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AN INVESTIGATION OF EFL LEARNERS ATTITUDES TOWARD COMPUTER-ASSISTED WRITING (CAW)

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AN INVESTIGATION OF EFL LEARNERS' ATTITUDES TOWARD COMPUTER-

ASSISTED WRITING (CAW)

by

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Dedication

I dedicate this dissertation to the most caring and loving person in this world, my mother, Munerah Almenei, for her faith, support, and continuous prayers. This is also dedicated to my loving wife, Eman Alfahid, who always motivates me for the unflinching determination to achieve my academic success and improve my career. My genuine thanks are for my beloved children, Munerah, Mohammad, Salman, and Mashael for believing in me. My appreciations are for my brothers and sisters who have been encouraging me to continue gaining knowledge and achieving accomplishments.

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Abstract

Almenei, Ahmed M. Ph.D. The University of Memphis. May 2019. An Investigation of EFL Learners' Attitude towards Computer-assisted Writing (CAW) Applications. Major Professor: Emily Thrush, Ph.D.

This dissertation studies attitudes of the Saudi university learners studying English as a Foreign Language (EFL) toward using the Computer-assisted Writing (CAW) applications, e.g., up-to-date versions of word processing programs, for doing English writing assignments. Research has confirmed that CAW applications, e.g., up-to-date versions of word processing program, have been utilized in and out of the class to supplement, but not to replace, the methods of learning and teaching writing. Previous studies have revealed that students' attitude towards writing improves when they use the word processor. The current study aims at examining the hypotheses that the EFL learners have effective attitudes towards CAW for writing assignments in EFL, and that they have perspectives about the effects of their attitudes on their writing accuracy and fluency. While the dissertation discusses EFL learner's attitude, it also highlights the significance of employing computer technology, e.g., Learning Management Systems (LMSs), Computer-mediated Communications (CMCs) in EFL and in English as a Second Language (ESL) writing instructions. The researcher selected participants pursuing undergraduate English courses in the English Department at three different Saudi university campuses. The sample of the subjects was selected after they were surveyed in the first place for determining their prior knowledge and previous experiences of CAW applications and their ability to write at least a paragraph in English. A 5-point Likert-scale questionnaire, adapted from K. Cunningham's (2002) article, was responded by a total 150 subjects, and open-ended questions were answered by 50 of them to gather and analyze data about their attitudes and their attitude influences on their learning EFL writing.

Key findings of the study, concluded after quantitative and qualitative analysis, revealed that the majority of students had positive attitudes toward CAW on their general English writing and on their EFL writing assignments and practice in particular. Key findings of the study included, but are not limited to, the fact that the students' positive attitudes lead to raising significant awareness of their writing accuracy (i.e., mainly correcting grammar and spelling errors), writing fluency (i.e., vocabulary selection), and improving their writing ability and revision. The study concluded with several suggestions for future research studies.

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Chapter 1

Introduction

Technology plays an important role in improving learning practices and students' academic performance. The rapid revolutionary advances of computer technologies have contributed to changes in education in general, and in language learning and teaching in particular. Such changes include reforming the curriculum to accommodate new ways of literacy, in addition to adjusting pedagogy in English language learning. Nowadays, many schools integrate technology into their curriculum. Technology is not an option but is an essential factor in students' lives (Blake, 2008).

In the 1940s to 1960s, language laboratories appeared as one of the first signs of the technology for foreign language education. In the 1970s to 1980s, as education technology was transferred to computers, Computer-Assisted Language Learning (CALL) as a field started to attain a prominent position in the field of foreign language. Educators and CALL researchers have studied the potential advantages of using computer language learning applications for improving language skills, concluding that instructional technology and CALL offer innovative and effective supplements for language learning. CALL involves the methods and employment of using computer software for learning and teaching foreign languages. Levy describes CALL as "the search for and study of applications of the computer in language teaching and learning" (Ali, Asif, & Anwar, 2016). CALL is one of the most important topics in the field of foreign language education today, as technology now occupies a central place in learning and teaching (Warschauer & Haley, 2000).

Researchers, moreover, assure the potential uses of the computer-mediated communication (CMC) applications in academic writing courses, which are deemed challenging

and tedious for language learners (Bloch, 2007; Rezaee and Oladi, 2008). CMC applications offer supplementary learning for students to edit and revise their writing. It has been proved that written interaction directs learners' attention toward linguistic features (Warschauer, 1996). CMC applications allow training students to consider writing as a process.

Writing has been called the core of education and has been described as an important path of language learning. Research confirms that writing is an integral part of the higher education system in the United States, and Leki (2003) states that writing plays "a major gate-keeping role in professional advancement" in academics (p. 324). Generally, learning to write is considered a proof that one has indeed learned a language. Writing is the most advanced learning skill required by learners of English as a Foreign Language (EFL) because it challenges them to express their thoughts and ideas in English. Their ability to express complex ideas is limited by their incomplete command of grammar and vocabulary.

Learning how to write in EFL has been an essential professional educational issue that serves various educational purposes and meets certain learning needs upon which the foreign language learners' progress sometimes depends. English Writing is a complex problem-solving activity that requires FL learners to overcome a certain number of difficulties to translate their knowledge into text form, such as, spelling, word choice, syntax, etc. (Flower & Hayes, 1981; Scardamalia & Bereiter, 1987; Piolat, 1991; Parks, 2000; Thatcher, 2000). EFL learners are challenged because of their incomplete command of grammar and vocabulary with which they express their thoughts and ideas. They tend to struggle with fluent written expressions because of their limited vocabulary and insufficient knowledge of grammatical structures (Greenia, 1992b; Scott, 1996; Harklau, 2002). Nitta (2004) concluded that the concept of fluency includes the components of organization, grammar, and vocabulary in communication, not simply the

number of words produced in a given period of time. Some researchers (AbuSeileek, 2012; Jdetawy, 2011; Tarawneh, 2011; Verhoef & Tomic, 1996) confirm that due to the fact that the writing skill is a cognitive process, it is the most difficult skill to teach or to learn so that teachers, learners, and curricula designers should give writing more attention. They should focus on the useful methods and strategies to teach and learn writing.

The improvement in performance through CALL, especially in the skill of writing, has been widely investigated in various studies (Puccio, 1993; Warschauer & Healey 1998; Warschauer & Kern, 2000; Chen, 2005). Egbert and Petrie (2006) did a credible job of covering the more dominant research approaches, presenting criticisms and offering suggestions for improving the overall quality of CALL research. While CALL includes all sorts of computerized applications that help with a number of aspects of language learning, Computer-Assisted Writing (CAW) modes and applications provide students with helpful tools for editing language errors and revising texts in order to digitally compose their messages and present their ideas clearly. CAW involves computer instructional software programs that help improve writing. Word processing programs, the most common CAW application, provides text processing facilities as well as linguistic features such as autocorrect spelling, a grammar checker, and online lexicons, during or after writing.

Attitude has been proven to have a big impact on learning. That is, a learner has perceptions that are responsible for her/his attitudes. Attitude can be explained as a set of beliefs developed in the due course of time in a given sociocultural setting. Attitudes "form a part of one's perception of self, of others, and of the culture in which one is living" (Brown, 2000). If the learner is reluctant to learn or he/she does not have an effective or positive attitude, then he/she does not produce results (Verma, 2005). That is, language learning is affected by the

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learner's attitude, and a positive attitude facilitates learning. According to Gardner (1985), attitudes are a component of motivation, which "refers to the combination of effort plus desire to achieve the goal of learning plus favorable attitudes towards learning the language" (p. 10).

Since positive attitudes are reinforced by thoughts as well as feelings and emotions, as pointed out by Brown (2000), they are also formed by effective experiences of learning languages. Attitudes towards learning writing are more likely to improve with the use of computers. Research has shown that students' attitude towards writing improves when they use a word processing software program, which points to the beneficial effects of CALL on students' attitudes. According to Moore (1989), using computers appear to alleviate students' concerns about messy papers or poor handwriting. Taggart (2007) states that her students who use computers write longer papers, spend more time revising them, and subsequently turn in better work. She also found that they enjoy using high-tech devices and working independently; they enthusiastically attempt to complete assignments as well as take pride in their creations.

Many studies exploring students' reactions to writing with computers report positive responses. Subjects also claim to have adjusted quickly to the new technology, asserting that writing on the computer is more fun and easier (Case, 1985). Some students felt strongly that they write better with computers (Hawisher, 1986). Research that measures students' attitude towards composing through word-processing also reports in favor of word processors. Positive student attitudes towards writing with word processors are reported in the literature review of the current study (See Chapter 2).

In the current study, CAW is presented as an accessible instructional digital-composing software that supplements, but does not replace, face-to-face traditional language instruction. CAW can impact students' learning attitudes towards learning EFL writing. The study aims to

investigate the Saudi EFL learners' attitudes towards the word processor that are built in computer software programs and applications, and the possible effects of such attitudes on their learning EFL writing.

Background of the Study

The Saudi university students that are the focus of this study have not been encouraged to interact with the high technology computer programs offered to practice FL writing, either for in-class tasks or homework. The Saudi students appear to be used to more conventional methods of writing. They usually seek additional assistance from home tutors, who supplement teachers' roles, or from technical aids or other resources for evaluating and revising their written works that supplement course guidebooks.

English departments in Saudi universities offer learning labs equipped with computer workstations that contain up-to-date versions of digital composing or word processing programs in order to give more opportunities to the students to practice their English writing. They also have access to online learning platforms, or Learning Management Systems (LMSs), to facilitate Computer-Mediated Communication (CMC) writing applications. These applications are appropriately designed for students to interact in writing with their classmates and teacher, during which they get exposed to variety of CAW features. However, those tools have not been invested to experience writing in such an EFL learning environment.

This study investigates language learners' attitudes, in addition to their perceptions of CAW technology, which can facilitate language learning. The researcher will consider whether Saudi writing instructors and department administrators should reconsider the technology applications for facilitating and improving the writing of their EFL students.

Problem Statement

As per the study-plans approved by those departments, the writing skill is ranked as the most advanced language skill to teach. Writing courses are ranked to be the most difficult language course to master. Similarly, research points to the fact that the majority of students from different ESL/EFL programs categorize writing as the most advanced 'fourth' language learning skill. Writing skills are generally emphasized later in the language learning process, so the learners, especially in an EFL environment, usually face difficulties and time-consuming efforts to do their writing assignments. In fact, those claims line up with this researcher's previous teaching experiences and observations of teaching EFL students for a number of years; during this time, a number of EFL teachers and students report that writing is the most difficult skill to teach and to learn.

Schools and departments dedicated to English as a FL and L2 have invested in technology-based facilities and equipment that allow students to utilize computers in their FL studies. Interestingly, these programs have moved towards integrating computer applications into the syllabi of writing courses. The administration and faculty staff of such institutions, however, are quite unfamiliar with their learners' attitudes toward CAW; they do not have a well-formed concept about the types of technology that could assist in learning, and may be, to improve their writing. Thus, if students' attitudes toward technology-enhanced writing activities are not explored, students as well as teachers may not be convinced about the utility of using them more. By studying students' and teachers' perceptions of CAW applications for writing, all parties will be better prepared for the possibilities of integrating digital composition technology

into instructional methods and the curriculum. Thus, students will be encouraged to experiment with technology to write their assignments.

Purpose of the Study and Research Questions

Examining relevant learning attitudes through this research study will lead to empirical findings which can inform pedagogical and learning practices. These practices can raise the students' use of and exposure to the appropriate sorts of technology to improve their writing skills, as well as the accuracy of their written expression. Teachers and administrators will be in a better position to familiarize themselves with learning attitudes so as to guide or facilitate better CAW engagement using its tools for their learning abilities to write.

The present study investigates Saudi EFL university students' attitudes toward the use of CAW and their views of its relevancy to master the skill of writing English. The present study contributes to finding out the possible effects of learners' attitudes towards CAW applications on their writing ability. The current study presents CAW as a supportive learning tool that supplement, but not replace, traditional teaching in order to guide and motivate students to work on writing difficulties related to fluency, accuracy, error correction, organization, or editing process.

After having reviewed previous studies about learners' attitude toward CALL, the current study is significant since it investigates and discusses learners' attitudes in an context of language learning. The investigation also covers how Saudi EFL learners' attitudes toward CAW applications influence their writing practice and improvements. In light of this gap in previous research, this study attempts to answer the following research questions:

1. What is the general attitude of Saudi EFL learners toward CAW?

2. What attitudes do Saudi EFL learners have towards using CAW for learning EFL writing?

3. What do Saudi EFL learners think about the effects of their attitudes on their writing?

4. What do Saudi EFL learners think about the effects of their attitudes on their ability to correct/edit spelling and grammar errors (i.e. 'accuracy')?

5. What do Saudi EFL learners think about the effects of their attitudes on their ability to use/write more vocabulary (i.e. 'fluency')?

This study investigates whether CAW applications, such as word processors, are effective in fostering effective attitudes among Saudi EFL students for learning or improving their writing. The study aims to specifically test whether EFL learners have positive attitudes towards CAW applications that can impact their writing, such as their ability to edit errors and use a greater variety of words.

Significance of the Study

This study may be beneficial for the following groups of people for different reasons. First, the study would be useful for EFL and ESL students who want to learn from the results originating from other students' attitudes about CAW applications. These findings could encourage them to experiment with various technical learning aids to help them check their writing errors, correct them, edit and organize written texts by themselves. This should create opportunities for them to use any accessible technical aids to practice their writing freely, especially in flexible learner-centered environments. They will be more motivated to observe their attitudes after experiencing the CAW in relation to their course assignments.

Second, the findings of the current study may be helpful EFL teachers in cultivating advantageous attitudes of their learners towards CAW applications. CAWs can be better incorporated into the ways they teach processes of writing, especially when sufficient CAW exposure in computer labs is planned for. Hence, they will reach an understanding of the real supportive role of CAW for teaching EFL writing.

Third, department administrators might be interested in using the conclusions drawn from this study. They could implement comparable surveys or similar studies to decide on directing teachers to advise their students on supplemental applications to do their CAW-based compositions. This could lead to maintaining computer labs equipped with up-to-date version of CAW.

Considering the previous suppositions, it is significant to study how learners' attitudes towards digital composition (i.e., CAW applications) as instructional aids that could influence their EFL writing. The study may also offer an incentive to future researchers to carry out a larger scale test of the involvement of computers in the skills of EFL writing.

Limitations of the Study

There are three principle limitations to be recognized in the current study.

First, the sample size is limited. The study was conducted with Saudi EFL students selected from one designated academic setting. Research participants are limited to a group of undergraduate students in the English department of a university in Saudi Arabia. Within that group, additional selection criteria limited the subjects eligible for the study. The subjects of the study were selected based on two factors: a) their prior knowledge and previous experiences of

CAW applications for English writing, and b) their ability to write a paragraph or more. They had taken the required university writing course at level 3 before they participated in the study.

Second, the Saudi EFL students who master writing a paragraph are usually placed in the 3rd level (of 8 levels) according to the undergraduate study-plan in the department. At that level, they have not been taught different genres of writing or given the opportunity to compose longer texts. The accuracy of students' contributions (i.e. error analysis) was not explored.

It is worth noting that the findings cannot be overgeneralized to all levels of EFL English proficiency or to the EFL undergraduates of English departments in different non-English speaking countries due to the limitation in scope and context of the study. It was beyond the scope of this study to make comparison between writing using CAW applications and any other classroom writing methods.

There were no compulsory or specific writing activities that the subjects of the study were asked to do for the sake of contributing to the study. Instead, they were completing their regular course activities (i.e., homework, assignments, papers, etc.) they want to do when using their computers. There were no time constraints or specific number of times for their computer usage to complete their writing activities. That is, students were not observed during their participation, either in or out of class practice. That was an objective of the study.

Definitions of Terms

CALL. Computer-Assisted Language Learning is interpreted broadly to include technology-enhanced language learning, Web-enhanced language learning, and information and communication technologies for language learning. Levy is of the view that CALL is "the search for and study of applications of the computer in language teaching and learning" (Ali et al.,

2016). It is a research area which includes all studies pertaining to technology, language teaching, and learning.

CMC. Computer-Mediated Communication refers to the technological tools that are used to establish communication between individuals and groups in specific contexts such as training and learning.

ESL. It stands for English as a second language, where English is taught and learned in an English-speaking country.

EFL. EFL stands for English as a foreign language, where English is taught and learned in a non-English-speaking country.

CAW. Computer-Assisted Writing refers to computer-based applications, programs, and facilities, such as the word processor, are used.

MS Word. A word processing program (i.e., a computer-based software program) that is used for producing, formatting, and editing texts and documents, including checking and editing language errors, such as grammar and spelling errors and formatting.

Structure of the Dissertation

This dissertation consists of six chapters. In the current chapter, an introduction to the research is presented in which the significance of the current study is explained, and the problem of the study is stated. It provides background information and contextualizes the study through brief relevant literature on learning attitudes toward CALL among ESL/EFL contexts. I also identify the purpose of the current study as derived from the research questions.

Chapter Two is dedicated for serving two purposes. First, it mainly explains the theoretical framework informing research on CALL and concepts of CAW learning effects in ESL/EFL environments. Second, it reviews studies related to the current study that include both studies on CAW uses for learning ESL/EFL writing, and studies on students' attitudes toward them on language learning in general and on the writing skill in particular.

Chapter Three describes the methodology adopted in this study and the setting of the study in terms of time, place, facilities, instruction, as well as the participants. The researcher documents the information about the population and sample, sampling procedures, data collection methods and instruments, that is, the CAW software programs, pre-study survey, attitude questionnaire, and open-ended statements. In this chapter, the researcher also explains how he approached the data treatment procedures and its validity and reliability.

Chapter Four derives findings from the quantitative and qualitative analysis of the study data. The findings are elaborated in this chapter in relations to answering the research questions of the study and illustrated in tables and graphs. In this chapter, the data coding was approached and the categories were made for finding frequent patterns and themes.

Finally, Chapter Five consists of discussions of the findings in connection with the findings from previous studies. The discussions are to show how the findings of the present study agree or disagree with some of the related literature. It also presents conclusion and suggests recommendations for implications and further studies.

Chapter 2

Review of Related Literature

Introduction

This chapter is presented in a theoretical framework of the current research, established to show some existing ideas, findings, and key concepts created from pertinent scholarly literature that are related to the current research questions being investigated. The theoretical framework shows the researcher's understanding of those concepts of the learner attitude about using computer for L2/FL writing from the studies mentioned and described throughout this chapter and their relations to the current research problem and possible effects of advantageous learners' attitude toward computer technology on EFL writing. In this chapter, reviewing previous related literature and studies are presented into five main parts. The first will briefly review the concept of the technology integration to the L2 learning, considering certain roles of computer technology that have been offered by researchers for different components of language learning. While the second part will present a historical overview of CALL research, addressing its stages that have benefited aspects of language teaching and learning, the third will synthesize concepts of CAW features, or may be applications, in ESL/EFL instructions. The fourth part will explore studies related to the effects of employing the CAW applications on learning EFL writing. The fifth part will be divided into two sections, focusing on the studies that examined two areas of learning attitudes: a) L2/FL learners' attitudes toward technology on the language learning and b) their attitudes toward CAW on their ESL/EFL writing. The effects of such attitudes will be discussed too. In this second section, important findings of those studies will be presented in ways to indicate where the current study is situated in the relevant literature. This chapter does

not only support the need for this research, but it also shows a gap where the current study fills in.

Roles of Computer Technology in L2

Uses of microcomputers, e.g., IBM PC and BBC microcomputer grew rapidly in the early of 1980s, and what were called 'teacher-programs' also emerged using the BASIC language to create activities for their own students (Hubbard, 2009). According to Greenfield (2003), because of its reported positive effect on learning language skills, the use of technology as a medium has increased phenomenally since the 1980s (Bulut & AbuSeileek, 2007). Blake (2008) addressed the use of instructional technology and provided a comprehensive overview of the most effective technologies developed to assist language learning, with an emphasis on foreign language classrooms. His book would benefit language curriculum developers and instructors considering incorporating technologies into their program or teaching. The decision for technology integration in language teaching and learning should be driven by principles of second language acquisition (Blake, 2008).

Related research has investigated the effectiveness of using technology in improving learning in general and language learning in particular. Ghanizadeh et.al. (2015) reviewed some of the recent studies in Technology-enhanced Language Learning (TELL) and found out that using various sorts of technology led to benefits to students' language learning. These benefits were multidimensional and comprehensive encompassing cognitive, metacognitive, and affective domains of learning. They found that technology-based language instruction had a positive effect on language learning and could be effectively used as teacher-delivered instruction when its potential capacities were incorporated into pedagogy and curriculum. In addition, it was demonstrated that students' listening, writing, speaking, and reading skills were enhanced and

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the technology was seen to have positive impact on sub-skills such as grammar and vocabulary learning. They found out that utilizing technology in the EFL/ESL context provided enjoyable environment for students to learn English. These benefits and consequences were not restricted to any specific age and gender groups (Ghanizadeh et. al., 2015).

For the investigation of L2 vocabulary acquisition with CALL, a number of studies compared the effects of different types of multimedia annotations on learning. For example, Chun and Plass (1996) reported on a classroom learning situation, using a within-subjects design. A key component of the study was the lookup behavior recorded by the multimedia program that was compared to the students' vocabulary learning with texts, pictures, and video annotations. Similarly, in the study by Plass et. al. (1998), the learners had the freedom to look up whichever types of annotations they wished, and the findings of questionnaires about their learning preferences divided them into visualizers and verbalizers. Al-Seghayer (2001) also used a within-subject design, three conditions (i.e., different types of multimedia annotations), and two types of tests – recognition and production vocabulary tests. He supplemented the quantitative data with qualitative data from interviews and questionnaires. The above studies found that different multimedia annotations were effective for vocabulary learning: picture glosses were most effective in Chun and Plass (1996) and video glosses were most effective in Al-Seghayer (2001). In addition, the behavior *logs* analyzed by Chun and Plass showed that when learners looked up both text and picture annotations, they performed better on the vocabulary tests, and Al-Seghayer' interviews with learners confirmed that the students believed that the video annotations showed the meaning of the word more clearly than the text or picture annotations.

In contrast, Laufer and Hill (2000) used an experimental methodology to study what kind of information L2 learners select when using a CALL dictionary. Their study included a pre-test,

a tutorial showing students the variety of lookup options at their disposal, and a retention post-test. *Log* files in their program tracked user behavior. They found that different students exhibited different lookup preferences and that the use of multiple types of dictionary information seemed to reinforce retention (Chun, 2017).

Heift (2001) studied the impact of learner control on the students' error correction process in an Intelligent Language Tutoring System, which provided detailed error-specific and individualized feedback. The system recorded all of the students' interactions with the program, and percentages of the different types of interactions were calculated. Based on 4,456 server requests, she ascertained that students tended overwhelmingly to correct their errors, and that they showed distinct interaction patterns depending on their language skill. A similar type of quantitative investigation of learner behavior was also employed by Heift (2010) in a longitudinal study of learner uptake. Programed *logs* of learner behavior were compiled over the course of three semesters, and results showed significant differences in learner uptake at the advanced level depending on the degree of specificity of the feedback.

Sauro's (2011) meta-synthesis qualitative research of the role of synchronous computer-mediated communication (SCMC) for SLA operationalized SLA as the development of Canale and Swain's (1980) framework for communicative language teaching based on Hymes' (1972) concept of communicative competence. Her qualitative research synthesis revealed that almost half of the 97 studies explored grammatical competence, using cognitive or cognitive-interactionist approaches, and 31 other studies explored strategic competence (e.g., negotiating breakdowns taking cognitive-interactionist approaches or facilitating communicative effectiveness as analyzed with sociocultural approaches and discourse analysis). An additional 22 studies investigated sociocultural competence from sociocultural and discourse analytic

perspectives, and 11 studies focused on discourse competence. The above-mentioned studies were conducted utilizing technological tools and strategies unique to CMC contexts through variety of methods. TELL is very supportive of CMC (Yang & Chen, 2007). Egbert and Hanson-Smith (1999) claimed that educators do not need a discrete theory of CALL to understand the role of technology in the classroom; a clear theory of SLA and its implications for the learning environment serves this goal.

Historical Overview of CALL Research

CALL emerged as a distinct field with the beginning of CALL-centered conferences and professional organizations that accompanied the spread of the personal computer in the early 1980s (Hubbard, 2009). As an attempt to specify when the field of CALL started producing a body of research, Chun (2017) mentioned that the oldest journal exclusively devoted to CALL, the *CALICO* Journal, published its first article in 1983 and celebrated its 25th anniversary in 2008. The journal website contains lists of "seminal" and "highly-cited and influential" articles.

In 2009, Hubbard published a four-volume collection of seminal CALL studies published between 1988-2007, and in 2016, the journal Language Learning & Technology reached the 20-year mark. In addition, meta-analyses and meta-syntheses of particular aspects of CALL research (e.g., multimedia vocabulary annotations, computer-mediated communication (CMC), telecollaboration, gaming) have been increasing. In his book, Hubbard (2009) explained that, in terms of what appears in CALL publications and conference presentations, then, the wider field of CALL encompasses any use of computer technology in the domain of language learning (Hubbard, 2009).

In the 1940 to 60s, language laboratories appeared to be the commencement of the technology use for foreign language education. Since then, the educational technology in such a

field was transferred gradually to computers. In the 1970s to 80s, CALL started to attain its position in the field of foreign language education. CALL research has developed into three main stages; structural CALL, communicative CALL, and integrative CALL; this third phase of technology use in second- and foreign-language teaching is characterized by the use of multimedia and the Internet. (Warschauer & Healey, 1998). However, the field started even before this era; e. g., there were early attempts to teach specific foreign languages in the 1950s and 1960s on mainframe computers (Beatty, 2003). The first large-scale project was done with the *PLATO* system, which was developed at the University of Illinois; a programmed instruction approach that provided students with practice material targeted at their presumed level along with feedback and remediation as needed (Hubbard, 2009).

Most of the research and development of the field has been driven by external theories. Levy and Stockwell (2013), for example, characterized CALL practitioners and developers as mainly consumers of theory developed for other purposes. This might contribute to an inspirational path for more research to be conducted. Many highly-cited CALL research studies have been conducted to investigate various areas of language learning, such as, grammar, vocabulary, listening, speaking, reading, writing, pragmatics, etc. CALL Technologies investigated in these areas range from e-learning tutorial lessons to collaborative Internet-based tasks. Many early studies of L2 grammar learning investigated the role of computer feedback, e.g., Brandl (1995)'s, who investigated learners' behavior and preferences for different kinds of feedback in a German CALL program. He performed quantitative analyses of learners' selection of four kinds of feedback and qualitative analyses of interviews with the learners. (Brandl, 1995)

Another leading figures in the field of CALL, Chapelle (1997), who stressed early on the necessity for empirical research methods for CALL, recommending applying research on

instructed SLA to CALL. She suggested using inter-actionist theories of SLA but also recognized the use of other effective research methods from cognitivism, psychology, constructivism, psycholinguistics, and discourse analyses. She suggested observational methods to assess CALL outcomes of L2 learners working on self-learning tasks. Chapelle (2010), in particular, stated "The need was clear at that time, as it is now, for research designs to move beyond quantitative, outcomes-oriented studies comparing learning through technology to learning in a classroom—a paradigm inherited from education" (p. 27).

Chun (2017) explored a number of CALL research works associated with interesting areas of learning languages that included, but are not limited to, learning processes and outcomes classroom cultures, linguistic development, learner identity. Warschauer and Kern (2000) viewed network-based language teaching from socio-cognitive perspectives and, consequently, suggested a shift from mainly quantitative research methods to qualitative methods that considered classroom cultures as well as language use. A few years later, Kern, Ware, and Warschauer (2004) wrote about online language learning research, proposing that early research on networked language learning focused on linguistic interaction and development, followed by intercultural alertness and learning, and was moving in the direction of new multi-literacies and their relation to learner identity. Levy (2000) reported on a corpus of 177 journal articles and book chapters on CALL, exploring a multiplicity of methods and techniques and that "many studies show a mixture of quantitative and qualitative approaches to answer a wide variety of research questions" (p. 180). Similarly, Felix (2008) in an overview of two decades of CALL effectiveness studies, discussed successful research design models, finding almost equal numbers of experimental and non-experimental studies. The important observations she made were the emerging trend toward investigating both learning outcomes and learning processes, and that

mixed-methods of various data collection within a single study would help to strengthen evidently assurance levels about the results. "Because there is such a large scope for research in this area, there cannot be a single best design model" (p. 148); That is, CALL researchers are expected to match their design to their research questions.

Hubbard (2008) reported that the most commonly cited CALL theories were either general learning theories or SLA theories but there was nothing existed as a "native CALL theories" (p. 394). In introducing his 4-volume series, Hubbard (2009b) cited two of the more persuasive views, connecting the design and evaluation of CALL tasks to principles derived from 'interactionist SLA research' studies, and Bax's 'normalization theory' (2003), that was seen as a defining direction for the field. That is, according to Chun (2017), technology is fully integrated into language teaching in the way that books, pencils and blackboards were in traditional classrooms. Additionally, researchers have considered that CALL could be seen as a maturing area of research. Grgurović at. al. (2013) compiled empirical research studies on language outcomes which (1) measured performance on language tests, (2) used an experimental or quasi-experimental design, (3) employed a pre-test/post-test design or post-test design only. The authors recommended that future quantitative research designs that used control-treatment comparisons should employ random placement of subjects into conditions to verify the comparability of groups with a pre-test at the outset of the study.

A book, by Egbert and Petrie (2005), covers the more dominant research approaches along with some less common ones, presenting criticisms and offering suggestions for improving the overall quality of CALL research. Levy and Stockwell (2006) recognized three general approaches of CALL evaluation: checklists, methodological frameworks and applications of SLA principles. The checklists, especially those carried out by teachers and others to find out

whether or not to use a given program in their classes, have remained the most common approach to the evaluation of software and relevant learning tasks.

Early CALL research in many cases focused on attempting to demonstrate the superiority of using computers over traditional or conventional language teaching. As many researchers have noted, this comparative approach had limited value (e. g., concluding 'no significant difference' findings). Although some studies have continued to compare the CALL vs non-CALL applications in language learning, most now are either non-comparative or compare one version of a CALL activity with another (Grgurović & Hegelheimer, 2007).

In early research on technology for learning in general, it was common to conduct controlled studies of whether using technology resulted in similar (or better) learning outcomes as compared to not using technology, e.g., a control group would be taught in a traditional manner without technology and an experimental group would receive instruction/treatment using technology. But the field of educational technology in general and CALL in particular have moved away from this type of research and instead have investigated the affordances that particular technologies provide to learn particular aspects of language and culture, with particular types or groups of learners (Chun, 2017).

CALL includes the networks connecting them, peripheral devices associated with them and a number of other technological innovations such as PDAs (personal digital assistants), mp3 players, mobile phones, electronic whiteboards and even DVD players, which have a computer of sorts embedded in them (Levy and Hubbard, 2005). Lasagabaster and Sierra (2003) point out researchers and teachers make unraveling efforts to integrate CALL into the curriculum.

Concepts of CAW Features in ESL/EFL Instruction

While the histories of composition studies label the 1960s and 1970s as "Renaissance of Rhetoric" (Berlin, 1987, p. 121) or as "the Birth of Composition" (Rosner et. al., 1999, p. xiii), the influence that computer-aided writing instruction was not examined in the 1960s and 1970s on contemporary practice (Whithaus, 2004). The computer mediated writing instruction was first introduced as a graduate course in the late 70s, CMC was introduced into the field of education in the 1960s. (Hawisher et al., 1996).

CAW and EFL writing challenge. Al-Olimat & AbuSeileek, (2015) presented their study to focus on computer-mediated corrective feedback include built in the word processing software. The researchers addressed certain problems that both students and teachers face while using computers in teaching and learning English language skills, specifically the writing skill.

EFL learners face difficulties in different writing aspects, including spelling, punctuation, organization, content, grammar, etc. that could not be addressed or solved by only their teachers' grading responses. It has been observed that because EFL learners are only exposed to the foreign language inside the classroom, they might have very limited exposure or no exposure outside the classroom environment. This, as a result, limits the usage and practice of their EFL, and their language input and output of the FL therefore become incomplete. Sasaki (2004) concludes that EFL learners' proficiency levels are generally lower than ESL learners' levels. EFL learners' competencies in writing complexity develop less fully than those of ESL learners (Ortega, 2003).

Ortega (2009) searched for empirical research about EFL writing published in two ESL journals: a) *Journal of Second Language Writing (JSLW)* and b) *TESOL Quarterly* from 1992 to 2007. The author investigated 72 EFL writing empirical studies on second language writing. The

results showed a general bias toward L2 writing. About 75% of the empirical studies on EFL

writing were on college writing, which was similar to ESL writing preference of topic

researched. That explain the increasing interest in "writer's creativity, voice, and audience as

culturally contested notions, and an increasing presence of context as dynamic influence"

(Ortega, 2009, p. 244).

Al-Khasawneh and Maher (2010) pointed out that students face problems in relation to

vocabulary register, organization of ideas, grammar, spelling, and referencing. The author

explored the effect of computer-mediated corrective feedback modes on different global and

local writing aspects, including spelling, punctuation, organization, content, grammar, and

vocabulary. He found out, as in the findings of Al-Olimat and AbuSeileek's (2015)s, that the

computer might be useful in enhancing students' writing through providing corrective feedback.

CAW Process-oriented approach. The idea of teaching writing through a process,

which began in the 1980s, accords with Perl (1994) who suggested that writing is a recursive

process. Chapelle (1997) highlighted Krashen's (1994) inter-actionist theories of SLA when

exploring the CALL related research methodologies, in which comprehensible input is essential

for enhancing SLA and fluency, and acknowledged that other effective research methods from

cognitive psychology, constructivism, psycholinguistics, and discourse analyses could be used

(Chapelle, 1997). In particular, Chapelle (1998) were among other researchers who suggested the

research methods for the evaluation of CALL learning outcomes that include process-oriented

observations of learners working on L2 tasks to gain evidence about learners' strategies while

working on learning tasks. Research on L2 writing, in particular, has called for incorporating a

process-oriented approaches to the assessment of writing that focus on the cognitive skills

involved in writing requiring a wide range of processes like idea generation, multiple drafts,

interaction with the texts, revising, and drafting (Akbarzadeh, Saeidi & Chehreh, 2014; Naghdipour, 2016). Such process-oriented approaches of the assessment give valuable attention to the cognitive and metacognitive processes involved in writing.

Automated CAW features. Many researchers stressed that CALL improves the skill of writing and facilitates communication and interaction between learners (Warschauer, 1996). CAW applications help students observe their own linguistic capabilities and language proficiency. They empower students and grant them flexibility in the learning process in general. Piolat (1991) presented a paper reviewing literature published from 1980 to 1991, that is related to assessing the effectiveness of word processors as writing aids in terms of revising and editing process and improving writing quality.

A great deal of research has discussed developed computer software that is capable of assisting in moving ESL/EFL writing from incorrect English into correct English (for example, Kao, Chang, Chiu, Yen, & Boisson, 2013; Ng, Wu, Briscoe, & Hadiwinot, 2014; Rozovskaya & Roth, 2016). That is, the aim of such research is to detect and correct errors and reproduce corrected essays. The notion is that the suggested corrections of a grammar checker, for example, are accurate that gain user agreement (Neg et al., 2014). Related research also has aimed at the relations between computer checkers and student self-correction. Such error correction software checkers do not play the roles of the language teachers, or even educators, but they complete their job. The automated systems are designed to improve the quality of the texts by finding errors and indicating the changes that need to be made. Educators, on the other hand, seek to improve the quality of the writer by changing that individual's knowledge base which is used to produce new written works. A system that improves documents is not necessarily a system that improves writers." (Leacock et al., 2014).

Li (2006) investigated the influence of word processing on the writing of ESL students and on their writing assessment as well. The researcher found that participants paid more attention to higher order thinking activities while evaluating their written texts in the computer session; the students revised significantly more, and their computer-generated essays received higher scores in argumentation than the handwritten ones (Zaini & Mazdayasna, 2015, p. 517). It was proved that ESL paid attention in an activity of thinking while evaluating their written texts on computer. Li found that the participants revised significantly more and their computer-generated essays received higher scores in argumentation than the handwritten ones (Li, 2006).

Researchers in the field of teaching EFL writing claim that more focus should be placed on using the techniques of corrective feedback on learners' writing tasks. Research has attempted examining non-traditional teaching methods of providing corrective feedback, some of which are incorporated with using computer-based programs that could supplement the teacher role in this regard, as follows in the following section.

Corrective e-feedback. It is of necessity to note that the literature related to the current study has investigated the presence of technical benefits that provide corrective feedback on language learners' writing. Ellis (2009) questioned whether it would be still to claim that the types of corrective-feedback could contributed to language learning, stating that it was an issue "has been and still remained one of the most controversial issues in language pedagogy" (Ellis, 2009, p. 214).

The role of feedback has a place in most theories of SLA and language pedagogy. In both structural and communicative approaches to language teaching, feedback is viewed as a means of fostering learner motivation and ensuring linguistic accuracy. The corrective feedback affirms the learner response which supports the motivation to continue learning (Ellis, 2009). Hosseini

(2013), for example, explored the effectiveness of asynchronous computer-mediated corrective feedback - explicit and implicit, on increasing the correct use of prepositions. The findings supported the current view on feedback through technology and suggested a need for further investigation into computer-mediated corrective feedback.

The effects of direct and metalinguistic electronic feedback were investigated by a study conducted by Saadi and Saadat (2015) on Iranian EFL learners' writing accuracy. The twenty-nine students who participated in the study came from two intact English writing classes. A mixed-method design was used for data collection and analysis. In addition to the instruction provided similarly in both classes, the students in one class received direct electronic corrective feedback (DECF) using *Ginger* software, while the student in the other class received metalinguistic electronic corrective feedback (MECF) in the form of error codes provided through *Markin4* software. The results of the study revealed that the use of E-feedback using the two types developed the learners' writing accuracy. The researchers found out that although the MECF group obtained higher scores in three components (i.e., structure, vocabulary, and punctuation), a statistically significant difference between the two groups was found only in terms of vocabulary gain scores. Regarding writing accuracy components. In the interviews, the students in both groups referred to some barriers in the implementation of CALL in their context as well as some of its merits. (Saadi & Saadat, 2015)

CAW as web-based learning. Some researchers support the findings that the computer-based instruction approaches of language teaching has been effective in teaching different language skills to language learners. AbuSeileek's (2006) study showed important findings regarding CAW, indicating that the computer was an effective tool for teaching language skills like writing. This finding is in harmony with the previous studies, such as, (see, for instance,

Hegelheimer, Mills, Salzmann and Shetzer, 1996; Ong, 2000). This is also in line with what was reported by other studies (see, for example, Cohen and Riel, 1989; Cononelos and Oliva, 1993) which found that the computer improved the skill of writing. "Using web-based technology for collaborative writing among students is something that has been increasingly applied in language learning (e.g., AbuSeileek & Abualsha'r, 2014; Bradley, 2014; Bradley, Lindström, Rystedt, & Vigmo, 2011; Jimoyiannis & Roussinos, 2017; Leijen, 2017)" (Bradley & Thouësny, 2017, p. 69).

Sumi & Takeuchi (2008) explored the practice of a Learning Management System (LMS) for foreign language teaching/learning and examined how it influenced improvement of students' English ability in both proficiency and achievement. In that LMS, Takeuchi developed a "cyclic model of learning" to integrate in-class practices and students' outside-class self-learning with the aid of technology and tested it on 19 first-year undergraduate students for one year at a university in the Kansai region, Japan. An LMS, named *CEAS* (Coordinated Education Activation System), was employed to support this teaching practice. Data were collected in a variety of ways including tests, weblog, video recording, questionnaires, and classroom observation. The findings indicated that the practice based on the "cyclic model of learning" contributed to the improvement of students' English ability in both proficiency and achievement (Sumi & Takeuchi, 2008).

Sumi and Takeuchi (2010) designed and implemented an English teaching practice, based on the "cyclic model of learning", by means of an LMS in the Japanese EFL context - a Japanese public lower secondary school. The practice was to test on 93 students over nine months. The researchers aimed at investigating the effect of that teaching practice through collecting data from tests, weblogs, classroom observation, and interviews. The results indicated that the

practice had a positive influence on students' learning ability and the manner in which the teacher in charge conducted lessons. Furthermore, a moderate correlation was found between the improvement of students' English language ability and their use of materials on the LMS. The authors hypothesized that the CML may be an effective solution for ameliorating the major disadvantage of learning English in the Japanese EFL context, that is, a dearth of learning hours. The results suggested that the teaching practice based on the CML in this study contributed to the improvement of students' achievement in English ability. Particularly, for more investigations on the students' learning process, an analysis of sem-istructured interviews revealed that the LMS offered students an additional learning environment where they used the resources on the LMS effectively (Sumi & Takeuchi, 2010).

Online writing environments offer spaces for collaboration with ease of use and access (Miceli, Murray, & Kennedy, 2010). Smith, M. (2012) described and discussed an online assignment system utilizing peer commentaries, which was modeled after peer commentary academic journals required for psychology course. The system, concerned to be used as a substitute for the traditional essay requirement in that course, was platformed on both *Moodle* and *Blackboard*. The benefits of the system in terms of student engagement, intellectual modeling, and learning community enhancement were reported. The peer reviewed assignment system indicated some advantages of blended learning approaches compared to traditional approaches in ways that suggested "instructors switch from traditional face-to-face course context to the blended/online education environment" (Smith, 2012, p. 147).

Studies Related to CAW on Learning EFL Writing

Zaini (2015) investigated the effectiveness of using CALL in teaching academic writing to Iranian EFL learners by means of Microsoft *Word* Office. Forty four university students

majoring in English Language and Literature at an Iranian university studying the Advanced

Writing course were randomly divided into two groups (i.e., control and experimental), that were

given a pen-and-paper writing task as a per-test for the study at the beginning of the semester.

The control group including 24 students was taught based via the traditional method, whereas the

experimental group including 20 students was taught based on CALL. At the end of the

semester, the same writing task was given to both groups (i.e., the post-test). Generally, the

findings of this study confirmed that the CALL-based instruction was effective on the

development of EFL learners' writing skills. They revealed that the students who were exposed

to CALL-based instruction outperformed their counterparts specifically in terms of "using

appropriate articles, tense, plural forms and spelling. In addition, it was found that the students in

the experimental group produced paragraphs of higher quality." (Zaini & Mazdayasna, 2015,

p. 516).

Al-Olimat and AbuSeileek's (2015) study revealed that there were significant differences

between the mean scores of the control group and the experimental groups due to the method of

teaching in favor of the experimental groups which received computer mediated corrective

feedback. There was a significant effect for the mean scores between teachers' feedback,

students' feedback, or both, in favor of both where students received corrective feedback from

their peers and the teacher. The two researchers concluded that computer-mediated corrective

feedback activities could be highly supportive to the learning of the writing skill. Hence, The

educational environments in which computer-mediated corrective feedback are implemented are

highly motivating for learning to write in English. Computer-mediated corrective feedback

modes and teacher-student feedback helps develop students' writing by combining the

characteristics of the two modes of providing corrective feedback. Providing computer-mediated

corrective feedback modes via a word processor is helpful to improve writing aspects, including spelling, content, grammar, punctuation, organization, and vocabulary.

CAW technology has been also explored for efficient feedback purposes. An example of that is the study conducted by AbuSeileek and Abualsha'r (2014), that showed that the computer might support EFL learners to improve their writing performance. The researchers examined the effect of using computer-mediated corrective feedback on EFL learners' performance in writing, e. g., the Track changes - a unique method as it is based on error identification and reformulation in which the nature of error is provided indirectly without providing an overt indicator about the error. Sixty-four intermediate-level learners were randomly assigned to either a no-feedback control condition or a corrective feedback, including three treatment conditions of computer-mediated corrective feedback; namely track changes, metalinguistic, and recast that were used to support EFL writing. After several weeks of the course, the students were asked to provide corrective feedback on drafts written by other group members and to discuss them with the class members. The study findings showed that students who received computer-mediated corrective feedback while writing achieved better results in their overall test scores than the control subjects who did not receive corrective feedback. There was a significant effect for the track-changes feedback type when compared with the recast feedback and metalinguistic feedback types. The students in the track-changes group significantly outperformed those in the recast and metalinguistic group in most writing aspects.

The researchers, however, concluded that the presence of certain techniques delivered via computer were more useful in supporting learners' writing performance than the absence of corrective feedback. Researchers and pedagogues may think of conducting more studies using other computer-mediated corrective-feedback methods and techniques. (AbuSeileek &

Abualsha'r, 2014). They, as a result, recommended that future studies related to using track changes need to be conducted to either verify or refute the findings of this study.

Cowan, Choo and Lee (2014) carried out a study that aimed at exploring how a synergy of two technologies; Intelligent Computer-Assisted Language Learning (ICALL) and corpus linguistic analysis that produced a lasting improvement in L2 learners' ability to edit persistent grammatical errors from their writing. A large written English corpus produced by forty EFL Korean undergraduate and graduate students enrolled at an American university was analyzed to determine four persistent grammatical errors in their writing assignments. 22 participants volunteered for the ICALL program experiment that was then designed to improve their L2 awareness of these errors in texts and provide practice in correcting them. The students participated in the study were divided into two groups; experimental and control groups. A pre-test/post-test instrument revealed significant improvements in recognizing and correcting the four errors by Korean L2 learners who had taken the ICALL program over the control group that had received standard L2 writing instruction. The CALL group showed dramatic improvement between the pre-test and the post-test in all four syntactic error categories. The results were discussed mainly to indicate that the CALL group significantly improved their scores on the post test, while the NO CALL group did not. That supports the conclusion that the additional CALL instruction was effective in getting this group of advanced proficiency L2 learners of English to recognize and correct persistent errors in written drafts.

Studies Related to Learning Attitudes to Computer Technology

Attitude can be explained as a set of beliefs developed in a due course of time in a given sociocultural setting. If the learner is reluctant to learn or he/she does not have a positive attitude, he/she does not produce any result. Language learning is affected by the attitude and motivation.

Motivated and demotivated students have different perceptions of their class, teacher and curriculum. Their perceptions are responsible to for their attitudes. An individual's perception of the class, perception of the teacher, peer group, or syllabus raise his/her awareness of future needs that affect his/her attitude toward language learning. It has been studied that positive attitude facilitates learning. (Verma, 2005). Attitudes form a part of one's perception of self, of others, and of the culture in which one is living" (Brown et. al., 2000).

Ayres (2002) states that CALL is relevant to students' needs as it provides them with useful information. According to his findings, CALL should be used more frequently in different language courses. This can be attributed to the fact that CALL environment is a stress-free atmosphere and more relaxed than the classroom (Murphy, 1997; Roed, 2003). "Learners appreciate and value the learning that they get using the computers" (p. 247) (Ayres, 2002).

Research has recurrently showed that, overall, students have a positive reaction towards the use of computers in language learning. Learning attitudes toward technology are also studied through the students enrolled in blended learning courses. Research proves that those attitudes are similar to those toward the usage of social media for academic purposes (Acar, 2013). Learners' satisfaction with a course delivered by means of blended learning is usually included in the type of the attitudes the language learners have toward CALL-based environment. It is usually measured by using self-report questionnaires (Bowyer & Chambers, 2017).

In order to analyze the needs and requirements of using the CALL approach for the Pakistani college students pursing their Bachelor of Science degrees, the researchers conducted a needs-analysis that helped build up a rationale about the perceptions, attitudes, and motivations of students towards it. They examined the students' impressions of CALL and their attitudes towards it through analyzing the students' practical replies which helped in making decisions

about the effective use of CALL. They found that their BS students had taken CALL as a productive, positive, and useful tool which helped them improve their language skills, communication and learning techniques. They concluded that CALL motivated the students in different ways, providing them with multiple techniques and opportunities to learn language. The overall result showed that students of BS colleges of Lahore were not only positive about usage of CALL in their classroom, but they were passionate about CALL as they were taking it as a different learning method which did not only help and motivate but also improved their learning and skills (Ali, Asif, & Anwar, 2016).

Alavi, Borzabadi et al. (2016) conducted a study in which a total of 641 undergraduate students of civil engineering and 34 EAP instructors participated in order to analyze perceptions of Iranian English for Academic Purposes (EAP) students on their computer literacy levels. The data collection instruments included questionnaires and semi-structured interviews. In addition to the findings that confirmed that the participants perceived Iranian EAP students' computer literacy levels as insufficient for the efficient implementation of CALL in EAP instruction, the study found evidence to support the view that there should be adequate computer literacy training programs for EAP students to facilitate the incorporation of computer technology in EAP instruction. The analysis of qualitative data provided insights into participants' perceptions of several specific computer-based skills required for technology-enhanced EAP learning.

The findings of this study identified the types of computer-based needs and skills that EAP students perceived as important for EAP learning, which were similar to the applications of CAW, such as, using on-line English dictionaries, using various search engines, developing advanced word processing skills, exchanging academic emails in English, participating in English academic forums, reading and using academic cyber-genres, and using computers in

conducting academic research. These computer literacy skills were similar to the computer skills

suggested by Jarvis (2004), including using the Internet, writing and sending emails, word

processing, using PowerPoint, creating websites and using multimedia. likewise, Plastina (2003)

argued that the Internet would be an appropriate and effective resource for socializing EAP

students into academic communities. Arno (2012) asserted that technology, especially the

Internet, would provide EAP students with adequate discipline-specific materials and resources.

The findings revealed that the importance of adequate computer literacy levels which could

correlate with students' motivation to use computers and their realization of their computer-

based needs (Alavi, Borzabadi et al., 2016, p. 56).

Greenfield (2003) found that 84% of the students, who were interviewed in her study,

confirmed a preference for learning English with computers. Rahimi and Yadollahi (2012)

investigated Iranian female students' attitude towards CALL and its relationship with their level

of education, computer ownership, and frequency of use, in a study in which one hundred and

forty-two female students participated. Some of the key findings revealed that the sample had a

general positive attitude towards CALL while they showed the highest positive attitudes towards

teacher influence. Students' attitude toward CALL across level of education was found to be

significantly different just in degree of exhibition to CALL. For example, the forty-three

university students of the sample had the highest level of positive attitudes in this regard·

Alzaidiyeen (2017) examined the EFL students' attitudes toward the use of iPads in

language learning. The findings indicated that the students had positive attitudes about using

iPads in language learning. This finding was in agreement with the findings from a survey

research conducted by Brand et. al. (2011). The results of the study, on the other hand, showed

that there were no statistically significant differences in the participants' attitude toward the use

of iPads with respect to gender, age and academic level. A similar study was conducted by to examine students' attitude toward the use of iPad in English indicating that students had positive attitude toward using iPad in in English Vocabulary Learning (Wang, Teng, & Chen, 2015).

Itayem, (2014) examined the students' attitude toward using the iPad in languages courses were also examined. The students' perceived usefulness and perceived ease of use of the iPad had significant and direct effects on their attitude towards using it in their language classes and other contexts

Studies Related to L2/FL Learners' Attitudes toward CAW

Research that measures students' attitude towards composing through word-processing also reports in favor of word processors. Positive student attitudes towards composing with word processors are reported in the literature in that the students write better with word processors, believing that it enhances their capacity to write (Darus & Ismail, 2008). AbuSeileek's (2012) study revealed that the computer-based environment "enabled the participants to blind their identities and reduce their anxiety during the process of communication." (AbuSeileek, 2012, p. 236).

Different attitudes about the using word processors for writing purposes depend on the stage of the writing process. Many studies have found that the need for such an editing aid takes place during the planning and revising required to write the first draft. The real mastery of using the computer software genuine linguistic-based features, that goes beyond the mastery of the conventional feature (cut, paste, delete, search, insert), represents the real necessity that intervene throughout the revision process in writing. "Most of attitude questionnaires (or interviews) on writing with a word processor have clearly indicated that students, and even experienced adult writers, prefer composing the first draft with pencil and paper and then using a word processor to

revise the final draft after having pinpointed the problems on the printed copy (Bridwell-Bowles, Johnson & Brehe; 1987; Bridwell, Sirc & Brooke, 1985; Joram, Woodruff, Bryson & Lindsay, in press; Teles, in press; Woodruff et al., 1986). The explanations given for this by interviewed subjects have mostly concerned the actualization mode of the writing processes. According to these subjects, management of the first draft, when ideas are still unorganized and spread across several pages is hindered by the insufficient size of computer screens which only show small portions of text. Consequently, corrections are easier to make with pencil and paper. On the other hand, further corrections, which are usually made during the final composition phase, are easier on a word processor." (Piolat, 1991, p. 262)

Ghandoura (2012) conducted a qualitative study to examine a sample of 13 ESL students' attitudes about a computer-aided composition (*WebCT*) class while taking an introductory writing course. The results of the data collected from student diaries revealed that students enjoyed and valued the *WebCT* course and that the course facilitated their acquisition of writing skills. Interviews with the students revealed that they thought computers made the acquisition of writing skills easier and faster. Also, students valued the feedback from instructors and fellow classmates alike.

Darus, S. and Ismail, M. (2008) investigated Arab postgraduate students (the second biggest group of international students after the Indonesians at University Kebangsaan Malaysia (UKM). The international postgraduate students at UKM used the word processor to complete their assignments, projects and theses in English. This study specifically investigated Arab postgraduate students' attitudes toward word processor in composing essays in EFL. The study examined students' attitude based on a questionnaire survey answered by 80 Arab. The findings showed that that the sample students had positive cognitive and behavioral attitude toward using

word processing for composing essays in EFL. In terms of affective influence of computers, the students showed positive tendency towards using word processor in composing their essays. The findings, however, indicated the students had low level of the apprehension influence of computers (Darus & Ismail, 2008).

In Bulut and AbuSeileek's sutdy (2007), an analysis of a 15-item questionnaire section on a scale of 112 EFL Saudi students revealed that the students exposed to CALL in their language learning experience had a general positive attitude toward their new experience. The study was carried out to even specifically examine their attitudes toward the use of CALL for the basic language learning skills; listening, speaking, reading and writing. In order to do that, other four 5-item questionnaire sections were answered by the students, who happened to take the courses of those skills in CALL environment. Only 12 students were selected from the sample to participate in responding to the questionnaire section related to the use of CALL for the writing skill since the others had not been enrolled in the writing skills course. The results of that particular section showed that general mean for the student attitude toward CALL for writing was 4.40 out of 5, and the highest mean (4.66) was for Item 2 '*Computers help me self-correct my spelling, grammar and style errors*'. The findings revealed that the features of CALL, experienced by the sampling students, had been frequently invested and favored for feedback and correction purposes (Bulut & AbuSeileek, 2007). The findings revealed that they generally had a positive attitude toward CALL for all language skills, but CALL seemed be favored especially for listening and writing skills which were followed by Speaking and Reading (Bulut & AbuSeileek, 2007).

Lee (2003) reported some researchers' perspective on students' writing via computers and presented two findings: one indicated that students enjoyed and appreciated writing of

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routine assignments by using word processing software, and the other was that the quality of writing via computers was not proved to be better than that of writing produced in traditional ways (Lee, 2000).

Ghahri et. al. (2015) designed a study to investigate the role of technology in writing skill. They investigated the effect of English correcting websites (e. g., online text correction and spellcheck *plus.com*) in influencing the accuracy of the writing performance of 60 EFL intermediate students whose scores were one standard deviation above and below the mean in PET (Preliminary English Test) writing part 2. The results suggested important implications that web-based technology need to be introduced in language teaching classes as it increases the amount of language that students learn. Introducing this technology help students get autonomous as they practice to use what benefits they can achieve out of practices and use what they have at their disposal to open up what they don't know about the language (Ghahri et al., 2015).

Lawley (2015) presented a paper to describe how a university web-based software helped EFL Spanish students self-correct their free-form writing. A cohort of students who volunteered to trial the software for a month reported positively on their experience; it had helped them find mistakes in their own and their peers' writing and had greatly accelerated the self-correction process.

Fang, Y. (2010) conducted a study on Taiwanese college EFL learners to measure their perceptions of using a computer-assisted writing program for a composition class. A mixed method research design was employed combining both qualitative and quantitative approaches where forty-five junior students were introduced to a CAW program called *MyAccess*. After using the program in class, students completed an attitude questionnaire. Nine participants were

selected for follow-up interviews based on their writing proficiency. The questionnaire results showed that the majority of students held favorable attitudes towards using *MyAccess* as a writing tool aid. They also statistically showed that a majority of the students benefited by using the computer-mediated feedback in *MyAccess* to revise their essays. In addition, the analysis of the data obtained from the nine students' interviews revealed that using the computer-mediated feedback had a positive effect on their writing skill development, particularly in suggesting changes of form rather than of content. Finally, eight of the nine interview participants suggested that *MyAccess* could be utilized in future writing classes. finally, and most importantly, the benefits of adopting CAW software such as *MyAccess* increased learner motivation and learner autonomy. The study indicated that this kind of software can be a useful support tool in the EFL classroom. Li (2006) investigated the influence of word processing on the writing of ESL students' attitudes on their writing accuracy and self-assessment. The researcher found that participants paid more attention to higher order thinking activities while evaluating their written texts in the computer session; the students were significantly motivated to revise more.

In AbuSeileek's (2006) study, the results of the study revealed that members of the experimental group generally had a positive attitude towards computer-aided writing. The following is a summary of the results of the most important items in the questionnaire: 1) The majority of the members of the experimental group (87.67%) had a positive attitude towards computer-aided writing; 32.0% of them (frequency = 9.60/30 items) strongly agreed, and 55.67% (frequency = 16.70/30 items) agreed that they had a positive attitude. However, the other 12.33% (frequency = 3.7/30 items) had a negative attitude towards computer-aided writing; 11.33% (frequency = 3.4/30 items) disagreed and 1.0% (frequency = 0.3/30 items) strongly disagreed. 2) Nearly all the subjects in the experimental group (95%) thought that the computer-aided writing

course ssisted them to interact and work together, which was helpful for them in improving the skill of writing; (70% of them (frequency = 14/20 students) strongly agreed and 25% (frequency = 5/20 students) greed). The rest of the students (5%) (frequency = 1/20 students), however, believed that the computer-writing class did not enhance interaction and improve the skill of writing. The findings of this study showed that the word processor had an effect on the process of teaching and learning the skill of writing. EFL learners have a facility that provides a chance for self-learning, which helps them to be more independent on teachers. They are also able to discover and correct their errors because the word processor enhances language learning, makes writing more organized, and aids in the mechanics of language. Not only can students use the word processor in the classroom under the control of the teacher, but they are also able to utilize it anywhere or anytime outside the classroom. (AbuSeileek, 2006, p. 10)

In Saadi and Saadat's (2015) study, the EFL students' attitudes toward CALL were also investigated when the two researchers conducted their study to measure the effects of the two E-feedback corrective software programs; DECF and MECF. The results indicated that the use of E-feedback developed positive learners attitudes toward CALL. The two researchers concluded that computer-mediated corrective feedback activities could be highly supportive to the learning of the writing skill. The results of the study revealed that the use of E-feedback using the two types developed the learners' writing accuracy. The researchers found out that although the MECF group obtained higher scores in three components (i.e., structure, vocabulary, and punctuation), a statistically significant difference between the two groups was found only in terms of vocabulary gain scores. They found out that the use of E-feedback also developed the learners' writing attitudes toward CALL.

The educational environments in which computer-mediated corrective feedback are implemented are highly motivating for learning to write in English. Computer-mediated corrective feedback modes and teacher-student feedback helps develop students' writing by combining the characteristics of the two modes of providing corrective feedback. Providing computer-mediated corrective feedback modes via a word processor was helpful to improve writing aspects, including spelling, content, grammar, punctuation, organization, and vocabulary (Al-Olimat & AbuSeileek, 2015). AbuSeileek reported that the subjects in the experimental group studied in a relaxed atmosphere, which was motivating for critical thinking and supportive for using problem-solving strategies. They had access to extra facilities like grammar and spelling checkers, which were found to be helpful for them. They became more dependent on themselves when they used electronic interaction. The use of word processor in the classroom opens new prospects for the subjects, which motivates them for doing extra activities outside the classroom. (AbuSeileek, 2006, p. 10).

Chapter Three

Design and Methodology

A mixed methods design is commonly employed in studies related to applied linguistics research. According to Creswell (2009), mixed methods research can be defined as "a procedure for collecting, analyzing, and mixing quantitative and qualitative data at some stage of the research process within a single study to understand a research problem more completely" (Creswell, 2009, p. 137). Creswell (2014) pointed out that mixing the methods for collecting data provides a better understanding of the questions being asked, when compared with using a single approach.

The focus of the current study is to discover EFL students' attitudes toward the CAW applications they use for studying EFL writing. The study employs a mixed methods design, whereby both qualitative and quantitative methods are used to answer the following research questions:

1. What is the general attitude of Saudi EFL learners toward CAW?

2. What attitudes do Saudi EFL learners have toward using CAW for learning EFL writing?

3. What do Saudi EFL learners think about the effects of their attitudes on their writing?

4. What do Saudi EFL learners think about the effects of their attitudes on their ability to correct/edit spelling and grammar errors (i.e. 'accuracy')?

5. What do Saudi EFL learners think about the effects of their attitudes on their ability to use/write more vocabulary (i.e. 'fluency')?

The main research instruments used in the study are the pre-study survey (Appendix A) that is used to select the target sampling, the questionnaire answered by the 150 subjects

(Appendix B), and the open-ended questions answered by 50 subjects in the sample (Appendix C).

Before the start of the study, a pilot study was conducted to check the validity, reliability, and clarity of the questionnaire items. Almost 60 ESL international students in three classes of 20 at Florida TALK school, an American institute for learning English and Spanish languages, responded to the Likert-scale questionnaire items by selecting the choice they believed was the most suitable. Their levels of English proficiency were similar to the target sample of the study. The time they took to complete the questionnaire did not exceed the average range of 20-25 minutes. Later, they had 15 minutes to answer in brief sentences the three open-ended questions. They stated that they comprehended the questions. In addition, three English teachers assisted in the pilot by reviewing all the items, as well as the three questions. They noted that a few items needed to be reworded, and they suggested deleting two items that convey similar meanings.

Setting and Subjects

The population of the study was ere the students of the English departments in three university campuses in Saudi Arabia. These students are learning EFL in a context where their first language is Arabic. The three campus departments offer almost the same academic four-year study plan of EFL courses in eight levels or "semesters." Their undergraduate students are qualified to be hired as English teachers, translators, and interpreters. Students in these programs submit their written compositions to their teachers electronically either via a standard Learning Management System (LMS) or through e-mail. Sometimes they hand them over in print. The target sample of the subjects was determined mainly based on their familiarity and previous experiences using computers for writing assignments.

Instruments

CAW program. The programs used to write in English varied widely among the respondents, with just under half (47%) utilizing MS Word on its own. Many use *MS Word* in conjunction with other programs. 8% used *MS Word* alongside *MS PowerPoint*, while 7% indicated using MS Office in general (see Appendix D for the complete table of programs used to write in English). Students used the word processing program for checking and correcting errors, finding related words, and doing writing exercises. Some word processors today are still relatively basic, and some are more developed. WordPerfect, *iMac Pages*, *WordPad*, and *Google Docs* are examples of word processing programs that participants of the study used. However, *MS Word* was the most feasible and accessible one used by the majority of the participants that provides them a number of ways to format and personalize the documents. It has built-in programs that check spelling and grammar even while typing. Using this program, a writer can easily write, delete, edit, copy, paste, and track changes on the document. These features can increase the positive attitude of a budding writer towards the process of composing.

Learning management systems. Learning Management Systems (LMSs) are specialized Learning Technology Systems (IEEE LTSC, 2001a), based on the state-of-the-art Internet and WWW technologies in order to provide education and training following the open and distance learning paradigm. LMSs act as a platform for online content and communications, including asynchronous and synchronous courses. An LMS is a software program, platform, or engine where e-learning courses and materials are created, managed, and delivered to students. The LMSs reported in this study are applications that offer Computer-Mediated Communication (CMC) among students and with their teachers while they used it as a CAW tool. LMSs were

only utilized by the participants to submit their written homework electronically. In addition, participants in the study wrote their responses using built-in word processing features.

There were two types of LMS platforms used by the participants whose attitudes were gathered and analyzed: Discussion Board and D2L (Desire to Learn). Both have a built-in word processor application, allowing students and instructors to form sort of community of members and groups who post written conversations (threads) into discussion topics (forums). LMSs drive better learning outcomes by offering every learner a highly personalized digital experience, observed by the course instructor. Via LMSs, the instructors create assignments for a wide variety of activities, including writing activities, and also provide evaluation and feedback for these assignments.

Pre-study survey. A survey of five yes/no questions was distributed to a population of approximately 400 students from the three different English departments. The purpose of the survey was to determine the subjects who could participate in the study based on their prior experiences of their usage of CAW applications for digital composing. On the survey, the students were also asked to list the number of times they write on a computer in comparison with the number of times they write on paper. The survey also includes a section for demographic and personal information of the subjects.

Three hundred subjects returned the survey to the teachers, but only 247 of them answered all the five yes/no questions declaring that they had been through experiences of using computer-assisted writing programs. 27 chose to discontinue their participation in the study, so they were not involved in gathering further data. Thus, 220 were ready to take the questionnaire. The pre-study survey included demographic information such as: gender, age, native language, and length of studying English (see Appendix C).

Questionnaire. After selecting 150 subjects from the target sample, a five-point Likert scale attitude questionnaire was used to collect data from the selected subjects who participated in this study in order to investigate their attitudes toward CAW. The questionnaire was adapted from Cunningham's (2002) 24 items, which aligned with my five research questions. The length of the questionnaire was reduced from 37 to 24 items for relevancy and rephrasing of items to fit the particular sample in this study. Content validity was established by an earlier pilot study that generated affirmative feedback and inputs from EFL learners with proficiency levels similar to the study sample. The researcher also solicited feedback from their teachers, who were native speaker of English. The students' responses to the questionnaire items were used to quantitatively analyze the results of the students' attitudes toward the CAW on their writing in general, and on learning to write their assignments (see Appendix E).

Open-ended questions. The open-ended questions were answered by 50 participants of the target sample to support their previous responses and inputs to the questionnaire. The students' responses to those questions were used as a tool to qualitatively measure the students' attitudes toward the CAW on their writing (See Appendix F).

Data Collection Procedures

A mixed-method research design was used, by which data were collected via 24 five-point Likert scale questionnaire items and three open-ended questions. The following procedures describe how the study's data collection was conducted:

1. Three weeks after the beginning of Semester I in 2017/2018, the researcher worked with the writing course instructors at the three campuses to address the use of CAW programs to help students practice writing in English; their writing abilities range from being able

to write a paragraph to writing longer essays. There was an announcement in-class for participating in the study.

2. In order to specify the target sample of the study, the pre-study survey consisting of five direct questions was given to the interested students, who answered with 'yes' to the first four questions, thus indicating 75% were in favor of using computers for their English writing, as opposed to 25% who were in favor of writing on paper. The purpose of the pre-study survey questions was to select the target sample of the subjects based on the result affirming their previous experiences and background knowledge of using computers for writing English assignments.

3. After selecting the sample of the target subjects, they were asked to read and sign the student consent (see Appendix B). The sample was advised to deliberately do their written assignments via using CAW applications they are aware of (e.g., MS Word, WordPerfect, iMac Pages, WordPad, and Google Docs). Additionally, the instructors took the students to the computer labs more often for several weeks to provide them with more opportunities to use the computers, which were all equipped with an up-to-date word processor program. Therefore, students had further opportunities to practice writing via computer, along with more exposure to experience as many features of the computer word processor as possible. The instructors' roles were limited to facilitating electronic linguistic interaction whenever possible.

4. For six weeks, the subjects of the study were directed to use the in-house university LMS portals (e.g., *Blackboard*, *Desire to Learn D2L*, *Discussion Board*) to type their homework, communicate in writing, and submit some of their writing assignments. Other typed homework was accepted too.

5. 150 students of the sample participated in responding to the five-point Likert-scale questionnaire through Qualtrics, an online survey software "platform", by selecting the choice that most accurately reflected their beliefs. Their responses to the questionnaire were used for collecting the quantitative data of the study.

6. Later, 50 subjects out of the 150 were selected to answer additional open-ended questions to gather more specific feedback and detailed comments. These 50 were selected due to their longer and more meaningful responses. This instrument was used to contribute to the qualitative analysis of the study, in order to measure the effect of their attitudes toward the word processor on their writings and on their process of learning to write.

Data Analysis Procedures

Cronbach's Alpha was run to determine the internal reliability of the questionnaire instrument. The value of Cronbach's Alpha = .762, which is acceptable for internal consistency. Cronbach's Alpha recommended values are 0.7 or higher (DeVillis, 2003; Kline, 2005), which is an indicator of reasonably strong internal consistency. The questionnaire directions, content, form and time are considered reliable from a statistical point of view. To maintain content validity, the questionnaire and the open-ended questions were given to three instructors of applied linguistics in the English Department of the College of Languages and Translation at KSU. They were asked to validate the content of these two instruments with regard to their relevance in the study, the content, and the clarity of instructions. They suggested revising the open-ended questions to have them listed in three questions instead of four. Their remarks were taken into consideration.

Brief demographic data from the pre-study survey indicating participants' level of previous CAW experiences and knowledge was collected only for creditability purpose; there was no need to have it analyzed statistically.

The study was carried out to examine EFL students' interactions with and attitudes toward CAW on their writing. Because this study used a mixed methods design, data were analyzed qualitatively and quantitatively. While the quantitative analysis shows the results of the questionnaire, the qualitative analysis shows the results of the analysis of the open-ended responses. As far as the data quantitative treatment was concerned, descriptive statistics were used to analyze the questionnaire items by using IBM SPSS Statistics (Version 24.0). Key findings were qualitatively and quantitatively analyzed through the lens of five categories, representing their relation to answering a research question of the study: the general attitude of EFL learners toward CAW, EFL learner attitudes toward CAW on learning writing, the effects of attitudes toward CAW on writing ability, the effects of attitudes toward CAW on writing accuracy, and the effects of attitudes toward CAW on writing fluency. The data collected were used to answer the research question being asked (Locke, Silverman, & Spirduso, 2009). Five categories of the questionnaire items and the open-ended questions are formed in relation with the five research questions (see the table in Appendix G).

According to the purpose of the present study, which seems to be about finding a causal relationship between independent and dependent variables, the present study follows squarely the social- scientific paradigm (i. e., a post-positivist social scientific). The independent variable is the participants' use of CAW programs, whereas and the dependent variable is their attitude toward CAW. The effects of their attitude on language learning in terms of accuracy and fluency can be also seen as dependent variables. The present social-scientific study explains the method

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the research uses to predict that engaging in a CAW activity (the independent variable, the u) will result in a change in attitude, which leads to improvements in areas of language learning; writing accuracy and fluency.

Ethical Considerations

The privacy of the participants was strictly observed, and their identities were protected. The information they provided was used only for the purposes of the research study. In dealing with the participants, the researcher followed the regulations of the IRB at the University of Memphis (see Appendix F). All of the students read and signed the informed consent form, which explained that the degree of their interactions to the study was limited to responding to the questionnaire and the open-ended questions.

They were informed of the voluntary nature of participating in or withdrawing from the study. Using their real name was an option. They also were not required to specify the level of their English proficiency, since the data that were to be analyzed were not correlated with that factor. That did not negatively impact the data analysis. Their writing ability was identified in the pre-study survey that took place prior to signing the consent form.

To ensure data confidentiality, the researcher saved all data and relevant information on his personal computer, which is secured by password. While dealing with the data on the Qualtrics platform, the researcher was the only one who had access. The researcher's own beliefs did not interfere in the analysis process. The uncompleted participants' responses or those done carelessly were discarded.

Chapter 4

Findings of the Study

This chapter presents the analysis process of the study data. The chapter includes the key findings of the study data, with quantitative analysis and qualitative analysis. While the former shows the results of the questionnaire survey, the latter presents the results of open-ended responses analysis. The findings are presented through the lens of the main research questions. The analysis of quantitative responses to the questionnaire items and the qualitative responses to the open-ended questions was grouped into 5 categories; each represents relations to answering a research question as illustrated in Table 1 in the previous chapter.

Findings Related to Research Question One

Quantitative Analysis. Attitudes toward CAW were generally positive, as indicated in Figure 1. 82 % of the respondents disagreed over finding it difficult to learn to use the computer for writing in English, and 79 % agreed that using the computer assisted them when practicing writing in English. A Chi-Square test of association was run to ascertain if there was a difference in attitude toward CAW ("*I generally prefer using computers for writing English than handwriting them*") depending on the software program used; no association was found (χ^2 (6) = 9.217, p=.162).
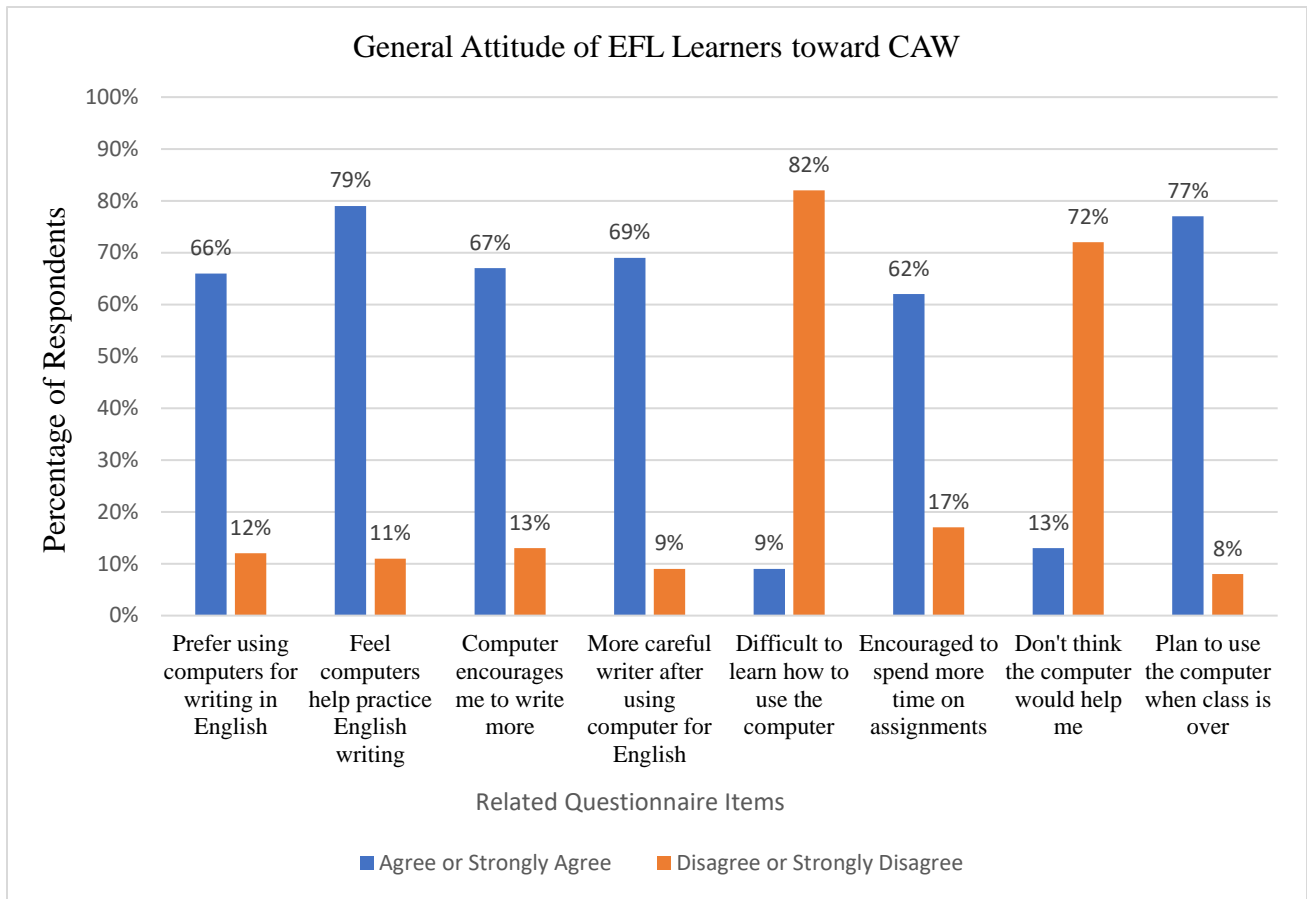
Figure 1. General Attitude of EFL Learners toward CAW.

The item with the highest total agreement is feeling that computers help practice English writing. This item had the highest percentage of respondents strongly agreeing (79%) as well as can be seen in Table 1.

Table 1

Scale Levels of Research Question 1 Factors

Item	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Prefer using computers for writing in English	2%	10%	22%	35%	31%

Table 1 *(Continued)*

Item	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Feel computers help practice English writing	1%	10%	11%	41%	37%
Computer encourages me to write more	1%	12%	19%	39%	28%
More careful writer after using computer for English	1%	9%	22%	45%	23%
Encouraged to spend more time on assignments	3%	14%	21%	29%	33%
Plan to use the computer when class is over	2%	6%	15%	47%	30%

It can be generally concluded from the mostly positive responses to these variables that the students have an overall positive attitude towards CAW.

Findings Related to Research Question Two

Quantitative Results. As this research question has 20 associated variables, a principal component analysis (PCA) was run to make for greater ease of interpretation of the responses. The purpose of this is not to establish factors for the questionnaire, but rather to better understand the attitudes of the respondents as related to this question, thus the degree of rigor is less. The purpose was to include all the associated questions for the overall research question, therefore a Varimax orthogonal rotation was used to select which variables loaded the highest into the four components (factors) that had eigenvalues greater than 1. The rotated component matrix is included in Appendix C. Factor 1 is Continued Use of Computers/MS Word for Writing in English. Factor 2 is More Care in Writing and Revising in English. Factor 3 is Attention Paid to Spelling and Grammar. Factor 4 is Improved Writing in English.

This research question is posed toward discerning the attitudes of EFL students using CAW for the purpose of learning to write in English, as opposed to their attitudes regarding CAW in and of itself. It is important to ascertain the students' feelings toward continuing to employ CAW in their English writing learning. This would be measured by Factor 1. That is, a positive attitude toward using CAW to learn English writing would then increase the care taken to write well, revise, and ensure correct grammar and spelling.

Attitudes of EFL learners toward using CAW for learning EFL writing were positive. The factor with the lowest positive percentage is Continued Use of Computers/MS Word for Writing in English. It is possible with the wording of some of the survey items that students may intend on continuing the use of computers for writing in English, but not necessarily using the *MS Word* software. Only two percent disagreed that using computers improved their ability to write in English.
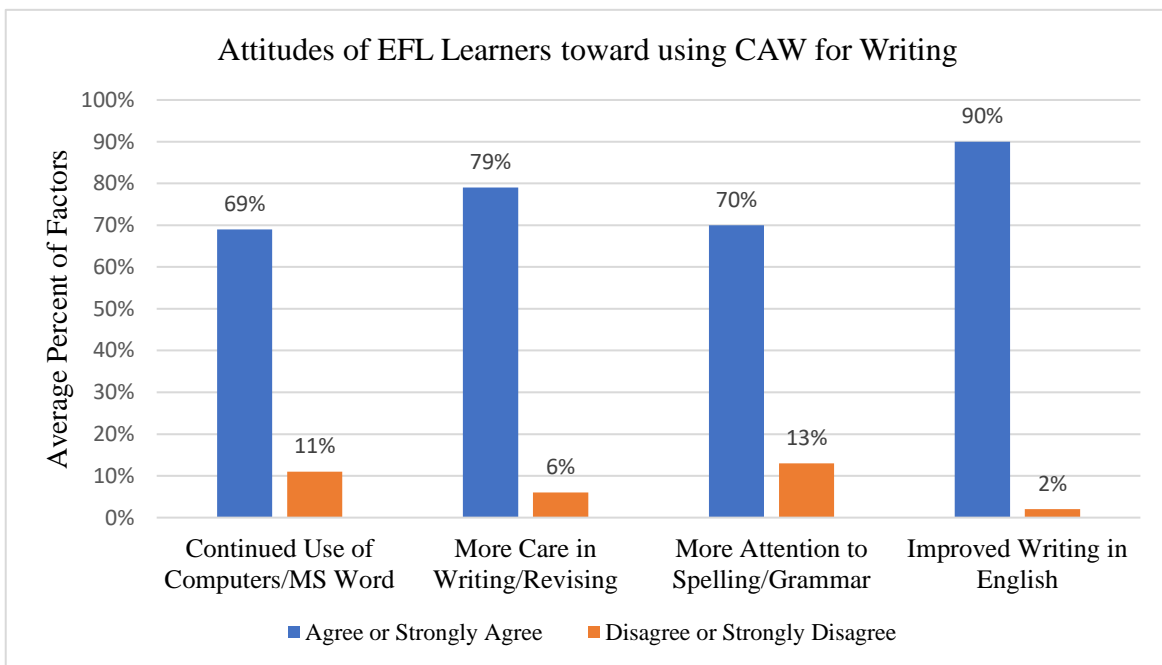
Figure 2. Average Percent of Factors: EFL Learner Attitudes toward CAW for Writing.

Due to the reversed scale, the question "I believe that MS Word does not help me to depend upon myself in developing writing skills" is not included in the average for Continued Use of Computers/MS Word. For that item, 51 % disagreed, and 27 % agreed. Also due to the reversed scale, the question "I don't think that using a computer would help me to become better at writing in English" is not included in Improved Writing in English. For that item, 72% disagreed, and 13% agreed (see Figure 3). More students appear to feel that CAW does assist them both in developing their writing skills and on depending upon themselves for the development of said skills. Even though more students had concerns regarding depending upon themselves for skill development, this as well speaks to positive attitudes toward using CAW for learning how to write in English.
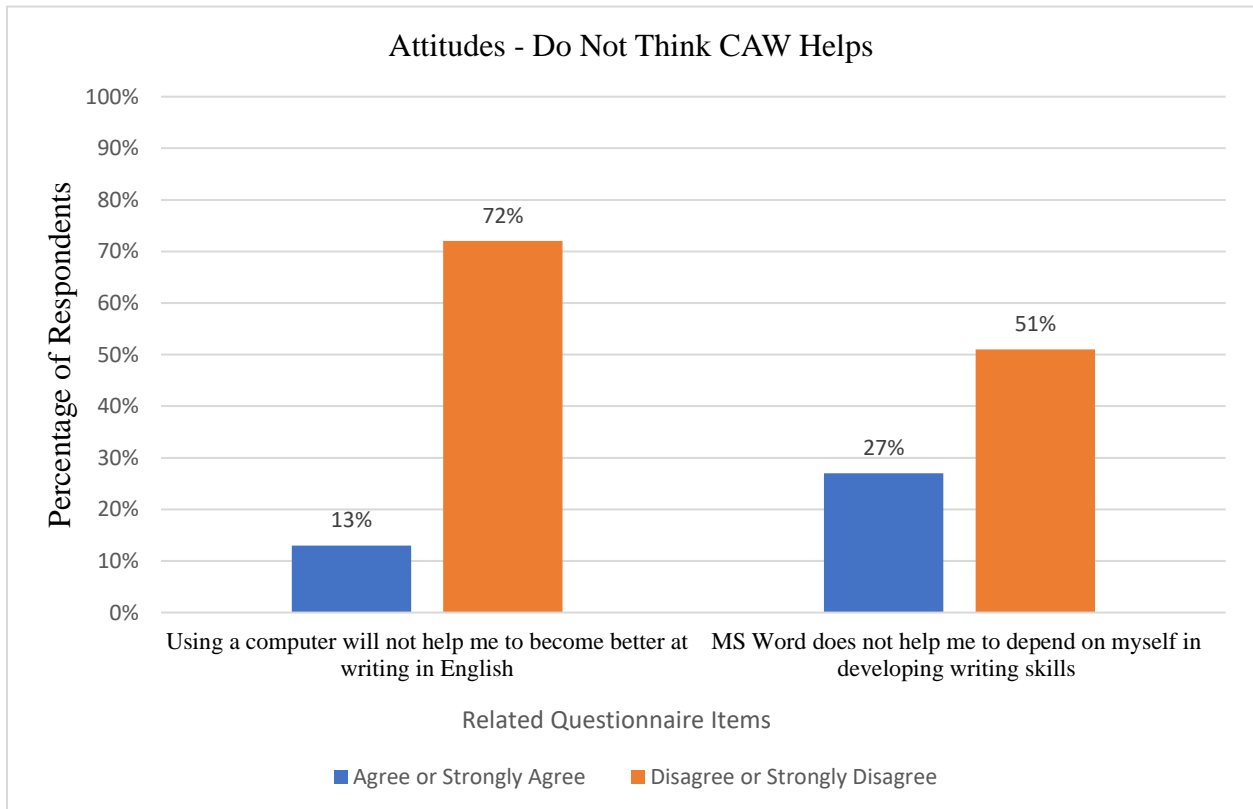
Figure 3. Do Not Think CAW Helps - Reversed Scale

The question "I feel I don't get more attention from the teacher in the computer writing classes than I do in other non-computer-writing classes" did not load on any factor. 33 percent agreed, and 24 percent disagreed. There were five specific items on the questionnaire that most directly approach the research question of attitudes on the part of students for using CAW to learn how to write in English (see Table 2). The statement "I feel that using a computer in writing English helps me to be aware of my language errors" encapsulates many attributes of writing in English that included, but are not limited to, grammar and spelling even as those two are set apart in the survey. This awareness is necessary aspect of learning to write in English, as in any language, and thus could be generalized more broadly to read as finding CAW an effective tool for learning to write in English. Agreement was the strongest for this item, as shown in Table 2, with over half of the students (57%) strongly agreeing that the statement is true. Interest in taking another writing course where computers are used also supports the claim that the users have positive attitudes toward using CAW for English writing. This item had 65 percent agreement (both agreed and strongly agreed).

Table 2

Specific Items – Attitudes toward Using CAW to learn to write in English

Item	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I plan to continue using the computer to write my papers after this class is over	2.0%	6.0%	14.7%	47.3%	30.0%
I feel I have learned more about writing from this class than I have from other English writing classes where the computer is not used.	2.7%	15.3%	34.7%	30.7%	16.7%

Table 2 *(Continued)*

Item	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I would like to take another writing course where computers are used.	2.0%	8.0%	24.7%	36.7%	28.7%
I have become a more careful writer after some time of using a computer for English writing	0.7%	8.7%	22.0%	45.3%	23.3%
I feel that using a computer in writing English helps me to be aware of my language errors.	0%	1.3%	9.3%	32.7%	56.7%

Qualitative Results. The majority of respondents indicated that they appreciate the use of a computer (e.g., *MS Word* software) for ensuring that they make fewer mistakes in grammar and spelling. According to their responses, writing errors are more readily corrected in the software. They also noted that their English vocabularies expanded when the software displayed vocabulary errors. Several pointed out that it is less fatiguing to write using software than it is to write longhand.

However, a couple of the respondents noted that while very practical for correcting errors and making edits, the computer is not as useful for the generation of ideas. The student found that ideas flowed more readily with the use of a pen. Another student noted that unlike computers, pen and paper could be easily located when one is ready to write. A few students mentioned that using computers decreases the amount of English actually learned as the software did the majority of the work; 27% of the questionnaire respondents agreed that they didn't depend upon themselves when using *MS Word*. The overall response however was very positive toward using computers to learn English writing skills and abilities.

Findings Related to Research Question Three

    Quantitative Results. As this research question has 17 associated variables, a principal

component analysis (PCA) was run to make for greater ease of interpretation of the participants'

responses. The purpose of this is not to establish factors for the questionnaire, but rather to better

understand the attitudes of the respondents as related to this question, thus the degree of rigor is

less. The purpose was to include all the associated questionnaire items for the overall pertinent

research question, therefore a Varimax orthogonal rotation was used to select which variables

loaded the highest into the four components (factors) that had eigenvalues greater than 1. The

rotated component matrix is included in Appendix D. Factor 1 is Continued Use of

Computers/Amount Learned. Factor 2 is Mechanics (of English) and Interactions. Factor 3 is

Care and Awareness for Writing in English.
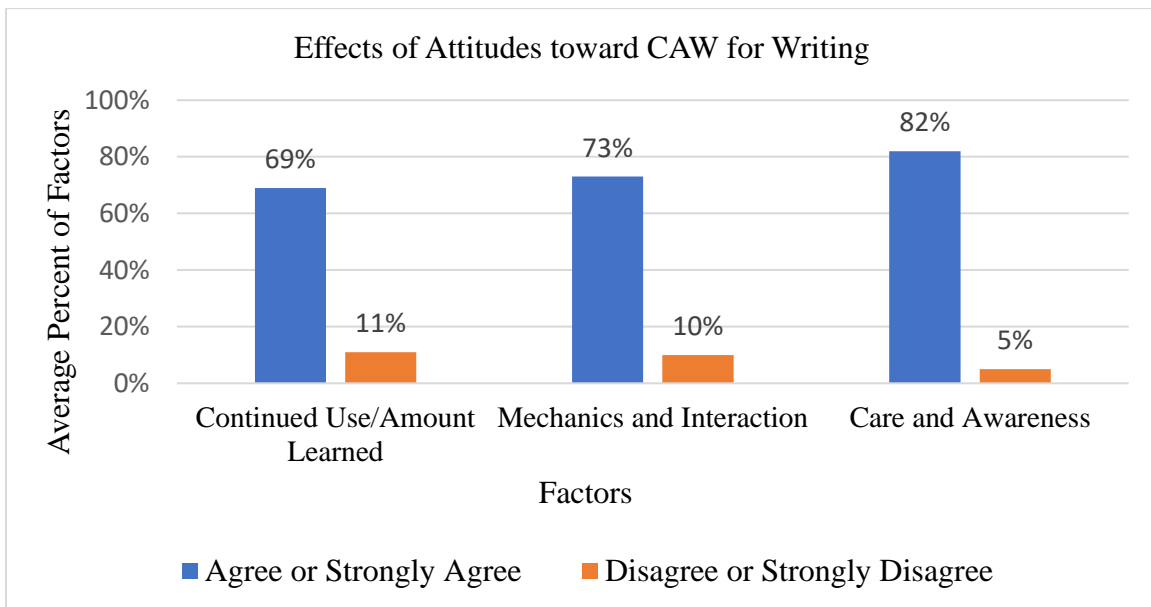
Figure 4. Average Percent of Factors: Effects of Attitudes toward CAW for Writing.

In general, most respondents agreed that they would continue using computers for writing in English (see Figure 4). Just under half of the respondents (48%) agreed that they learned more about writing than from other English writing classes where computers are not used; therefore, the attitude regarding the belief that they learned more by using the computer is less positive. The effect of this attitude could lessen their intention to continue. However, 80% indicated that they would recommend that others learn how to use *MS Word* for writing in English. This is indicative of a positive attitude toward using CAW, influencing their willingness to recommend it (see Table 3).

Table 3

Specific Items – Effects of Attitudes toward Using CAW to learn to write in English

Item	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I feel that I have learned more about writing from this class than I have from other English writing classes where the computer is not used.	2.7%	15.3%	34.7%	30.7%	16.7%
I would recommend that students learn to use MS Word for writing their papers.	0%	4.0%	16.0%	48.0%	32.0%
I have noticed that the computer-writing class (i.e., a lab) helps students interact and work together.	2.7%	8.9%	28.7%	35.3%	25.3%
Using MS Word makes me less worried about writing because I know I can edit my writing easily.	0%	0.7%	8.0%	38.7%	52.7%

More than sixty percent of the students perceived more interaction and team work in the class where computers were used to write in English. This may indicate more positive effects from the students' positive attitudes about the computer use, encouraging them to work together

more. The students' generally positive responses to using the computers to learn how to write in English may be reflective of their attitudes regarding it. What EFL learners appear to think about the effects of their attitudes in English writing may be the realization that they are more aware of their errors and are not as concerned about the errors since they can be easily corrected. Fifty two percent strongly agreed that they can edit their writing easily. It can be reasonably presumed that the learners realize that their positive attitudes toward CAW leads to less potential stress and worry when writing.

In order to further explore the effect of students' attitudes toward using CAW and if those attitudes were related to continuing to use a computer in the future, a cross-tabulation table was created using the two variables: "*I feel that I have learned more about writing from this class than I have from other English writing classes where the computer is not used*" and "*I plan to continue using the computer to write my papers after this class is over.*" It is hypothesized that a belief that the students learned more would positively correspond to plans to continue using the computer to write their papers. The two items were analyzed separately from the original data set. Agree and strongly agree responses were combined, as were disagree and strongly disagree responses (see Table 4). All other values were removed, for a total n of 89. Somers' *d* was run in order to assess the association. The correlation was positive ($d = .260$) and statistically significant (p = .05). The association is very moderate, yet the significant result may be indicative of the effect of the student's attitude on continued using CAW in English.

Table 4

Learning More Regarding Writing in English/Plans to Continual Computer Use

			Plan to Continue using Computers		Total
			Agree or Strongly Agree	Disagree or Strongly Disagree	
Learned More About Writing	Agree or Strongly Agree	Count	66	1	67
		% of Total	74.2%	1.1%	75.3%
	Disagree or Strongly Disagree	Count	18	4	22
		% of Total	20.2%	4.5%	24.7%
Total		Count	84	5	89
		% of Total	94.4%	5.6%	100.0%

Qualitative Results. While many of the respondents indicated feeling more proficient in their writing given the automated assistance with spelling and grammar, several also mentioned enjoying writing more. In some cases, it was due to the increased speed with which they were able to write, but in some it was noted that they enjoyed the process of writing on the computer, (e.g., "*it's easier and more fun*"). The effect of this particular attitude on CAW is an increase in the amount of writing and, therefore, more practice. Some noted that they felt the automated spelling corrections lessened their actual learning of spelling (i.e., less concentration required to correct). This attitude would also affect how one would perceive the usefulness of CAW. Seventy-two percent (72%) disagreed with the statement that they did not think the computer would assist them in developing their writing. Many respondents also noted an improved attitude toward writing using CAW due to the speed and a decrease in boredom. Some also noted that it made for easier studying, and the results looked more professional. Therefore, they would continue to use the computer to write assignments in English.

Findings Related to Research Question Four

Quantitative Results. Nearly all (91%) of the respondents found it easier to write in English using the computer due to the ease of correcting errors, and that they worried less about writing for that reason (Figure 5). This is an indication that the students have positive attitudes regarding the accuracy of CAW, and such attitudes are again apt to influence them on continuing to use CAW for their writing assignment and practice. The percentage of respondents who disagreed that they paid more attention to spelling may have felt a decreased need to do so as *MS Word* would automatically correct their errors.
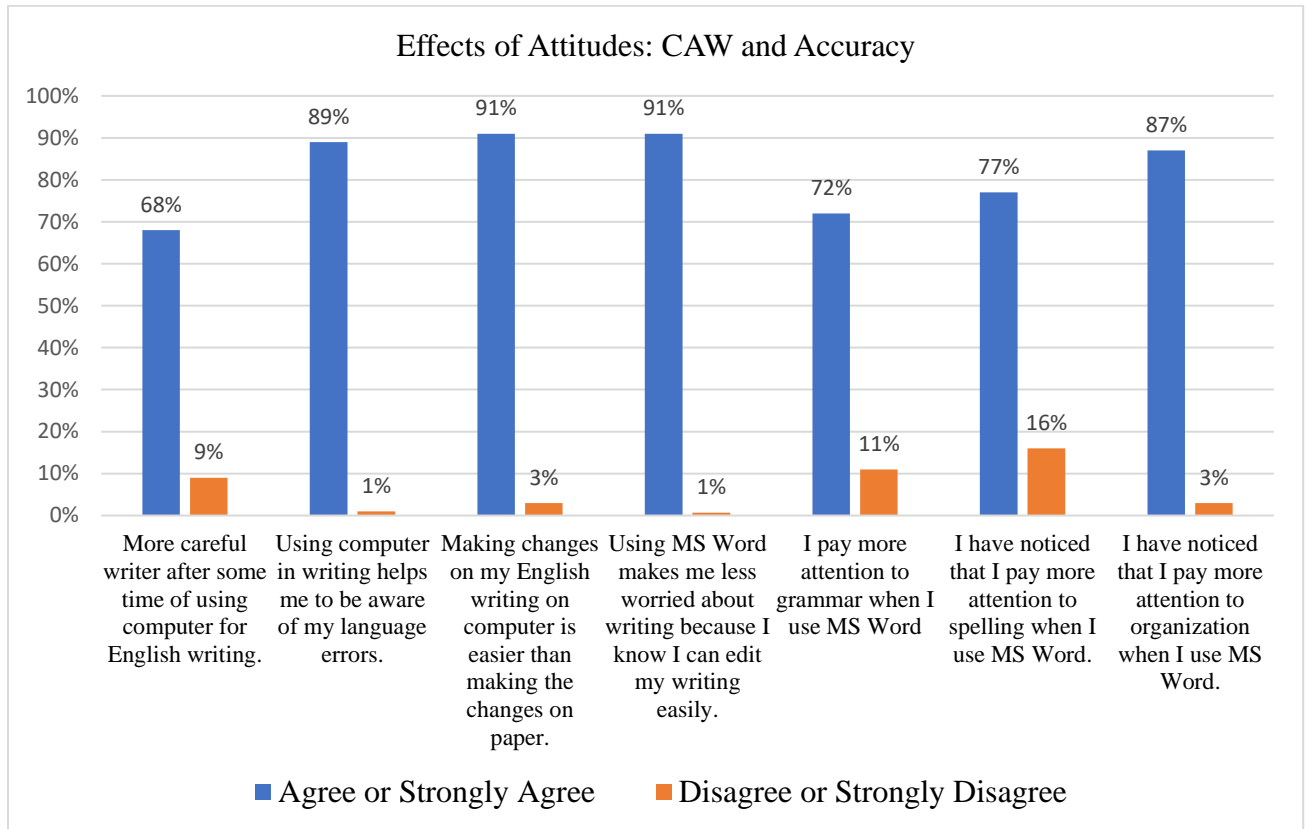
Figure 5. Effects of Attitudes: CAW and Accuracy

Sixty percent of the respondents strongly agreed that making changes in their writing was easier to achieve than on a hand-written paper, and just over half strongly agreed as well that they were less worried about their writing given the ability to readily edit. That coupled with their heightened awareness of language errors (see Table 5) indicates very positive attitudes toward using CAW to improve the accuracy of the learner's English writing.

Table 5

Specific Items – Effects of Attitudes toward Using CAW on Ability to be Accurate

Item	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Making changes on my English writing on the computer is easier than making the changes on paper	0	2.7%	6%	31.3%	60%
Using MS Word makes me less worried about writing because I know I can edit my writing easily.	0	.07%	8%	38.7%	52.7%
Using a computer in writing helps me to be aware of my language errors.	0	1.3%	9.3%	32.7%	56.7%
I have noticed that I pay more attention to organization when I use MS Word	0	2.7%	10%	54.7%	32.7%

Qualitative Results. As with Research Question 3, the participants' responses to the qualitative open-ended questions were largely focused on their improved spelling and grammar in their English writing. Accuracy in the mechanics of English was the biggest driver for the students for continuing the use of CAW. Many indicated that their spelling and grammar skills increased as the program made them more aware of their mistakes. Several also remarked that

their papers became better organized. The effects of these attitudes are likely to encourage the learners to continue CAW for their writing.

Findings Related to Research Question Five

Quantitative Results. The respondents were clearly very comfortable with making changes and indicated doing more writing as a result of CAW. As seen in Figure 6, (67%) percent felt encouraged to write more than they would have otherwise, and even more (79%) felt they used more words – a greater vocabulary – using CAW. The effects of these positive attitudes have the potential to bring about more practice and thus potentially greater fluency.
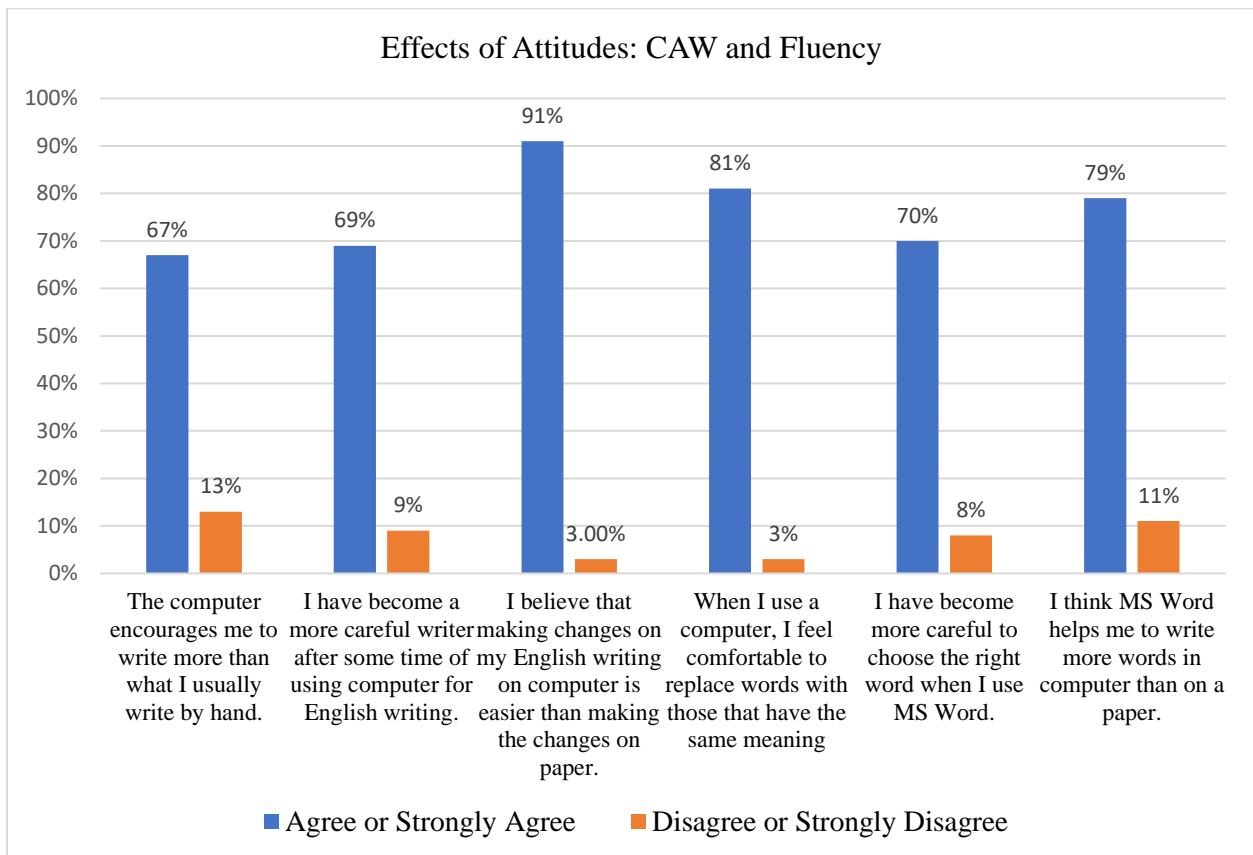
Figure 6. Effects of Attitudes: CAW and Fluency

As with attitudes for more accurate English writing using CAW, being able to readily edit in *MS Word* can also help students with their fluency in English writing. They can more readily replace words after reviewing them, particularly if they have the same meaning but perhaps have a better flow in a sentence, another aspect of fluency. 35% strongly agreed that they were writing more words and ostensibly making more elaborate points when they used the computer (see Table 6).

Table 6

Effects of Attitudes toward Using CAW on Ability to be More Fluent

Item	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
The computer encourages me to write in English more than what I usually write by hand.	1.3%	12%	19.3%	39.3%	28.0%
I have become a more careful writer after some time of using computer for English writing	0.7%	8.7%	22.0%	45.3%	23.3%
Making changes on my English writing on computer is easier than making the changes on paper	0	2.7%	6%	31.3%	60%
When I use a computer, I feel comfortable to replace words with those that have the same meaning	0	3.3%	16%	48.7%	32.0%
I have become more careful to choose the right word when I use MS Word	0.7%	7.3%	22.0%	48.%	22.0%
I think MS Word helps me to write more words in computer than on paper	0	10.7%	10.0%	44.0%	35.3%

Qualitative Results. Respondents noted making fewer mistakes in their writing as they continued to practice on the computer. Many (76%) remarked that they were writing more and therefore practicing more, which would increase fluency. Some noted becoming generally fluent writers by choosing from the list of synonyms and antonyms that the word processors offer and replace words with alternatives. Some respondents stated that such feature made them more motivated to extend their vocabulary that they could use in writing their papers for non-writing courses, such as, translation homework with the assistance of CAW. That is, students increase their fluency by learning to use new words replacing other they already knew without the assistance of dictionaries. Thus, with more positive attitudes about using CAW for their writing assignments, students expand their vocabulary extent and improve the capability and readiness to paraphrase or restate their sentences, which make them more fluent in English.

<center>**Chapter Five**</center>

<center>**Discussions, Conclusion, Implications and Recommendations**</center>

Introduction

This chapter is devoted to the analysis of the findings mentioned in the previous chapter and the effect of attitudes that emerge from CALL and CAW in particular in the EFL context that was described in the current study. Besides a list of actual results, this chapter highlights the most important and notable findings of the study while comparing them with previous literature. The chapter explains the importance of the results in relation to the research objectives and validates them with prior literature on CALL among non-English speaking learners. This chapter, in many ways, recommends the factors which may have caused an increase in motivation and positive attitudes among EFL learners from the Saudi universities where the study was carried out. Therefore, this discussion encompasses the research questions and its examination for validity and reliability in modern literature on CAW. In summary, EFL learners exhibited distinctive features of positive attitude while using modes of computer software for practicing English and indicated an increase in frequency of usage of computers for meeting their learning needs. This chapter deals with four sections: Discussions of the Findings, Conclusion, Study Implications and Recommendations, and Further Studies.

Discussions of the Findings

Discussion of the Results Related to Research Question One. The first research question was aimed at assessing the general attitude of EFL learners towards CAW. In this respect, the questionnaire received positive responses from learners on using computers instead of handwritten notes for submission in their English learning classrooms. The learners were

<center>67</center>

positively influenced by English practice on computer software available at their university allowing them to write more and correct their mistakes before submission, thus saving instructor effort and developing self-assisted learning style among ESL learners. The findings of this study coincide with Ghandoura (2012) as it reported positive student responses during an English composition class using computer aided writing tools and software. Similarly, it is discovered that students did not view *MS Word* or any other writing software as a replacement of traditional learning methods but an addition to their learning skillset. This view could arise from the increasing adoption of technologies in the campus (e.g., computer labs) which encourages students to start using CAW tools from an early age and develop proficiency over time. As research by Abuseileek (2012) and Al-Mansour & Al-Shorman (2012) pointed out the multifaceted benefits of CALL in classroom instructions and improving communication skills, CAW has been found to have a promising future in assisting learner's English writing practice during a language learning course.

Apart from an increasing tenacity to adopt computers, learners benefitted from acquiring English writing skillset while computers provided learners with the underlying impetus to write more with accuracy and spend more time on assignments which increased English exposure time for a learner. Since students were able to correct their mistakes while practicing or completing their writing assignments, the repetitive nature of correction could have embedded the right word or spelling in learners and the context in which a word is used in the language. As they gained more confidence with writing, they reported with a positive response on continuing use of CAW tools in future. Therefore, in reference to the first research question of this study that is "What is the general attitude of EFL learners toward CAW?", it can be said that students responded with a positive attitude towards computer assisted writing.

Discussion of the Results Related to Research Question Two. Expressing a positive attitude towards using CAW for writing in English during classroom and home assignments was an important finding of this study. Felix (2003) pointed out that language learning was affected by the learner's attitudes and motivation. Since learners already responded with a positive influence of CAW from a utility point of view, CAW for EFL in particular strengthens this view through the findings of this study. As Verma (2005) noted that positive attitudes facilitate learning, the findings of this study extend and increase the care taken by learners to write better, revise their work and ensure correct grammar and spelling before submission. The results showed that the highest percentage of learners were in favor of the continued use of MS Word for writing since they could always write on other software or computer notepad with limited features.

On the second qualitative open-ended question, "After spending some time using computer for writing, explain how your writing has been influenced. What areas of your writing have been affected? Explain if possible," the sampling learners responded with key areas that helped them distinguish practicing English writing on computer as an additional tool over classroom learning. Since writing is an intensive individual activity requiring minimal intervention from an instructor, learners reported that they could work by themselves on the computer software in finding language errors and pointed out that they practiced error correction independently. In some ways, the use of computers affected attitudes among learners as Participant #104 answered that; "Writing by computer makes me more serious about practicing my writing and guides me to correct my mistakes," and Participant #109 wrote that; "… made me focus on finding what I needed to correct before submitting my papers." In a similar vein, another respondent, Participant #112, reported that "It can help you to know your errors, whether they are grammatical errors, punctuation errors, or wording errors." Therefore, it would be

accurate to state that CAW in English language benefits learners by showing errors while typing

which (a) helps learners improve their accuracy in writing and (b) points out English spelling

errors and sentence construction errors which a learner can correct by itself or seek instructor

help, thus saving valuable time of instructor and learner. As Bulut & AbuSeileek (2007) reported

that learners could self-correct their spelling, grammar and style errors, the results of this study

fall in agreement with their findings. In more recent literature, Musk (2015) stated based on the

results that "Almost 80% of spelling corrections are carried out by the pupil typing with no

intervention from the other pupil or the spellchecker" (p. 36). However, the author did

recommend that the input of an English instructor and peers is invaluable in CALL research.

Likewise, Shintani (2015) reported that synchronous and asynchronous corrective feedback

among English learners in a University in Japan was beneficial through both feedback

approaches which in some respects was similar to oral feedback. So as Participant #119 wrote in

response to this qualitative question that "it gets me to be more careful with spelling and suggests

options to replace words with new right ones. It makes you depend on yourself." The self-

correction approach complements synchronous corrective feedback by instructor, thus reducing

time and effort of the learner and instructor. In summary to open ended Question 1, i.e. "In 3 to 4

sentences, can you describe what you think of using the computer (e.g., *MS Word*) for English

writing?", participants have responded with positive views on the use of CAW software for EFL

learning needs. Apart from the editorial, grammatical and self-correction benefits, learners were

motivated to engage in learning English through computers over classroom learning which made

them careful about their writing.

Discussion of the Results Related to Research Question Three. The objective of this

research question was to elicit quantitative and qualitative responses from the sample EFL

learners on the effect of their attitudes in EFL context. In general, participants reported (a) continued use of CAW (b) mechanics and interactions-based factors and (c) care and awareness while practicing English typing as the favorable areas which were positively impacted from changes in attitudes towards CAW use in EFL medium. The feeling of technology assisting learners in reaching their English learning objectives impacts their attitudes in using CAW software to prolong its benefits. As learners reported that they prefer writing via computers over traditional writing, it is one of the causes which are linked to its continued use in classroom, mobile and offline settings as reported by Chen, Carger and Smith (2017) and Lane (2018) among ESL learners. Based on the results of the learners' responses related to research question three, it can be said that learners have positive influence on using computers to write in English which encouraged them to spend more time working on assignments than if they were to write the same text in handwritten notes. Also, they were interested in studying another course where computers could be used for writing purposes. Although, such factors did not have a significant impact, nevertheless it was deemed as a learning advantage.

The participants felt that interacting with a computer during their writing practice was a benefit extended through the mechanics of typing and making full use of hardware and software components available to learners. In terms of specific statements, participants responded favorably towards the use of computers as they could easily replace words with words that have the same meaning. Learners could change their writing approach as they started giving greater attention to word selection and ease of revising the written text. Participants did not provide a clear answer while comparing traditional English writing classes with the computer lab practice sessions. Some reasons of this could be to allow learners acquire handwritten practice by taking

notes alongside English typing and keyboard rhythm practice to supplement their English learning processes.

The level of interaction among participants was reported higher when they practiced English typing in a computer lab since it could help them to interact and work together. As CAW enabled learners to make mistakes, learn and correct them with ease, it created a healthy and interactive learning environment. Learners highly recommended the use of computer writing software such as *MS Word* for meeting their English writing requirements. Besides, the computer writing class was a benefit for learners since they could interact with each other and work together on learning materials provided by the instructor. However, *MS Word* writing practice enabled them to find and correct their mistakes before instructor could provide corrective feedback. In general, students became self-aware of their mistakes and tried to improve their English reading and writing skills through computer-lab exercises with self and peer-led interactions before showing the final results to instructor. This behavior has contributed in many ways to increasing learning motivation and supporting self-learning over instructor-led learning style.

Among the qualitative results of the study, participants enjoyed the process of writing on computers. According to three participants' responses; #122, #126, and #131, there was motivational desire to continue observing the improvements of areas of learning EFL while writing their assignments via using CAW. Participant #131 responded that "I need to continue to see my areas of improvements when I get to the next level with longer essays to write. It makes me enjoy writing, and that helps me to practice a lot. It gives me different choices of words to mean what I want to write." Therefore, greater writing practice leads to better learning and proficiency in acquiring the skill. The qualitative results from this study showed that participants

held a favorable perception towards the use of CAW in English writing which changed their attitudes in a way it made the learning process simpler and enjoyable. Alharbi (2018) investigated the usefulness of various CALL based materials and tools which could be employed to teach and alter classroom learning practices. His study demonstrated that teachers and students found CALL to help them and motivate them to learn ESL/EFL writing while it also improved their knowledge and capability in writing in English with less effort. This study has shown that the method of teaching how to write or type on a keyboard enriches learner's information building skill and plays a vital role in developing their academic skills. While Alharbi (2018) recommended learners to use computers for learning English writing, this study examined the effect of EFL learners' attitudes toward using CAW on spelling and grammar accuracy which is discussed in the next section.

Discussion of the Results Related to Research Question Four. The ability to correct errors and rewrite complete sentences with better meaning was reported to have a significant impact on the participants' written works. The learner's meta-cognition skills are enhanced as they are able to review their work as it progresses and have the ability to make changes as and when needed. Using *MS Word* for typing practice and learning English through activities allows learners to learn and at the same time become aware of their errors. Such response received high favorability in line with what Heift (2001) and Ng et al. (2014) who discussed on error correction through intelligent language tutoring systems. Making changes in English writing practice is comparatively much easier than on paper as reported by a large number of participants. This view is in line with what several other researchers, such as AbuSeileek and Abualsha'r (2014), reported in their study. However, writing practice and typing in English must be complemented with each other to enhance L2 learning experience.

Although writing on computer is relatively less stressful as most participants felt, it does present the autocorrect feature which can impede other students' writing practice in general. Learners will not be able to fully practice appropriate keywords if the software autocorrects it for them. As Murphy (1997) and Roed (2003) reviewed and described CALL environment as stress-free, it had a positive impact on learner's ability to correct and edit spellings and grammar with accuracy. However, working on grammar, spelling and organization while preparing text on CAW software can take some time to perfect and become habituated. The ability to correct mistakes which occur during learning with the help of software has developed a positive attitude among learners and given them motivation to pursue English language learning in terms of writing which is one of the most difficult skills to learn. Learner outcomes from the study were positive since they made fewer errors while trying to correct their own mistakes through self-revision and peer-based feedback and tried to give their best effort before submission to instructors. Therefore, the effect of their attitudes towards CAW on their ability to correct mistakes with self and friends' support created a largely positive effect on learners.

In the qualitative responses, participants replied with their learning becoming easier due to the use of CALL techniques. For example, Participant #117 stated that "I feel that now I care about my spelling mistakes and know what to correct. It checks my bad grammar and makes me want to learn about grammar so it's easy." CAW allows learners to becoming aware of their mistakes and let them correct while writing on *MS Word* or any other CAW application. Also, most of the participants reverberated on a similar line of thought. Another participant, Participant #120 mentioned that "speed, accuracy, punctuation. Computer helps save time and makes me depend on myself. I've been able to find synonyms easily through online dictionary." So, the use of CAW can be associated with increasing speed and accuracy of writing which saves

considerable time and let learners to be self-dependent to a greater extent. Some participants, however, reported views that were not aligned with the general line of this thought. For example, Participants #132 responded that "Computer corrects my spelling, but that doesn't teach me to write with correct spelling. I have to use pen and paper to test my spelling." Similarly, Participant #108 stated that "Using computer for writing helps me to organize my writing. On the other hand, my spelling hasn't developed much because of the feature that auto-corrects my errors." Therefore, spelling is an area which learners can work upon by writing using pen and paper, turn off auto-correct feature from the CAW software, or use a different application which enables writing in plaintext. It is essential to state that CAW does not work as a replacement of an instructor. Classroom instructions are invaluable for students to improve their grammar and work on sentence construction. In this regard, Participant #146 said that, "I rely on the grammar class and its teacher to improve my grammar. I don't' think I should depend on computer in learning correct spelling." In summary, participants found CAW software such as *MS word* a useful tool for practicing English writing. They could feel improvements in this writing and typing skills to some extent. Nearly all of the participants had a positive view about using computers for English writing. EFL learners have gained a valuable skill partly through motivation from using CAW in their L2 learning.

Discussion of the Results Related to Research Question Five. The last question which the study reviewed was the effect of the attitudes of learners towards using CAW in improving their vocabulary. The results indicate that learners were motivated to write more and become careful about what words they select for their writing. This phenomenon combined with ease of making corrections and feeling comfortable in replacing words that may lead to better meaning of a sentence from the learner's perspective was observed. As the participants did respond

affirmatively on writing more and using editing feature to review and make changes wherever

necessary, it can be implied that learners may have improved their vocabulary through this

activity. The quantitative results of this study fall in accordance with Wang, Teng and Chen's

(2015) findings and research published by Al-Olimat and AbuSeileek (2015) on computer-

mediated corrective feedback for L2 learners.

In the qualitative response, participants felt the benefits of CAW as a tool to learn and

develop their vocabulary which affected their attitudes and reflected a positive outlook towards

computer-mediated learning and writing. According to Participant #134, "I learned lots of

vocabulary. I depend on myself in correcting my spelling. I know where I capitalize letters. It

improves my spelling and helps me re-organize some sentences." The dictionary feature in *MS*

Word and also available in other CAW software has benefits for learners by influencing their

grammar, spelling and vocabulary. In responding to the second open-ended question, Participant

114 stated that, "Grammar, spelling, more vocabulary because of the auto-correction feature. It

helps me to choose some words when I write. That makes a good writing structure." A part of

Participant #124's quote goes as, "I was able to find synonyms and my writing looks organized

now!" Here, learners of writing had been influenced by auto-correct feature so that they could

focus on mistakes which needed their attention and ignored the ones they have already become

quite familiar. According to Participant #143, "My spelling mistakes has been reduced since I

started using the computer in my writing. My writing also becomes more organized because the

computer usually provides more word choices which help you deliver your ideas easily. That has

improved my vocabulary and my topics now look clear." Therefore, some features are

automatically provided by CAW in the form of word prompts when a learner makes a mistake in

typing while learning the correct spelling. This allows a learner to either correct their spelling or

look up a similar word with correct tense, form, and meaning to replace the existing word. Alternatively, learners could also launch a dictionary which provides them with the meaning of a word they want to replace. In a different view, Participant #136 reported that, "I should write without the help of computer. My writing should be reflective to what the grammar and vocabulary I've mastered." To some extent, this view is a reflection of a learner since it represents the participants who believe that they learn from the mistakes they make when they handwrite their writing assignments or do their test on paper which would indicate their actual level of EFL writing. In summary, EFL learners were able to develop a positive attitude due to CAW which provided them the opportunity to correct their mistakes and learn and improve their vocabulary without needing significant levels of instructor feedback. However, learners with higher motivational levels would find more opportunities to experiment new vocabulary, thus, benefitting the most while also making mistakes than compared with learners that stick to vocabulary taught by the instructor.

Conclusion

The study sought to understand EFL learners' attitude towards the use of CAW in learning and established that students have an overall positive attitude towards its use. Based on the findings of the study, it was deduced that the general attitudes of EFL learners was beneficial towards the use of CAW. Learners of EFL viewed CAW as a tool which could enhance their writing abilities without needing intervention from the instructor or peers. Learners were pleased to use computer software as learning and guiding mechanism which reduced the need for feedback.

The study showed that students have benefited from CAW by taking into consideration their subjective feelings and reactions towards the use of this tool. This finding is quite aligned

with a research gap that was highlighted by, among others, Ghandoura (2012), Zaini and

Mazdayasna (2015), and Ghari et al. (2015), on the most effective technological teaching

initiatives and resources capable of enhancing EFL student writing outcomes. The present study

acknowledges the contribution that CAW applications (e. g., *MS* Word) makes in as far as

improving EFL students' writing outcomes, as it does objectively interrogate whether student

preference for this approach is largely a factor of technology predilection that characterizes

contemporary learner behavior and the actual benefits drawn from CAW.

Based on our quantitative and qualitative analysis results, more than three-quarters (80%)

of the study participants showed a positive attitude towards the use of CAW, and acknowledged

the idea that computers are integral to helping write better and enhance their English vocabulary.

Also, given that 82 % of the respondents disagreed over finding it difficult to learn to use the

computer for writing in English, and 79 % agreed that using the computer assisted them when

practicing writing in English, it is evident that CAW has extensive benefits on writing outcomes

among EFL students. Additionally, by investigating the effects of attitude on using CAW to learn

EFL, the study has objectively showed the existence of a direct association between a student's

positive attitude towards CAW and the related positive effects, such as enhanced interaction and

collaboration.

On whether students appreciate the use of CAW programs in writing, the study

established that 80 percent of the sampled participants would highly recommend the tool to other

learners for writing purposes. This shows that students appreciate CAW as an integral tool in

their learning discourse, one that gives them an edge not only in terms of learning about writing,

but also in the use of technology in contemporary learning environments. Also, the students'

willingness to recommend CAW translates to their approval of continued use, which potentially

entrenches its futuristic objectives. A number of studies have always focused on how to make learning as student-centered as possible, and the inclusion of technology, from the perspective of these polled students, seem to tick all the right boxes, from improved engagement to enhanced learning outcomes.

CAW also emerged as a motivator towards increased writing engagement. About three quarters of the students polled in this study noted that using CAW prompted them to write more than they would otherwise have, as demonstrated by the fact that 67% of the respondents either 'agreed' or 'strongly agreed' with the statement "*Computer encourages me to write more*". Given this finding, it is possible that students observation is largely a factor of CAW's ability to improve their spelling and grammar use in writing, enhance their awareness to grammar and syntax mistakes, and improved fluency, as demonstrated by their agreement that CAW use endears them to more writing, as well as by their willingness to take more courses that involve the use of computers. Despite this majority concurrence, a few students noted that CAW does not enhance their writing creativity as does pen and paper. It is for this reason that while we encourage the use of CAW in classroom setting, teachers should be keen to identify students for which this approach is inhibitive and not supportive of successful learning. For such, the teacher should give latitude for use of the preferred mode of writing so that no single student is left behind.

Judging by the unanimous acknowledgement among EFL students that CAW is integral to their learning process, there is no doubt that the introduction of CAW has changed not only student attitudes towards writing, but also how they approach writing, and by extension, the entire learning process. As broached earlier, student attitude towards CAW remains positive, which in essence has been crucial to its overall interpretation as both necessary and integral to

the development of their writing capacities. It is inarguable that since EFL students who use CAW can easily correct their writing mistakes and remain engaged in the writing process for longer, all these benefits are attributable to a shift in attitude towards writing conferred by CAW.

The study has successfully shown that the positive attitude of learners towards CAW in general is a principal learning component in the contemporary classroom as it motivates students to write more, thereby sharpening both their written and spoken English. Concerning the effects of their attitudes on writing, the study established that most students found computers useful to their learning process, as shown by their commitment to continue using computers in their English learning, with a further 80% relaying their willingness to recommend *MS Word*, as an example of CAW applications, to other students for English learning. Although CAW provided a significant motivational support for learners as reflected in their qualitative and quantitative responses, it was hardly viewed as a substitute for instructor replacement.

Learners found that availability of learning tools, such as CAW programs, had a positive impact on their learning goals and thus motivated them to put in greater effort in acquiring English writing skills. Most learners had felt or experienced a shift in their outlook due to the ability to correct mistakes by self and provide as accurate text as possible for instructor-led feedback. The present study also sought to understand students' perception of the effects of their attitude towards their ability to correct or edit spelling and grammar errors and established that most associate CAW with high accuracy. The study established that such accuracy has profound impacts on their attitudes to continue using CAW for writing.

Finally, the study assessed the students' attitudes towards their ability to write fluently and showed that CAW proved instrumental in encouraging them to write more and to use even more vocabulary. Learners cited how CAW makes it easy to correct errors in writing and

expanded their vocabulary by displaying such errors. Providing vocabulary inputs in CAW software gives learners the ability to use words which they like without hindrance. Sometimes, learners think they can use a word but are unsure of its meaning. So, inbuilt dictionary allows them to understand the meaning of the word or take instructor help to introduce words new to them and, thus, improve their overall vocabulary. In general, vocabulary was enhanced through the use of *MS Word* among FL learners. The study found that such positive attitudes harbor the potential to bring about more practice, and hence improved fluency.

Study Implications and Recommendations

In terms of the significant findings of the present study, the following recommendations for pedagogic implications and learning policies are advised to be followed or implemented which may assist in developing EFL learners' English language in general and their writing ability in particular by using CALL programs and techniques.

Using any up-to-date error checking computer software programs as study instruments enables researchers to investigate and educators to observe L2/FL learners' access to the most recent technical beneficial linguistic features in improving their writing performance and their processes and styles of revision. Their attitudes toward such accessible linguistic features should be of integral area of research as well. They should examine whether such programs are helpful in providing feedback on error types and linguistic rules.

CALL techniques and programs may be used more in EFL teaching in Saudi Arabia, especially in the areas of writing skills. Saudi educational establishments are advised to include CALL facilities in their educational programs. English language teaching staff in Saudi institutions can be trained to use such facilities as a normal part of their work.

With the increasing use of technology in Saudi education, it is suggested that teachers be instructed in the design and use of CALL programs and multimedia labs. Also, students should be encouraged to regard the computer as a normal part of their education rather than something out of the ordinary. Appropriate exercises that are commensurate with the level of students taught by CAW must be carefully selected, so our expectations of benefits may be achieved.

Further Studies

Based on the findings of the study, it was deduced that the general attitudes of EFL learners towards the use of CAW benefited their writing performance, their writing accuracy, and their writing fluency. Such a general deduction, which is limited to the context type from which the subject sampling was taken, can be used to inform future research or empirical studies on the CALL uses and techniques among ESL/EFL students and any possible correlating attitudinal aspects. In addition to what the present study has concluded, researchers should explore the opportunities in which CAW can enhance teaching and learning EFL activities and skills. A further step may include the comparison of CALL classes and traditional classes for specific language skills and even for specific activities to identify what works better in which environment.

Further studies should be conducted to find out about any possible correlating learning attitudinal aspects when CALL, e.g., CAW applications, is implemented. Questions are to be raised to see if the use of CAW creates situations that motivate learners to improve their writing. Further research needs to be carried out to know whether EFL learners using CAW will be motivated enough to depend on themselves or interact and work together. Similar studies can also be designed to investigate whether the prevailing ESL/EFL learners' attitudes toward CAW

lead to different results if they are correlated with different levels of their English proficiency or achievements.

Since this study did not explore gender disparities within the context of EFL learner attitudes towards CAW, future studies can examine this aspect as gender always plays a huge role in determining technology use among students. Findings on such may have extensive impacts on how educators design new teaching techniques and activities to meet the unique needs of both EFL and ESL learners. Also, studies may seek to examine student attitudes in relation to the different aspects of technology use in the classroom setting. Among the aspects to focus on include an extension on affective feelings explored in the current study, perceived usefulness and control of the computers, as well as behavioral intentions.

Focusing on the attitudes of EFL students on the use of CAW for learning writing, the present study did not factor in the subjective contributions and impacts that teacher attitudes towards CAW may have on long-term results. As such, future studies will need to assess both learner and teacher attitudes towards CAW implementation in different institutional settings. Other attitude-based studies are advised to be conducted to prove that CAW is instrumental in seeking to understand the students' and teachers' perceptions of the effects of their attitude toward their revision process of writing when using an associate CAW with high accuracy. More studies of this type can also assess the language learners' readiness and willingness to improve their composition skills and writing fluency. In addition, more studies should be conducted in other educational settings with different student populations in order to get additional information about the effectiveness of learning attitudes toward CALL on EFL learners' skills and performance. The results of this study may be relevant to researchers in other language skills as well as other fields of research.

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APPENDIX A

IRB Approval #4189

Hello,

The University of Memphis Institutional Review Board, FWA00006815, has reviewed and approved your submission in accordance with all applicable statuses and regulations as well as ethical principles.

PI NAME: Ahmed Almenei
CO-PI:
PROJECT TITLE: An Investigation of ESL Learners' Attitude towards Computer Assisted Writing
FACULTY ADVISOR NAME (if applicable): Emily Thrush
IRB ID: #4189
APPROVAL DATE: 7/15/2016
EXPIRATION DATE: 7/15/2017
LEVEL OF REVIEW: Expedited
Please Note: Modifications do not extend the expiration of the original approval
Approval of this project is given with the following obligations:
1. If this IRB approval has an expiration date, an approved renewal must be in effect to continue the project prior to that date. If approval is not obtained, the human consent form(s) and recruiting material(s) are no longer valid and any research activities involving human subjects must stop.
2. When the project is finished or terminated, a completion form must be completed and sent to the board.
3. No change may be made in the approved protocol without prior board approval, whether the approved protocol was reviewed at the Exempt, Expedited or Full Board level.
4. Exempt approval are considered to have no expiration date and no further review is necessary unless the protocol needs modification.

Approval of this project is given with the following special obligations:

Thank you,
James P. Whelan, Ph.D.
Institutional Review Board Chair
The University of Memphis.
Note: Review outcomes will be communicated to the email address on file. This email should be considered an official communication from the UM IRB.

APPENDIX B

Informed Consent Form

Investigating Saudi EFL Learners' Attitude towards Computer-assisted Writing (CAW) on Writing

IRB Report# 12747782

Dear student,

You are being invited to participate in this research study entitled *Investigating Saudi EFL Learners' Attitude towards Computer-assisted Writing (CAW) on* Writing. Your volunteer participation in this research study will enable will help the researcher to successfully complete his research on the above-cited topic. I am Ahmed Almenei, a PhD student at the University of Memphis, Department of English, being guided in this research by Professor. Emily Thrush, Department of English at the University of Memphis. There may be other people on the research team assisting at different times during the study.

The purpose of this study is to explore and discuss Saudi learners' attitude towards using word processor while or for writing English assignments enrolled in Level 1 in Department of English, College of Languages and Translation, (KSU), Saudi Arabia. Also, the study will investigate what effects their attitudes have on their English as Foreign Language (EFL) writing.

Research Procedure

You will fill out *Likert* questionnaire that includes an 'information sheet' component. The questionnaire may take between 30 to 45 minutes to be completed. In addition to the questionnaires, you will respond to open-ended questions that may take between 20-35 minutes. The information sheet asks about your age, scores on English proficiency tests, preferred majors, taking English classes in private institutions, and amount of writing in English via computer. Some of the participants will be asked to hand out samples of their completed writing tasks or assignments done by the word processor equipped in the lab computers and students' laptops. This participation will be based on your willingness. The questionnaires and open-ended questions sheets will be in a computer-based format. Your sole participation in this research study is based on your voluntary consent as a participant.

Alternatives

You have the alternative to choose not to participate in this research study. You have the right to decide not to participate in this study on any point during any designated research activities or withdraw from the study at any time.

Risks or Discomfort

This research is considered to be minimal risk. That means that the risks associated with this study are the same as what you face every day. There are no known additional risks to those who take part in this study.

Confidentiality

I must keep your study records as confidential as possible. However, certain people may need to see your study records. By law, anyone who looks at your records must keep them completely confidential. The only people who will be allowed to see these records are: the researcher, his advisor, and research committee members. More importantly, I may publish what we learn from this study. If I do so, I will not let anyone know your name. I will not publish anything else that would let people know who you are.

Voluntary Participation / Withdrawal

You should only take part in this study if you want to volunteer. You should not feel that there is any pressure to take part in the study, to please the investigator or your instructor. You are free to participate in this research or withdraw at any time. Your decision to participate or not to participate will not affect your academic status in the university.

Questions and Concerns

For any concerns and queries with regard to this research study, please let me know via malmenei@memphis.edu or contact me at 251-581-6586 or if you have questions about your rights as a research subject, contact Chris Whitehead, Administrator for the Institutional Review Board for the Protection of Human Subjects either via email at irb@memphis.edu or by phone at 901-678-2705 or both. You can also contact Dr. Emily Thrush, the advisor for this study via (901) 678-4215 or ethrush@memphis.edu or both.

Please note that all the data collected for this study will be kept locked under the strict supervision of the researcher in personal locker(s). The soft copies of the data will be kept in password-protected computer and the researcher will not leave his computer or drive(s) unattended.

By signing this form, you acknowledge that you understand the nature of the study, the potential risks to you (if any) as a participant, and the means by which your identity will be kept confidential. Your signature on this form also indicates that you are 18 years old or older, and that you give your permission to voluntarily serve as a participant in the study described.

Thank you for volunteering and I appreciate your efforts for sparing time for this research study.

Sincerely,
Ahmed Almenei
Graduate student, Applied Linguistics
The University of Memphis, TN, USA

_____   _____
Signature of person agreeing to take part in the study   Date
_____   _____
Printed name of person agreeing to take part in the study   Date
 _____   _____
Name of [authorized] person obtaining informed consent   Date

This completed form was submit via email to irb@memphis.edu

APPENDIX C

Pre-study survey

Subjects' Prior Experience of Computer-assisted Writing

Name (Optional):	**Gender**: M F	**Level/Class:**

Dear student, please circle your choice

1. **Do you use computer for doing your writing assignments and homework?**   YES   NO

2. **How often?**
    - A) **Always**; almost everyday
    - B) **Often**
    - C) **Seldom**; once a while
    - D) **Never**

3. **Do you … … …?**
    - a. write your assignments on computer
    - b. type them on paper
    - c. do both

4. **Generally, how often do you write by computer in comparison with writing on paper? Please tick √ your choice.**

Computer	Paper	Computer	Paper	Computer	Paper	Computer	Paper
0 %	100 %	25 %	75 %	50 %	50 %	75 %	25 %
……		……		……		……	

5. **How much information do you have about the Microsoft Word? ***

A) **don't know it at all.**
B) **have heard about it; know little about it.**
C) **know some information.**
D) **I have good information about it.**

6. **Have you used MS Word for writing homework or assignments?**   YES   NO

7. **Have you ever taken a class for an English writing where you use computer for writing assignments/practice?**   YES   NO

---

*   Explanation for the concerned teacher: of choices: A) No knowledge, B) Poor knowledge, C) Some knowledge, and D) reliable knowledge

Table of CAW Programs Used by the Participants

CAW Program	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	13	8.7	8.7	8.7
Blogs, Alison	1	.7	.7	9.3
Bloog	1	.7	.7	10.0
Chat	1	.7	.7	10.7
Discord, Chrome, Steam	1	.7	.7	11.3
Google	1	.7	.7	12.0
Google Docs, Writer P	1	.7	.7	12.7
Google, Instagram	1	.7	.7	13.3
Grammarly	4	2.7	2.7	16.0
Hello Talk	1	.7	.7	16.7
Micworld	1	.7	.7	17.3
MS Office	11	7.3	7.3	24.7
MS Office, Google Docs	1	.7	.7	25.3
MS PowerPoint	4	2.7	2.7	28.0
MS Word	71	47.3	47.3	75.3
MS Word, iWork	1	.7	.7	76.0
MS Word, MS PowerPoint	12	8.0	8.0	84.0
MS Word, Netpad, WritiW	1	.7	.7	84.7
MS Word, Office Apps	1	.7	.7	85.3
MS Word, Pages	1	.7	.7	86.0
MS Word, WhatsApp	1	.7	.7	86.7
Multiple Programs	2	1.3	1.3	88.0
Not Specified	5	3.3	3.3	91.3
Notes	1	.7	.7	92.0
OALD	1	.7	.7	92.7

CAW Program	Frequency	Percent	Valid Percent	Cumulative Percent
Pages, Notes	1	.7	.7	94.0
Twitter	1	.7	.7	94.7
Twitter, Facebook	1	.7	.7	95.3
Twitter/BBM/SnapChat	1	.7	.7	96.0
Twitter/SnapChat	2	1.3	1.3	97.3
Wiki	1	.7	.7	98.0
Wordpad	1	.7	.7	98.7
Writing	1	.7	.7	99.3
Writing Advance	1	.7	.7	100.0
Total	150	100.0		

APPENDIX E

Attitude Questionnaire

Dear Student,

Please respond to the **questionnaire** and answer the **3 simple questions** about your usage of computer for English writing. Thank you for your participation.

Start...

1. **Your Name & University No.**

Name: _____

: _____

2
University Name.

_____

3 **Do you use computers for or while writing in English?**

◯ Yes

◯ No

Skip To: End of Survey If Do you use computers for or while writing in English?   = No

4 **What is the name of the computer program(s) you use for your English writing?**

_____

Q1 I generally prefer using a computer to write in English than handwriting.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q2 I feel that a computer helps me to practise my English writing.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q3 Computer encourages me to write in English more than what I usually write by hand.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q4 I have become a more careful writer after some time of using a computer for English writing.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q5 I think it was difficult to learn how to use the computer for my writings.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q6 I feel that using computer in writing English helps me to be aware of my language errors.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q7 I believe that making changes on my English writings on computer is easier than making the changes on paper.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q8 **Using *MS Word* makes me less worried about writing because I know I can edit my writing easily.**

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q9 **I think that using a computer for a writing class encourages me to spend more time working on my assignments than when I write with a pen.**

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q10 When I use a computer (e.g., *MS Word*), I feel comfortable to replace words with those that have the same meaning.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q11 I have become more careful to choose the right word when I use MS *Word*.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q12 I feel I don't get more attention from the teacher in the computer-writing classes than I do in other non-computer-writing classes.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q13 I think *MS Word* helps me to write more words in computer than on a paper.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q14 I feel that I have learned more about writing from this class than I have from other English writing classes where the computer is not used.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q15 I have noticed that I use the *MS Word* to revise my writing before I submit them.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q16 I have noticed that I pay more attention to grammar when I use *MS Word*.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q17 I have noticed that I pay more attention to spelling when I use *MS Word*.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q18 I pay more attention to organization when I use the computer.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q19 **I don't think that using a computer would help me to become better at writing in English.**

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q20 **I have noticed that the computer-writing class (i.e., a lab) helps students interact and work together.**

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q21 I believe that *MS Word* does not help me to depend on myself in developing writing skills.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q22 I would like to take another writing course where computers are used in.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q23 I would recommend that students learn to use *MS Word* for writing their papers.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Q24 I plan to continue using the computer to write my papers after this class is over.

○ Strongly agree (1)

○ Agree (2)

○ Neither agree nor disagree (3)

○ Disagree (4)

○ Strongly disagree (5)

Open-ended Questions

✳

1. In 3 to 4 sentences, can you describe what you think of using the computer (e.g., *MS Word*) for English writing?

_____

_____

_____

_____

_____

✳

2. After spending some time using computer for writing, explain how your writing has been influenced. What areas of your writing have been affected? Explain if possible.

_____

_____

_____

_____

_____

✳

3. Do you plan to continue using the computer to do your write assignment in English after you complete the course? Why?

_____

_____

_____

_____

_____

APPENDIX G

Distribution of Questionnaire and Open-ended Categories

Category 1: (RQ1 What is the general attitude of Saudi EFL learners toward CAW?)

Q1	I generally prefer using computers for writing English than handwriting them.
Q2	I feel that a computer helps me parctise my English writing.
Q3	The computer encourages me to write more than what I usually write by hand.
Q4	I have become a more careful writer after some time of using computer for English writing.
Q5	I think it was difficult to learn how to use the computer for my writings.
Q9	I think that using a computer for English writing encourages me to spend more time working on my assignments than when I write with a pen.
Q19	I don't think that using computer would help me to become better at writing in English.
Q24	I plan to continue using the computer to write my papers after this class is over.

Category 2: (RQ2 What attitudes do Saudi EFL learners have toward using CAW for learning EFL writing?)

Q4	I have become a more careful writer after some time of using computer for English writing.
Q6	I feel that using computer in writing helps me to be aware of my language errors.
Q7	I believe that making changes on my English writing on computer is easier than making the changes on paper.
Q8	Using computer makes me less worried about writing because I know I can edit my writing easily.
Q9	I think that using a computer for English writing encourages me to spend more time working on my assignments than when I write with a pen.
Q10	When I use a computer, I feel comfortable to replace words with those that have the same meaning.
Q11	I have become more careful to choose the right word when I use MS Word.
Q12	I feel I don't get more attention from the teacher in the computer-writing class than I do in other non-computer-writing classes.
Q13	I think MS Word helps me to write more words in computer than on a paper.
Q14	I feel that I have learned more about writing from this class than I have from other English writing classes where the computer is not used.
Q15	I have noticed that I use the MS Word to revise my writings before I submit them.
Q16	I have noticed that I pay more attention to grammar when I use MS Word.
Q17	I have noticed that I pay more attention to spelling when I use MS Word.
Q18	I have noticed that I pay more attention to organization when I use MS Word.
Q19	I don't think that using computer would help me to become better at writing in English.
Q20	I have noticed that the computer-writing class (a lab) helps students interact and work together.
Q21	I believe that MS Word does not helps me to depend on myself in developing writing skills.
Q22	I would like to take another writing course where computer can be used in.
Q23	I would recommend that students learn to use MS Word for writing their papers in English.
Q24	I plan to continue using the computer to write my papers after this class is over.
Open-ended Q1	In 3 to 4 sentences, can you describe what you think of using the computer (e.g., MS Word) for English writing?

Category 3: (RQ3 What do Saudi EFL learners think about the effects of their attitudes towards using CAW on their writing?)

Q2	I feel that a computer helps me parctise my English writing.
Q4	I have become a more careful writer after some time of using computer for English writing.
Q6	I feel that using computer in writing helps me to be aware of my language errors.
Q8	Using MS Word makes me less worried about writing because I know I can edit my writing easily.
Q9	I think that using a computer for English writing encourages me to spend more time working on my assignments than when I write with a pen.
Q10	When I use a computer, I feel comfortable to replace words with those that have the same meaning.
Q11	I have become more careful to choose the right word when I use MS Word.
Q13	I think MS Word helps me to write more words in computer than on a paper.
Q14	I feel that I have learned more about writing from this class than I have from other English writing classes where the computer is not used.
Q15	I have noticed that I use the MS Word to revise my writings before I submit them.
Q16	I have noticed that I pay more attention to grammar when I use MS Word.
Q17	I have noticed that I pay more attention to spelling when I use MS Word.
Q20	I have noticed that the computer-writing class (i.e., a lab) helps students interact and work together.
Q21	I believe that MS Word does not helps me to depend on myself in developing writing skills.
Q22	I would like to take another writing course where computer can be used in.
Q23	I would recommend that students learn to use MS Word for writing their papers in English.
Q24	I plan to continue using the computer to write my papers after this class is over.
Open-ended Q1	In 3 to 4 sentences, can you describe what you think of using the computer (e.g., MS Word) for English writing?
Open-ended Q2	After spending some time using computer for writing, explain how your writing has been influenced. What areas of your writing have been affected? Explain if possible.
Open-ended Q3	Do you plan to continue using the computer to do your write assignment in English after you complete the course? Why?

Category 4: (RQ4 What do Saudi EFL learners think about the effects of their attitudes towards using CAW on their ability to correct/edit spelling and grammar errors 'accuracy'?)

Q4	I have become a more careful writer after some time of using computer for English writing.
Q6	I feel that using computer in writing helps me to be aware of my language errors.
Q7	I believe that making changes on my English writing on computer is easier than making the changes on paper.
Q8	Using MS Word makes me less worried about writing because I know I can edit my writing easily.
Q15	I have noticed that I use the MS Word to revise my writings before I submit them.
Q16	I have noticed that I pay more attention to grammar when I use MS Word.
Q17	I have noticed that I pay more attention to spelling when I use MS Word.
Q18	I have noticed that I pay more attention to organization when I use MS Word.
Open-ended Q1	In 3 to 4 sentences, can you describe what you think of using the computer (e.g., MS Word) for English writing?
Open-ended Q2	After spending some time using computer for writing, explain how your writing has been influenced. What areas of your writing have been affected? Explain if possible.
Open-ended Q3	Do you plan to continue using the computer to do your write assignment in English after you complete the course? Why?

Category 5: (RQ5 What do Saudi EFL learners think about the effects of their attitudes towards using CAW on their ability to use/write more vocabulary 'fluency'?)

Q3	The computer encourages me to write more than what I usually write by hand.
Q4	I have become a more careful writer after some time of using computer for English writing.
Q7	I believe that making changes on my English writing on computer is easier than making the changes on paper.
Q10	When I use a computer, I feel comfortable to replace words with those that have the same meaning.
Q11	I have become more careful to choose the right word when I use MS Word.
Q13	I think MS Word helps me to write more words in computer than on a paper.
Open-ended Q1	In 3 to 4 sentences, can you describe what you think of using the computer (e.g., MS Word) for English writing?
Open-ended Q2	After spending some time using computer for writing, explain how your writing has been influenced. What areas of your writing have been affected? Explain if possible.
Open-ended Q3	Do you plan to continue using the computer to do your write assignment in English after you complete the course? Why?

APPENDIX H

Samples of Qualitative Responses Taken from Qualtrics

1. In 3 to 4 sentences, can you describe what you think of using the computer (e.g., MS Word) for English writing?

using computer help a lot because it always corrects my mistake. also, i can edit any word easily. ms word also help me to know grammar mistake.

2. After spending some time using computer for writing, explain how your writing has been influenced. What areas of your writing have been affected? Explain if possible.

i feel that ms word improved my grammar skills because it always corrects my mistake. also, it improved my vocabulary because i could easily look for synonyms throw online dictionary.

3. Do you plan to continue using the computer to do your write assignment in English after you complete the course? Why?

yes. because it a lot easier than paper work and faster. also when you make mistake on paper you have to write the hole thing again. computer also allow you to send the assignment throw email or lms ksu.

---

1. In 3 to 4 sentences, can you describe what you think of using the computer (e.g., MS Word) for English writing?

it's more fun than writing on a paper, makes me more focused than hen im in Non-computer classes, more helpful in spelling, also it makes the student doing something all the time instead of just listening.

2. After spending some time using computer for writing, explain how your writing has been influenced. What areas of your writing have been affected? Explain if possible.

Didn't notice any improvement. May be because the correct editing in the computer is affecting my writing skill.

3. Do you plan to continue using the computer to do your write assignment in English after you complete the course? Why?

yes, its easier and faster and more efficient, you can check your spelling faster that when writing on a paper.

---

1. In 3 to 4 sentences, can you describe what you think of using the computer (e.g., MS Word) for English writing?

Using MS Word didn't help me to improve my writing. It makes me more less carful about the spelling. I prefer handwriting because I pay more attention to the spelling.

2. After spending some time using computer for writing, explain how your writing has been influenced. What areas of your writing have been affected? Explain if possible.

Didn't notice any improvement. May be because the correct editing in the computer is affecting my writing skill.

3. Do you plan to continue using the computer to do your write assignment in English after you complete the course? Why?

Sometimes you forced. So I can't answer with yes or not! It depends on the work that I have. But I prefer using the handwriting so I can focus on the spelling and using new words.

1. In 3 to 4 sentences, can you describe what you think of using the computer (e.g., MS Word) for English writing?

it makes me focus more about the subject rather than focusing about how good my handwriting is. looking back at my essays I believe the ones I used the computer to write are more clear and organized. I feel like using computer or generally adapting technology in education helps both teacher and student to achieve better results.

2. After spending some time using computer for writing, explain how your writing has been influenced. What areas of your writing have been affected? Explain if possible.

After spending some time using computer for writing my spelling become better, I was able to find synonyms and my writing looks organized now.

3. Do you plan to continue using the computer to do your write assignment in English after you complete the course? Why?

of course . because its not only faster its professional in a way that I can send my assignment to my teacher or my friends via email or black board at any time any place.

---

1. In 3 to 4 sentences, can you describe what you think of using the computer (e.g., MS Word) for English writing?

I like to use a computer so I can edit my writing. It saves time. It helps me find out about my errors and correct them. MS Word is a good tool to practice writing.

2. After spending some time using computer for writing, explain how your writing has been influenced. What areas of your writing have been affected? Explain if possible.

After spending some time using computer for writing, I learned a lot from grammar mistakes. I developed my writing skills.I learned new vocabulary.

3. Do you plan to continue using the computer to do your write assignment in English after you complete the course? Why?

Yes, I plan to continue using the computer to do my writing assignment in English after I complete the course.

---

1. In 3 to 4 sentences, can you describe what you think of using the computer (e.g., MS Word) for English writing?

It makes my English better and easier to learn how i can writing in English it is make my English better and easier to learn how i can writing in English.

2. After spending some time using computer for writing, explain how your writing has been influenced. What areas of your writing have been affected? Explain if possible.

it is make my English better and easier to learn how i can writing in English it is make my English better and easier to learn how i can writing in English.

3. Do you plan to continue using the computer to do your write assignment in English after you complete the course? Why?

Yes, I do . Because it's more organized ,clearer and guide me to avoid the mistakes (grammar mistake ,or spelling mistakes) and at the same it improves my writing.

31. In 3 to 4 sentences, can you describe what you think of using the computer (e.g., MS Word) for English writing?

Ms word gives us a lot of benefits such as, change the words that are wrong. We can write fast than pen. In my opinion, I think it is more interesting than write with hands.

2. After spending some time using computer for writing, explain how your writing has been influenced. What areas of your writing have been affected Explain if possible.
-- *i have got new ideas about how to write. new words with the same meaning.*

3. Do you plan to continue using the computer to do your write assignment in English after you complete the course? Why?

Sure thing, because it will be without mistakes i think, and better than a hand writing. i would use it even without doing tha assignment.

---

1. In 3 to 4 sentences, can you describe what you think of using the computer (e.g., MS Word) for English writing?

much easier than before . i can submit easily . readable and understandable by the teacher arranged and clear . instead of pulling the paper when i do a mistake in the regular papers work i can edit it anytime i want

2. After spending some time using computer for writing, explain how your writing has been influenced. What areas of your writing have been affected? Explain if possible.

I've been more careful to my homeworks . and enjoying doing it to be honest . some of my writing assignments i was happy and enjoying writing memories .

3. Do you plan to continue using the computer to do your write assignment in English after you complete the course? Why?

yes i do , like i said before it is much easier . because it limit my time to do them and arranging my studying program .

---

1. In 3 to 4 sentences, can you describe what you think of using the computer (e.g., MS Word) for English writing?

I think it would be a great choice to students who have bad or unreadable handwriting! and a good choice to write without thinking if there's any error in grammar or spelling, because MS Word will underline that error to you ……………

2. After spending some time using computer for writing, explain how your writing has been influenced. What areas of your writing have been affected? Explain if possible.

laziness to check my grammar or spelling errors if I use handwriting. and unable to identify some of my errors……

3. Do you plan to continue using the computer to do your write assignment in English after you complete the course? Why?

depends on the teacher, if she asked us to do that so or not. ....