computer-oriented approach, used in the present study, depends primarily on collaboration. The teacher of writing and his students collaborated to produce a satisfactory piece of writing.

The underlying tenet of the computer-based collaborative approach is that the most important skill in good writing is the ability to read student's text insightfully. The student must, in other words, be a good reader of other student's text in order to be a good writer. Such skill depends on the practice of reading student's papers. The

computer-based collaborative approach supposes that the best instructional activity depends on intensive reading and critique of another student's text. Students in the control group were exposed to other students' writing, which promoted idea sharing through a collaborative framework. This exposed students to a variety of linguistic and rhetorical aspects of writing created by each student. Furthermore, the computer-oriented approach made this collaboration more effective.

The computer-orientated approach results in students using certain kinesthetic and physical response techniques as they respond to each other's paper, namely by; getting up and physically moving to another student's computer, gathering around a single screen to discuss with the student working there, the act of reading the screen and responding to the information verbally and in writing, exchanging disks with each other or emailing or using drop-box and airdrop options.

The computer-oriented approach favors using certain techniques to have students in a writing group respond to each other's paper by: physically moving to another student's computer, reading the screen and responding to the information, exchanging disks with other students, simply gathering around a single screen, emailing or using dropbox and airdrop options.

Balester (1992) confirms the above view. He mentions that the basic advantage of using computers in the composing process is that they encourage collaboration and experimentation. Furthermore, Handa (1990: p. 24) supports the computer-based collection approach when she states that "the computer based collaborative approach attempts to re-empower text by emphasizing the student text itself of the instructor's evaluation."

Another factor that appears to influence student's performance is the use of the *process writing approach versus product writing approach*. The product writing approach depends on imitating, copying and transforming models of correct language at the sentence level. The primary emphasis is on providing practice in producing different kind of texts, while a secondary one is prevent the

production of errors in students' writing. Most of the writing techniques that English teachers apply as shown in the traditional approach (Appendix E) such as *controlled composition* or *guided composition* force students to memorize certain writing structures and apply them to their future writing. The growing dissatisfaction with the product approach led to the interest in discovering the process approach. The process approach consists of sub-processes: generating ideas, focusing, structuring, drafting, evaluating and reviewing. Such sub-processes motivate students to discover and invent. The main objective of using the computer-oriented approach in the experiment is to train Emirati students to employ inventing strategies.

Cochran-Smith et al (1991) support the above viewpoint. In this respect, they believe that the computer is a tool that would help write better because writers are more likely to treat their developing texts as impermanent and would, therefore, write to discover and shape what they had to say. Moreover, Palmquist et al (1998) believe that the computer-oriented approach stimulates students to look at the word, sentence, or paragraph in a way that they did not do before.

A third factor that may contribute to the improvement of students' writing performance is the *teacher's goals*. The writing teacher is only a facilitator and an assignment creator. Such view is also held by Dawn & Raymond Rodrigues (1989) who believe that teachers should teach a new way of thinking about and working with writing, a way of thinking of the text as fluid and adjustable, a way of thinking about communication as dynamic and purposeful. Moran (1998:p. 45) also supports the above-mentioned view when he describes the teachers' role in the composing process. He says: "In this setting, everyone is working, apparently; I, the teacher, am released. I am not at the center of the class, fully responsible for its progress". Warschauer (1996) reports the same observation in a research study in which ESL & EFL students were involved. Warschauer also believes that teachers can motivate their students by helping them to gain knowledge and skills about using computers for writing.

The fourth factor which could contribute to students' quality of writing output is the *students' attitude*. The students of the experimental group had a positive attitude toward using computers for writing. The new writing tool motivates them to be involved in such an experience, which consequently affects their performance positively. The same results are in line with the research findings of Joram et al (1990). They believe that students generally prefer computers for revision in the composing process. Also, the result is in line with the research findings of Warschauer (1996:p.10). He writes "A wide range of language students - whether they are male or female, skilled or unskilled at typing and using computers, and experienced or inexperienced in using computers - have a positive attitude toward using computers for writing and communication in the language classroom".

Another factor that may contribute to the improvement of the students' writing performance is that the computer-oriented approach functions as a *problem-solving model*. Students are trained to use informal methods of invention such as brainstorming, cubing, and free writing. Then they are trained in formal inventions strategies such as methods of solving problems by evaluating past experience and moving by trial and error to a solution. These methods deepen students' analysis of their topics.

The last factor that seems to influence students' writing performance is the computer as a writing and *time-saving* tool. Once students are used to writing with computers, they find themselves free from the burdens of the mechanics of writing such as recopying, correcting errors, and writing another draft. Computers also save time by providing students with immediate feedback about their written texts. This result is consistent with Selfe and Wahlstrom (1985) findings. They believe that computers are powerful tools that help us do our work more quickly than if we do it alone.

As regards the differences in the linguistic aspects of the student writing, the results went in favor of the experimental group. Based on the findings related to

question two, which asks if there were any significant differences in the writing performance of tenth grade students in the linguistic aspects that can be attributed to the teaching method; this author concludes that there were significant differences in the writing performance of tenth grade students in the linguistic aspects that can be attributed to the teaching method. Table 5 shows a percentage of improvement in the students' performance of the experimental group, over the performance of students of the control group at the rate of 15%. With detailed respect to the improvement of the experimental group, there was 10.81% improvement for word choice, 12.82% for sentence structure, and 23.40% for conventions.

The traditional emphasis of writing is on the correct sentence structure, grammar, and mechanics of writing such as spelling and punctuation. The computer, as a writing tool, helps students physically to write better texts without being worried about spelling or punctuation marks. Most computers' word-processing programs contain spelling and grammar checkers, in addition to paper layout preview. Such features encourage students to write more and reduce their anxiety toward writing. The computer, as a writing tool, allows students to track the process of removing errors from the paper. The suggested revisions made by the teacher appear in different colors or with lines under them. The student then reads through the suggestions, answers questions, and accepts suggestions that improve the document while he simultaneously rejects unnecessary comments.

The findings above are consistent with Hale (1996) who thinks that the drill and practice software help students practice skills in grammar and punctuation. The computers are able to provide students with immediate feedback with a variety of corrections and comments. Furthermore, the findings are in line with Palmquist (1998) who believes that the student's text undergoes a series of tests designed to identify potential problems such as spelling errors and subject-verb agreement. These findings also support Sommers' (1984) observation on word-processing programs in which she holds the view that students often develop into more fluid writers since they no longer have to recopy, and furthermore, they become more willing to revise.

As noted in *Chapter Four*, the findings relating to question three, showed significant differences in the writing performance of tenth grade students in rhetorical aspects that can be attributed to the teaching method. The global aspects level is also divided into three sub-levels: ideas and content, organization, and coherence and continuity.

This is also supported by Table 5, which shows that the writing performance of those students who were trained to write through computers was better than that of the students who were trained to write in the traditional way. The percentage of the improvement is 11.11% at the rhetorical level. As for the sublevels, it is 8.10% for ideas and content, 11.11% for organization, and 13.88% for coherence and continuity.

In addition to the students' improved performance at the linguistics level, as a result of using computers in writing classes, the use of computers seems to enhance students' writing performance at the rhetorical level. The computer-oriented approach appears to stimulate students to deal with rhetorical aspects of writing.

With respect to finding balance and checking for completeness, although the computer cannot help students establish content, it can show them whether the paper's elements balance. One way to check for this balance is to look at the document as whole without reading it as a preview. One of the most effective techniques for checking a paper's balance is also the simplest: Examine the document using the *Page Layout View*. The instructor asks students to examine the pages. Once students have this view on their screens, the teacher asks them certain questions such as: Which section looks as though the paragraph is too short? Does any paragraph extend for more than a page? Which thick block of paragraph might be broken up? Does any paragraph begin at the bottom of a page? And does any paragraph end at the top of a page?

Moreover, students can test the coherence of their papers by using certain functions provided by the computer software such as the *Block and Move* functions,

the scramble of paragraphs order, or the highlight and mark transitions. Such functions are illustrated in details in Appendix E.

It is likely that the computer-oriented approach enables students to check for unity within paragraphs. Special commands such as *Copy, Paste, and Replace* serve students on revision and repositioning of sentences to check for unity as illustrated in Appendix E.

Concerning the use of the outline feature in this approach, it appears to help in the composing process. Such a feature enables the writer to inspect the topic sentence for key characteristics such as: if the topic sentence introduces and defines the subject of the paragraph, provides a sufficient transition from the previous paragraph, or includes words that indicate the position of the paragraph in relation to the rest of the paper. The process of composing is not linear. Writing is more of a recursive activity in which the students move backwards and forwards between drafting and revising, with stages of re-planning in between. The computer approach focuses on idea creation, invention, and establishment of content. The computer-oriented approach starts with prewriting and informal strategies in which 'free writing' is writing to discover what the student knows about a topic or creating a draft. Then the approach moves students to other stages of thinking about their topic and helps them create ideas such as looping, cubing, and brainstorming. Then students move towards formal invention strategies such as Aristotle's *Topio* where they can generate new interesting ideas or modify the old ones. The approach ensures students' free movement during these stages to reach optimal performance of creating ideas.

The view is consistent with Kemp's (1992) findings. He believes that students in the computer-oriented writing classroom get immediate feedback about their ideas, which may be challenged, modified, or confirmed several times during the course of a single class. Thus, they receive direct and powerful validation of their recognition of exposition and persuasion through response.

The computer-oriented approach holds that students should practice working on global aspects before working on issues of style and mechanics. Students should respond to the paper as a whole; i.e., its content, structure, organization before addressing sentence structure or conventions.

Chapter Five

5. Implications, Limitations, Recommendations and Conclusion

5.1 Implications of the Study

The value of this study lies in presenting new methods and techniques for teaching the skill of writing and revealing points of the weakness and strengths in trying to obtain mastery of learning the writing skill through the use of computers. The findings of the study indicate that since students who use computers in learning the writing skill achieve higher scores than those who study the same skill in the traditional method, it can be anticipated that students may benefit more from the computer-oriented method of studying writing. Using the computer at home, for example, is an extension in the time and place of the writing lesson. Therefore, it would be a great advantage if the teacher directed his students to do more training in using word processor for checking and correcting errors at home.

Computerized checking error programs have undergone several stages of development and improvement, so there are usually several editions of them. Therefore, using the most recent available version of the program enables the user to have an easy access to the most recent beneficial accessories in diagnosing and evaluating errors. For example, the software used in the study, *Microsoft Word* and *Daedalus Intergraded Writing Environment (DIWE)*, proved to be helpful on classifying error types, linguistic rules and developing rhetorical style. It is advisable that the teacher directs his students' attention to make use of these features. Moreover, it is advised that students get more feedback from the qualified software applications and websites. This can be done under the supervision of the English teacher as well as the ICT teacher.

5.2. Limitations

During the course of this study there were several factors that may have contributed to possible limitations in the study. One of the most prominent limitations with which teachers and students were presented was the prejudice inflicted on the control group. Although teachers were very aware of the benefits that computer-aided technology presented, the traditional approach was maintained. This led to a noticeable difference in the level of interest of students in each group. The discussion among students within each group, and between both groups, led to the realization that students in the experimental group were much more involved with the learning process and using new technology. Overall, the motivation of the students and this researcher was much better in the experimental group. The control group realized this. The most obvious problem this created was the discrimination between each class. The student awareness of this discrimination was verbally expressed to the assisting teacher of the control group. With this dilemma in mind, that teacher was presented with the problem of maintaining the integrity of the research study, while maintaining his own integrity in the classroom. On the other hand, the teacher of the experimental group was not presented with similar issues of student disenchantment, and was never queried regarding the instructional methods and equipment used.

This study was conducted on tenth grader, Emirati, EFL students at the Institute of Applied Technology (IAT) in Abu Dhabi of the United Arab Emirates (UAE), in the academic year 2011 to 2012. Therefore, the results cannot be generalized beyond its population and other similar populations. Moreover, because this study is restricted to using *Microsoft Word* and *Daedalus Intergraded Writing Environment (DIWE)*, the results cannot be spread beyond these tools. Finally, the scope of the study was restricted to checking and correcting errors in the level of writing, which are accessed in both *Microsoft Word* and *Daedalus Intergraded Writing Environment (DIWE)*: spelling, grammar and style options.

In addition to the decrease in motivation for the control group, there were some other possible limitations to this research. Some students may have had a more positive response to one of the two writing topics. Keyboarding can also be a difficult skill for many students to master. Students required more time for publishing when using computers. Because of this, publishing on the computer may be a distraction for some students. A degree of confusion was noticed when students were to use the *tab* key or when the spell check function would automatically underline words with a red or green line.

5.3 Recommendations

In the light of the results of the study, the researcher suggests the following recommendations: (i) recommendations to the Institute of Applied Technology (IAT), and (ii) recommendations for further research.

5.3.1 Recommendations to the Institute of Applied Technology (IAT)

Based on the findings of the study, the researcher recommends the following to the Institute of Applied Technology:

(i) There is a need for revising and modifying curriculum with regard to introducing instructional media. Computer has become a beneficial tool for teaching language skills, especially writing, there is an imperative need for using this medium in conjunction with the textbook.

(ii) There is a need for designing more programs for teaching writing via computer as part of the EFL syllabus. This course should be used in conjunction with the textbook. Such programs prove to be helpful for students, especially in promoting self-dependence skills and methods.

(iii) IAT has adopted the *IC3* program for training teachers as well as students. However, this program is of general nature and there is a need for more

specific programs for teachers of the English language regarding teaching and learning different language skills.

5.3.2 Recommendations for Further Research

Based on the results of the study, the researcher recommends conducting the following studies:

(i) Since this study dealt with teaching the skill of writing via computer for the first secondary class and since studies in this domain are rare, there is a need for more studies in such a field with other grades or stages.

(ii) A study is definitely needed to investigate points of weakness of word processors in respect to their work and consequently improve their efficiency in helping students check and correct grammar, style and spelling errors.

(iii) Further studies are needed for the development of word processors. Their main function should be designing new word processors which avoid errors made by the recent word- processors in diagnosing and evaluating errors.

5.4 Conclusion

Over recent years, the development of writing techniques has seen significant change. The addition of computer-assisted language learning has greatly contributed to improvements in quality of student writing. The results of this study demonstrate that computer-assisted language techniques not only improved student writing scores, as well as writing quality. Moreover, these same techniques also enhanced student motivation and attitudes towards writing. Students from the experimental group found computer-aided, collaborative writing activities to be more engaging and interesting than traditional writing methods. It can be concluded that student needs and interests were met by using the computer-oriented and collaborative approaches to writing. Besides the communicative benefits which were inspired by collaborative writing, students worked equally well independently and showed pride

in their creative efforts. Furthermore, the students responded very well to the more balanced, less teacher-centered, writing classroom. In the writing traditional classroom, the student and teacher relationship was asymmetrical and students communicated less.

Computers make the writer's job easier throughout the writing process. For example, in the pre-writing phase, students can use computers to plan out their writing more effectively. When students use pre-writing activities, such as concept maps and outlines, they can break down their larger writing tasks into smaller ones. Many schools use *Inspiration Software* as a pre-writing tool. With this software, students prepare outlines to be used as a writing tool. For today's generation of students, computers are very attractive. Due to this reason, students are more likely spend greater time in pre-writing, or planning, activities. In turn, teachers must develop their classroom management strategies in order to create a balance of time between the planning phase, and the composing phase, of the writing process. It is during the composing phase of the writing process that final copies of student text are actually generated.

In the pre-writing phase, the biggest challenge is to convince students about the usefulness of the pre-writing step. In the *Literature Review* of this research document, some results illustrate that higher-ability writers, such as college students, use prompts more often than middle school students. Higher-ability writers are also shown to take greater advantage of the opportunities given by computer software. However, the results also indicated that computer software should not be the only factor, upon which teachers rely, in the development of student writing skills. Teachers, peers, instructional strategies, and computer software, all utilized together, have important roles to play in the development of student writing.

In the composing phase of the writing process, word-processors can give writers more freedom than 'paper and pencil' based writing because writers can compose text sequentially, follow an outline, or insert ideas at any point in a text. In

other words, one does not have to erase, scratch out, start over or struggle to re-read messy drafts. Again, the results in the *Literature Review* showed that researchers found significant difference between traditional, ‘paper and pencil’ methods and word-processed compositions. Students become more prolific when they use computers in their writing. Computers demonstrably simplify the revising process. Revising on the computer is facile. Yet it should not be forgotten that the quality of any revision will still depend on the ability of the student, as well as the nature and profundity of those changes that are made by student. In the editing process, writers must concentrate on details such as spelling and punctuation. Word-processing programs, spelling checkers, on-line dictionaries, and online style and grammar manuals are useful for the editing. Students make the most appropriate revision when they make use of online reference features, prompting and word-processing.

The role of the teacher in the experimental group of this study changed from one of ‘dictator’ to ‘facilitator’. Consequently, the students were encouraged to take an active part in, and ‘ownership’ of, their own writing development through both collaborative and independent endeavors. The teacher guided students without appearing overbearing. This created a relaxed atmosphere where students grew more confident.

With regards to the linguistic and rhetorical aspects of writing, the assistance provided by the computer improved the students’ final written product. In addition, the computer-assisted student became more aware of the features of improved writing, as well as the computerized features *that* assist in the development of improved writing. For example, the spelling and grammar mistakes were indicated in *Microsoft Word* by green and red lines under the mistakes or errors. Also, students were able to vary their word choice using the one-click thesaurus to check synonyms and antonyms of vocabulary. Another factor that improved the students’ writing was the efficiency, ease and cleanliness of the editing process. Students were able to read classmates’ writing clearly on the computer and were able to provide feedback in an effective manner by using the *track changes* and *comments* options.

The ability to send soft copies and exchange ideas and suggestions encouraged collaboration between students and teachers.

When computers are used to encourage and to develop writing, by using a collaborative classroom environment, students have been able to improve multiple skills, as well as their attitude toward education, in general, and writing in particular.

The results of this study indicated that the computer can successfully be used as a writing tool. Future research needs to be conducted in other elementary school grade levels to determine whether similar results would occur in other grades. There is a vital need for a longitudinal study conducted on a set of students as they progress through the grade levels. This study could examine how students' writing abilities evolve as their computer skills advance. An additional study should be conducted to study the reasons why students in the experimental group became less willing to work with a partner and to find ways of encouraging students to work together cooperatively. As far as grade ten students are concerned, it is believed that the computer should be used regularly, although not exclusively, for the teaching of writing skills. Quality writing instruction is a crucial component of any successful language arts program and teachers should not feel that a computer will miraculously turn his/her students into good writers. This research study indicated that the computer simply provides an additional tool that teachers can use to get students motivated to do their best and to become better writers.

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Appendices

Appendix A

Checklist of Composition Evaluation

CHECKLIST OF COMPOSITION EVALUATION

Level 1: Linguistic Aspects

| 1.1 Word Choice | No | Evaluation Traits | Exam A | | | | | Exam B | | | | |
|-----------------|---|-------------------|--------|--|---|---|---|--------|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | | | 1 | <p><u>Clear message:</u> The word choice is effective and the meaning of the word is precise.</p> | | | | | | | | |
| 2 | <p><u>Lively, action verbs and specific, concrete nouns:</u> Key words which describe the function of the part of a paragraph.</p> | | | | | | | | | | | |
| 3 | <p><u>Paints a clear message:</u> The use of similes and metaphors to paint images.</p> | | | | | | | | | | | |
| 4 | <p><u>Avoid vague words like “thing” and “nice”:</u> Avoidance of words that do not limit the topic and point out the direction in which the</p> | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|-------------------------------|---|---|--|--|--|--|--|--|--|--|--|--|--|
| | | paragraph will move. | | | | | | | | | | | |
| | 5 | <u>Avoid redundancy:</u> Avoidance of unnecessary repetition. | | | | | | | | | | | |
| 1.2 Sentence Structure | 6 | <u>Easy to read:</u> Each sentence stands alone and can be easily read. | | | | | | | | | | | |
| | 7 | <u>Correct grammar:</u> The use of correct grammatical rules. | | | | | | | | | | | |
| | 8 | <u>Varied sentence length And structure:</u> To use of short, long, simple, compound, or complex sentences to express a complete thought. | | | | | | | | | | | |
| 1.3 Conventions | 9 | <u>Correct punctuation and spelling:</u> The uses of appropriate punctuation marks and correct spelling. | | | | | | | | | | | |

| | | | | | | | | | | | |
|--|---|--|--|--|--|--|--|--|--|--|--|
| | 19 <u><i>Tense:</i></u> The use of appropriate tense types, past, present, etc. | | | | | | | | | | |
| | 11 <u><i>Good margins:</i></u> The first line is indented and moved in a few spaces. | | | | | | | | | | |
| | 12 <u><i>Overall neat appearance:</i></u> First things come first, second come second in accordance with writing conventions. | | | | | | | | | | |

CHECKLIST OF COMPOSITION EVALUATION

Level 1: Linguistic Aspects

| 2.1 Ideas and Content | No | Evaluation Traits | Exam A | | | | | Exam B | | | | |
|-----------------------------|----|--|--------|---|---|---|---|--------|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | 13 | <p><u>Interesting:</u> Ideas and Content give the paragraph its distinct shape and unified whole.</p> | | | | | | | | | | |
| | 14 | <p><u>Clear:</u> Ideas are precise, satisfactory, well-supported, and indicate to the reader what the paragraph is going to do.</p> | | | | | | | | | | |
| | 15 | <p><u>Detailed:</u> Simple list of main ideas and supporting points.</p> | | | | | | | | | | |
| | 16 | <p><u>Purposeful:</u> Ideas and Content are formed and fitted to the paragraph purposes.</p> | | | | | | | | | | |
| 2.2 Organizati on | 17 | <p><u>Effective title:</u> A phrase, not a complete sentence that is directly related to the topic.</p> | | | | | | | | | | |
| | 18 | <p><u>Reader orientation:</u> Introduction draws in readers.</p> | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|----|---|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | |
| | 19 | <p><u>Clear main ideas:</u></p> <p>Tell the general topic which will be discussed and tell the reader what kinds of things will be said about the topic.</p> | | | | | | | | | | | |
| | 20 | <p><u>Clear conclusion:</u></p> <p>Lets the reader know that the paragraph is finished and summarize what been written.</p> | | | | | | | | | | | |
| 2.3 Coherence and Continuity | 21 | <p><u>Strong Transitions:</u></p> <p>The use of words or phrases that permit easy passage from one sentences, eliminate gaps between sentences, and show correct order of sentences.</p> | | | | | | | | | | | |
| | 22 | <p><u>Completeness:</u></p> <p>The developed information about the thesis enough, adequate, reflect thought, and as a whole satisfactory.</p> | | | | | | | | | | | |
| | 23 | <p><u>Progression of Ideas:</u></p> <p>Ideas are relevant, necessary, and the reader will not become bored and lost.</p> | | | | | | | | | | | |

Appendix B

Student Test

THE INSTITUTE OF APPLIED TECHNOLOGY

Writing Test

Student's Name:

Time: 1

Hour

10th Grade

Question (1)

(25

Marks)

You should spend 30 minutes on this task.

Write a paragraph about a one day trip you have made to an interesting place in the UAE.

You should write at least 150 words.

The following questions might help you.

1. Where did you go?
2. When did you go?
3. Whom did you go with?
4. How did you travel?
5. When did you get there?
6. What did you see? What did you do?
7. What do you think of the trip?
8. How do you feel about it?

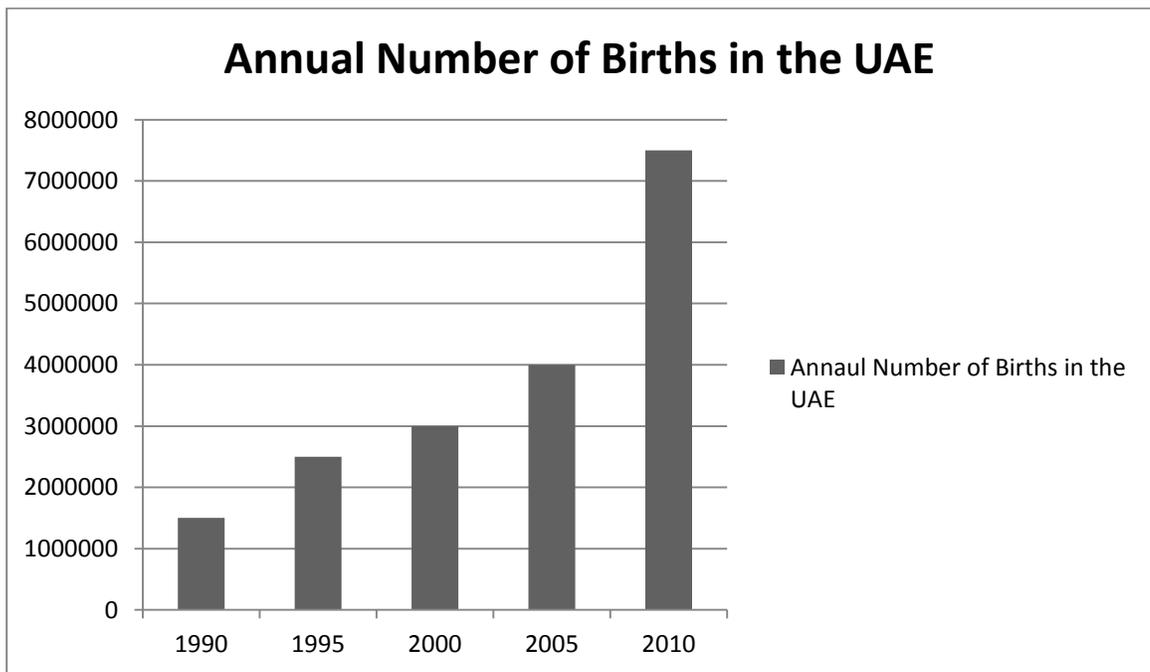
Question (2)

(25 Marks)

You should spend 30 minutes on this task.

The graph below shows the annual number of births in the UAE between the years 1920 and 2000. Write a report to a university lecturer describing the information shown below.

You should write at least 150 words.



Good Luck

Appendix C
Teachers Survey

School:

Teacher's Name:

Dear teacher,

Kindly describe the teaching techniques and processes that you follow when teaching writing to tenth graders.

Write not more than 200 words.

Appendix D

The Computer-Oriented Approach Software

Writing Software (Word-Processing Program)

Windows

Some of the more recent programs of word-processing incorporate windows. The window feature is considered to be an advantage for any word-processing program. It highlights the interactive aspect of word-processing by enabling the student to view outlines, notes, and reminders on different segments of the screen while composing on the rest. It also allows the student to open multiple document windows and rearrange them or cut and paste between them while writing. Moreover, the window feature is especially important for the student because it can facilitate planning, which is an integral part of the writing process. Finally, the window feature assures freedom of movement from prewriting and planning to drafting and revising a paper.

The Daedalus Integrated Writing Environment

Daedalus Integrated Writing Environment (DIWE) is a suite of collaborative tools designed to run on a local area network, helps students develop their skills in writing and critical thinking. The software includes six primary features:

1. *Invent* leads writers through a step-by-step process to help them explore their writing topics. In addition to the built-in prewriting prompts, instructors can create new prompts that best fit their curriculum, pedagogy, and students' needs.
2. *Write*, a streamlined word processor with simple formatting and spell checking, allows writers to compose and revise standard academic essays without the distractions of complicated menus and options. It also includes a unique *Concordance* feature that can help guide revision.

3. *Respond* displays a writer's draft and guides a reviewer through a series of feedback prompts. The prompts build on leading-edge writing theory and practice, and instructors can create their own prompts as well.
4. *Mail*, an electronic bulletin board, enables students to post and read both public messages (for all the class) and private messages (for a single recipient).
5. *InterChange* is used for prewriting, discussions of course content and readings, and peer review workshops.
6. *BiblioCite* greatly simplifies the task by providing simple forms where the students enter their bibliographic information; the program then generates properly formatted *MLA Works Cited* and *APA References* pages.

B-Computer Hardware

The school computer laboratory used for the experiment was equipped with 22 stand-alone computers all of *COMPAQ* type with Pentium 2 processor and full multimedia. The operating system set was *WINDOWS 98*.

Appendix E
Consent Form

Consent Form

Title: The Impact of Using Computers on the Writing Performance of Tenth Grade Students in the Institute of Applied Technology in Abu Dhabi, United Arab Emirates.

Researcher: Bashar Abu Shunnar, English Teacher, IAT, Abu Dhabi, UAE

Please tick box:

| | |
|--|--|
| 1. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions. | |
| 2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving reasons. | |
| 3. I agree to take part in the above study. | |
| 4. I agree to the survey. | |
| 5. I agree to the use of anonymized quotes in publications. | |
| 6. I agree that my data gathered in this study may be stored (after it has been anonymized) in a specialist data center and may be used for future research. | |
| 7. I agree that my data gathered in this study may be presented in conferences, workshops or seminars. | |

Name of participant

Date

signature

Name of researcher

Date

signature