

## Table of Contents

Preface	iv
Abstract	v
Chapter One: Introduction	1
Chapter Two: Vygotskian SCT Perspectives in CALL	5
2.1 Vygotskian SCT Perspective	5
2.2 Mediation through Interpersonal and Intrapersonal Processes	6
2.3 CALL and the Use of Tools	9
2.4 Self-Regulated Language Learning with the Computer	10
Chapter Three: Automated Writing Evaluation System (AWE)	14
3.1 Recent Interest in Computer-Supported Writing Instruction	14
3.2 Types of AWE	15
3.3 How do AWEs Work?	15
3.3.1 <i>Criterion</i> and <i>MYAccess</i>	16
3.3.2 Feedback	17
3.3.2.1 The scoring scales	17
3.3.2.2 The wording of feedback	21
3.3.2.3 The timing of feedback	23
3.3.2.4 Group feedback	26
3.4 Conclusion	26
Chapter Four: Study One: AWE as the Sole Mediation	28
4.1 Methods	28
4.2 The Findings	30
4.2.1 How is the Opportunity to Use the AWE Program Helpful?	31
4.2.2 How is the AWE Feedback System Helpful in Developing Writing Skills?	34
4.2.3 What Kind of Instructional Solutions May be Necessary to Help Learners Develop Writing Proficiency with the AWE Program?	38
4.3 More Questions to Investigate	39
Chapter Five: Designing a Writing Course With SCT Touch	41
5.1 Teaching Approaches to EFL Writing	41
5.2 Writing Instruction with SCT Touch	44
5.3 The Writing Skills Development Cycle	45

5.4 The Course Design	46
Chapter Six: Study Two: Mediated Learning With and Around AWE	50
6.1 The Context	50
6.2 The Two Learners Focused in this Study	52
6.3 Data Sources	53
6.4 Data Analysis	54
6.5 Results	55
6.5.1 Overview of the Class Members' Performance	55
6.5.2 Classroom Interaction for Conceptual Change	56
6.5.2.1 Analyzing techniques in model essays of the AWE	59
6.5.2.2 Adopting external resources to enrich writing	61
6.5.2.3 Interacting with AWE	62
6.5.2.4 Getting insights from interacting with the instructor	67
6.5.3 Analyzing the Timelines	72
6.5.4 Continuing to Learn	76
6.6 What We Learned from the Two Learners	78
Chapter Seven: Implications and Conclusion	80
7.1 Theoretical Implications	80
7.1.1 The Concept of Mediation in Light of the Two Studies	80
7.1.2 AWE as Mediation in the Intrapyschological Categories	82
7.2 Pedagogical Implications	84
7.2.1 Designing AWE	85
7.2.2 Design for Social Interaction	86
7.3 Conclusion	88
References	89
Appendix	94

## List of Tables and Figures

### Tables

Table 3.1: Scoring scales used by <i>MYAccess</i> and <i>Criterion</i>	19
Table 3.2: Comparison of Feedback Wording Provided by the Two AWEs	22
Table 3.3: Comparison of Feedback Mechanisms by <i>Criterion</i> and <i>MYAccess</i>	24
Table 4.1: Frequency of Use	32
Table 4.2: Responses to the Question “What is Good Writing to You?”	37
Table 5.1: Timetable and Activities for the Course	47
Table 6.1: Student Background Summary	51
Table 6.2: An Overview of All Members’ Activities in class	57
Table 6.4: Anne’s Timeline	73
Table 6.5: Grace’s Timeline	75

### Figures

Figure 2.1: Mediations: Symbolic Tools and Signs	7
Figure 4.1: Frequency of Use	33
Figure 4.2: Responses to the Question “What is Good Writing to You?”	38
Figure 6.3: A Slide Used in the Class	69

## Preface

I seldom teach technical skills, although one of my research foci is computer-mediated EFL education. This is often a surprise to students, because many of the undergraduate (pre-service teachers) or graduate students (including practicing language teachers) come to my CALL courses with the expectation to learn computer skills or to be entertained and have fun. Instead, I invite them to think about language learning theories and critical issues in computer-mediated EFL learning environments. As a researcher, I believe my job is to inquire about how and why technological innovations impact language learning. Technology, like the title of one of my recent publications, is at the background, not the foreground (Chao, 2006).

With this monograph, my goal is also non-technical. It is to understand how Vygotsky's sociocultural and historical theory (SCT) informs the study of EFL development, focusing on self-regulated learning through the mediation of automated writing evaluation (AWE) programs. The philosophical underpinning of this research is interpretivist in nature. The aim is not to offer causal explanations, but to understand the experience by way of "reconstructing the self-understandings of actors engaged in the action" (Schwandt, 2000, p. 191).

I am grateful to the anonymous reviewers as well as Dr. Joy Egbert (Washington State University), Dr. Gloria Y. S. Lo (National Penghu University), Dr. Leah C. Y. Yeh (National Chengchi University), Dr. Vicky H. C. Yeh (National Yunlin University of Science and Technology), Dr. Judy Hsueh-ying Yu (National Chengchi University), Mr. Kenneth Cheng (Manager, *Vantage Learning*), and all the graduate students from my recent courses for their insightful comments on earlier drafts, and to the editors and staff of *Taiwan Journal of TESOL* for their help and support. This is a collaborative work, although I am fully responsible for all the errors or oversights. It's been a fulfilling learning experience, and, with insights from Vygotskian scholars and my own socioculture historical background, the learning will certainly continue.

Chin-chi  
2007

## **Abstract**

The purpose of this monograph is to explore how Vygotsky's socio-cultural-historical theory (SCT) could serve as a useful framework and provide inspiration for research in Computer-Assisted Language Learning (CALL). Of particular interest is how learners work with Automated Writing Evaluation systems (AWE) in developing writing skills. There are seven chapters to this work. The first chapter introduces the purpose and rationales. Chapter Two explains what Vygotskian socio-cultural-historical theory is and why it is a useful framework to address EFL issues. Chapter Three provides an overview of AWE programs, particularly their functions and feedback systems. Chapter Four is a report of a study with 235 undergraduates who tried to develop their writing skills autonomously through the help of AWE only. The result showed a declining interest and use of the system over time, and, most important, learners longed for interacting with peers. With the result in mind, a set of instructional solutions was developed based on SCT perspectives, which are presented in Chapter Six. The solutions were implemented in a writing class for adult EFL learners. A case study on two learners from the class was conducted and reported in Chapter Seven. The learners' experiences were documented and analyzed, using SCT as the theoretical framework to discover salient issues related to the process of learning mediated by AWE and the overall language learning environment. It was found that having a concrete goal is useful in the learning process and that significant changes in writing-related concepts do not happen in the learner's interaction with AWE. Rather, it is mostly initiated during person-to-person interactions. This assertion is in keeping with Vygotsky's view that learning happens on two social planes: first inter-psychological and then intra-psychological. Chapter Seven concludes with a discussion on theoretical as well as pedagogical implications for computer-mediated EFL instruction.

**Key Words:** VYGOTSKY, AUTOMATED WRITING EVALUATION (AWE),  
COMPUTER-ASSISTED LANGUAGE LEARNING (CALL)

## **Chapter One**

### **Introduction**

The purpose of this monograph is to explore how Vygotsky's socio-cultural-historical theory (known as SCT, Lantolf & Thorne, 2006, p. 3) could serve as a useful framework and provide inspiration for the study of second or foreign language learning supported by the computer, or CALL (Computer-Assisted Language Learning), as is commonly termed in the field as an encompassing label for all kinds of language learning activities using the computer or the network as media. Of particular interest is how learners work with Automated Writing Evaluation systems (AWE) in developing writing skills.

AWE programs are designed to evaluate compositions, supposedly as accurately as human raters. Previous research has centered on psychometric aspects of the software, comparing the quality of machine generated feedback and evaluation with that of human raters' (Warschauer & Ware, 2006). Nowadays AWEs have also been advocated as a "web-based writing instructional tool" (the Vantage company), expanding from the original purpose of evaluation to include that of instruction. There is therefore an expectation among language teachers and administrators to support the development and learning of writing skills in a self-access mode with an AWE tool, consequently removing the most tedious and labor intensive part of writing instruction: providing feedback to learners. Because of this expectation, understanding how the tool supports learning in self-regulated learning environments and within the sociocultural context of language learning environments is crucial.

Autonomous and self-regulated language learning has been a recent focus of discussion in the literature of second language education (Benson, 2001) as well as educational psychology (Montalvo & Torres, 2004). The very concept of autonomous and self-regulated language learning often evokes the image of a lone learner who is so self-motivated that he or she is able to handle all challenges without other's help. However, Chao's research (2003, 2005) has shown that interaction and collaboration in groups or learning communities work very well in encouraging and supporting self-regulated language learning and developing learner autonomy, a position which is well-supported by

Vygotsky (1978) and second language researchers such as Little (1996) and his research in autonomous language learning with information systems. To continue this line of research, the investigation reported here in this monograph goes deep into the nuances of self-regulated language learning through investigating how individuals work in two different CALL situations: one where the computer was expected to single-handedly support learners in developing writing proficiency while in the other, learning happened in a mediated ecosystem supported by the computer, a knowledgeable expert (the teacher), and peers. Examined in light of Vygotskian perspectives, which emphasizes developing higher level thinking through the mediation of tools and participation in socio-cultural and historical activities, the two situations were expected to reveal critical implications for learning supported by the computer.

This monograph is also a response to a problem observed in CALL research, particularly in the Taiwanese graduate school contexts. I often wonder why students often think of CALL research only as comparison studies, examining basically the “effectiveness” of computer versus an unspecified instructional model called “traditional teaching.” The assumption seems that technology *per se* could make a key difference and that technology is ‘the’ way to provide quality language instruction in this digital era. The result is that many studies are actually reinventing the wheel which previous researchers have found unproductive.

Comparison studies that investigate the effectiveness of computer-supported learning have long been considered inappropriate, if not naïve, in the field of Educational Technology and CALL (see, for example, Russell, 2001, Pennington, 1996). The most important reason is that they oversimplify the issue or they target a surface-level difference which is not critical to the overall language learning experience. Very often such studies result in ‘no significant difference’, and the purposes and methodologies used in such studies have been under heavy attack. Since as early as the 1980’s, many researchers have agreed that comparison studies are not productive, or in Pederson’s strong words, “Comparison research that attempts to illustrate the superiority of computers over some other medium for language instruction should forever be abandoned” (Pederson, 1987, cited in Chapelle, 2001, p. 16).

If not effectiveness, what worthwhile goals CALL research should target has long been a focus of discussion. Garrett (1991) points out that CALL research needs to ask, “What kind of software integrated how into what kind of syllabus at what proficiency level for what kind of learners

is likely to be effective for what particular purpose?" This suggestion takes into consideration not just the mechanical functions of computer applications but also the classroom context in which the learner situates, which is a useful but somewhat open-ended direction for CALL research.

Adopting the perspective of instructional Second Language Acquisition (SLA), Chapelle (1997) proposed that CALL research should investigate what kind of language the learner is learning from the computer, basically through discourse analysis. Salaberry (1999), in response, provided a list of five suggestions to expand on Chapelle's agenda, with the first one being analyzing L2 classroom interaction through sociocultural theory.

In the field of Educational Technology, Vygotskian Sociocultural theory has generated fruitful and inspiring research results which help design constructivist learning environments (e.g., Jonassen & Rorrer-Murohy, 1999). In Teaching English as Other Language (TESOL), Vygotsky's theories have also encouraged interesting research; most noticeably are those by Lantolf and colleagues (Lantolf, 2000; Lantolf & Appel, 1994; Lantolf & Thorne, 2006; Pavlenko & Lantolf, 2000). Block (2003) and Johnson (2004), on the other hand, have both observed a so-called "social turn" in the field of second language acquisition and provided some in-depth discussions on the impact of Vygotsky's perspectives and the philosophical basis of second language acquisition. Robbins (2001) has also made important contributions by introducing Vygotsky and his theories of language as a meta-theory and as a metaphor that emphasizes potentiality, history as change, and the use of dialectics to overcome dualisms (p. ix).

However, Chapelle's (1999) response to Salaberry shows that there may be confusion over the term "sociocultural theory" being taken to mean issues related to a sociocultural context, instead of Vygotsky's psychology-philosophy which should be more accurately termed as Socio-Cultural-Historical perspectives. This shows that Vygotsky's SCT and its potential implications may not be familiar to CALL researchers. Chapelle was right in responding that Salaberry should have provided a summary of the tenets of socioculture theory and research results. This is what this author would like to pick up on through the studies reported here.

Following Salaberry's suggestion, there have been many researchers attempting to show how Vygotskian sociocultural theories could inform the analysis of language learning activities supported by

CALL (see Appendix I, particularly those by Thorne, 1999, 2003, 2004). However, researchers following this theoretical framework are still the minority in the overall research of SLA, not to mention CALL, and much less CALL in Taiwan.

This monograph is mainly about applying Vygotskian SCT to CALL research in the Taiwanese context. It focuses on one specific kind of CALL application, automated writing evaluation systems (henceforth, AWE), in one specific context: self-regulated language learning by adult learners. The goal is to understand computer-mediated language learning as human-to-human interaction and goal-oriented activity mediated by the computer tool for the purpose of developing higher mental capability and meaningful learning experiences. As Hubbard (1996) points out succinctly that “the field [of CALL] really involves the interplay of humans and technology and that the human end is especially significant. ... It is in this interplay, and not just the frozen set of instructions in the computer program, which ultimately determines the methodology of the field” (p. 15). There is still a lot to be understood when it comes to this interplay between human learners and computer tools, which is what the two studies reported here aimed to investigate. The next chapter will start with an introduction to Vygotskian perspectives, focusing particularly on the concepts of mediation.

## Chapter Two

### Vygotskian SCT Perspectives in CALL

#### 2.1 Vygotskian SCT Perspective

*During recess after my first hour of introduction to the concept of mediation in a graduate class, Joan, a Ph.D. student in our TESOL program, approached me and said apologetically, “I feel that I cannot understand the concept in full until somebody could give me an equivalent Chinese term.” I exclaimed, “Joan, you are right on top of a sociocultural issue!”*

As a third-year Ph.D. student in TESOL, Joan (pseudonym) was fluent in English and did not have problems comprehending the lecture or the vocabulary. What was really a problem for her was that the concept was too abstract and foreign, as the focus of concern (i.e., mediation, private speech as self-regulation, and activity theory) were different from all the other second language theories that she was familiar with. The Chinese terms, if she could have them, would serve as a familiar mediation tool, allowing her to integrate the new theory with her existing understanding of the world, and to make the concept concrete, the image and sense provided by the concept settled, and her understanding feel more solid. This need for a familiar language as a mediation tool is at the heart of Vygotskian sociocultural theory.

Because there has been much misunderstanding to the idea of “socio-cultural,” as discussed in the previous chapter, Lantolf (2004, cited in Lantolf & Thorne, 2006) gave the following definition of the theory, emphasizing its nature as a theory of mind:

[D]espite the label “sociocultural” the theory is not a theory of the social or of the cultural aspects of the human existence. ...it is,... rather, a theory of mind... that recognizes the central role that social relationships and culturally constructed artifacts play in organizing uniquely human forms of thinking. (p. 1)

In other words, this theory of mind emphasizes social relationships and culturally constructed artifacts, as Vygotsky believed that all higher mental functions are results of social relationships and are mediated by culturally-developed physical or conceptual artifacts. The focus of concern can be explained by the statement that “the human mind is regarded as a function system in which the properties of the natural, or biographically specified, brain are organized into a higher, or culturally shaped, mind, through the integration of symbolic artifacts into thinking.” Higher mental capabilities here refer to voluntary attention, intentional memory, planning, logical thought, problem solving, learning, and evaluation of the effectiveness of these processes, which in many ways are similar to learning strategies discussed in the TESOL literature with a lot more emphasis on the origin of social, cultural, and historical interaction. One develops such a function system only through participating in activities which are situated in the social-cultural context and with the mediation of tools.

## **2.2 Mediation through Interpersonal and Intrapersonal Processes**

The importance of mediation in this theory can be further elicited from a key statement made by Vygotsky that has been widely quoted:

Any function in the child’s cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an interpsychological category, and then within the child as an intrapsychological category. This is equally true with regard to voluntary attention, logical memory, the formation of concepts, and the development of volition — [I]t goes without saying that internalization transforms the process itself and changes its structure and functions. Social relations or relations among people genetically underlie all higher functions and their relationships. (Vygotsky, 1978, p. 57)

Thus, the mediated nature of the human mind is fundamental to sociocultural theory (Lantolf, 2000). In fact, mediation has been considered Vygotsky’s most important and unique contribution (Wertsch, 1985, p.15).

‘Mediation’ refers to the physical and symbolic tools in activities that human beings rely on to change the world around them and to regulate their relationships with others. Physical tools are not conventional understanding of merely objects with concrete forms. In Vygotsky’s view, artifacts have “an ideal-material quality of human activity” (Lantolf & Thorne, 2006, p. 63); they have simultaneously conceptual and material quality which cannot be understood without the context of goal-oriented activities. Creation of any objects (a piece of essay or a table, for example) has to start with an ideal form, with which one works to give a shape through a series of activities. Lantolf and Thorne postulate that viewing artifacts as both ideal and material makes it possible to break away from Cartesian dualism which views artifact and concept as two separate issues and thus allows a proper emphasis on human agency.

Mediation is also symbolic signs, language, and practices for thoughts, or “means and practices which, through social interaction, become internalized and thus available for independent activity” (John-Steiner, et al., 1994, p. 141). Examples given include the use of knots, pictures, and language as means of recording events in the history of human beings. The symbols in Figure 2.1 below, such as “VIII”, the number 60 enclosed in a red circle, and the signs for male and female, are all culturally constructed artifacts that a youngster needs to learn in order to become a full participant of the modern society.

**Mediations: Symbolic Tools & Signs**

2. Symbolic tools and signs allow us to regulate our relationships with others and with ourselves

- Numbers and arithmetic systems
- Music
- Art
- Language
- A foreign language?



**Figure 2.1 Mediations: Symbolic Tools and Signs**

Symbolic artifacts are acquired through social interaction and participation and are cultural products indispensable for a higher, or culturally shaped, mind. Thus, symbols are considered social in two senses. First of all, signs, tools, and practices for thoughts, such as language, concepts, or other symbol systems, are “products of sociocultural evolution” (John-Steiner, et al., 1994, p. 141). These tools, available to individuals affiliated to a community, were invented and developed over the long history of human beings. Second, these tools must be acquired through the processes of social interaction and participation. In the process of interpersonal interaction, one does not learn to use the tools only but also the social organization and the cultural process associated with the tool and the activity.

The process of internalization further reconstructs the tool and allows it to become available internally for higher mental operations, eventually developing individuals into a member of the community. Tools allow individuals to externalize an idea, for example, by presenting it in a written or graphical form. Once when the ideal is externalized, one can revise or improve it as if it is an object distinct from the agent him/herself. As individuals master the tool, it is thus possible to see the increasing role of self-formulated plans and goals in regulation of behavior and cognitive activity, approximating those of the community around them. This process is characterized as intrapsychological, contrasting to the interpsychological process when the learner engages in social interaction. It is through this process that the tool and the individual become one, working toward common goals. Bruner (1962) pointed out that:

Vygotsky believed that in mastering nature we master ourselves. For it is the internalization of overt action that makes thought, and particularly the internalization of external dialogue that brings the powerful tool of language to bear on the stream of thought. Man, if you will, is shaped by the tools and instruments that he comes to use, and neither the hand nor the intellect alone prevails, the tools and aids that do are the developing streams of internalized language and conceptual thoughts that sometimes run parallel and sometimes merge, each affecting the other. (p. vii)

Developing higher functions, as in developing writing-related concepts,

requires conscious control and internalization of signs, tools, and practices. The process is never static, involving the learner's interaction with themselves and the immediate cultural and historical context. For example, the learner has to understand what readers expect to see in an essay and learn to adjust their writing accordingly in order to develop proper writing skills. It may also be useful to observe, for example, how other writers or learners map their thoughts in graphs as a pre-writing activity. The observation that the learner engages in is an interpsychological process while the decision to integrate other people's writing strategy can be considered part of the intrapsychological process. Both processes are integrated and inseparable. It is thus important to understand both the inter- and intrapsychological processes in which human social and mental activity is organized through culturally constructed artifacts.

### **2.3 CALL and the Use of Tools**

Computer-assisted language learning clearly capitalizes on the use of tools, and studies on language learning strategies on the computer could best represent how the field as a whole has tried to understand the nature of interaction between computer tools and human learners. This line of research often focuses on "resourcing," a term coined by O'Malley, Chamot, Stewner-Manzanares, Kupper, and Russo (1985) to refer to the way learners use build-in language learning tools or online help functions as a kind of cognitive strategy (Liou, 2000). What has been found in this research, however, is still lean, despite great interest in CALL research in recent years. For example, Chapelle and Mizuno (1989), focusing on five strategies that adult ESL learners applied in spelling and dictation material, including two cognitive strategies (resourcing and practice) and three metacognitive strategies (self-monitoring, self-management, and self-evaluation), found that most of the learners did not use all of these strategies optimally. When learners did use the provided tools, they used very limited resources or strategies. Among all the studies on resourcing, L1 translations were the most popular comprehension aids consulted (Bell & LeBlanc, 2000; Davis & Lyman-Hager, 1997; Laufer & Hill, 2000). Bell (2005) confirmed that adult language learners overwhelmingly preferred bottom-up lexical resources, rather than top-down, non-lexical aids, in reading authentic L2

texts on the computer. In addition, more visual resources were counseled than L2 glosses. Interestingly, none of the studies found differences in comprehension regardless of which resource type or resourcing strategy was adopted.

So far, the only consistent finding across many studies is that L1 translation is the most preferred resourcing strategy that language learners use on the computer. The fact that learners use very limited functions on the computer is often interpreted to mean that learners do not know how to make use of computers as strategies to learn a language, particularly when learners are expected to direct their own learning (Ultisky, 2000). The rather disappointing result suggests that there is a limit to the kind of theoretical framework (instructional SLA) that we are most familiar with when investigating the nature of interaction between language learners and computer tools.

#### **2.4 Self-Regulated Language Learning with the Computer**

The literature reported above tends to assume that learning strategies on the computer are independent of the socio-historical context in which the learner is situated. Researchers seldom provide a full story as to *why* learners do not use the resources or computer tools and whether the decision not to use a certain resourcing strategy might in fact be the result of a thoughtful or informed decision. Indeed, earlier strategy research generally assumes that poor learners' strategies are inadequate in some aspects. Thus, it is important to identify strategies used by good learners with the intention of training low achieving learners to use 'more effective' strategies. However, teaching ineffective learners good learners' strategies does not always lead to the poor learner's use of the strategies. This clearly shows that something else has to be there.

Recent research in self-regulated learning, however, emphasizes helping learners become aware of their own learning environment and develops valuable goals for themselves. It is believed that significant, self-regulated learning requires not just skills or strategies, but also will (Montalvo & Torres, 2004). For example, Holec (1980) stated that learners need to train themselves through the process of discovery, with or without other people's help. The three assumptions behind language learning autonomy research pointed out by Benson (2001) provide the rationale:

1. Autonomy is available to all, although it is displayed in different ways and to different degrees according to the unique characteristics of each learner and each learning situation.
2. Learners who lack autonomy are capable of developing it given appropriate conditions and preparation.
3. The development of autonomy implies better language learning. (p. 183)

It is clear that there is the underlying belief that all learners have the capability to develop their own strategies and become successful in their own way. As Gremmo and Riley suggest, “the rise of autonomy in language learning corresponded to an ideological shift away from consumerism and materialism towards an emphasis on the meaning and value of personal experience, quality of life, personal freedom and minority rights” (1995, cited in Benson, 2001, p.16). This position of autonomous learning, that all learners can derive meaningfulness from learning activities and become successful, seems more likely to encourage reflective practice in language learning than earlier concepts of strategy instruction which assume that poor learners must be taught other people’s strategies.

Furthermore, the concept of self-regulated language learning has recently moved from focusing on individuals to issues of collaboration, negotiation, and interdependence (Benson, 2001). This emphasis is particularly consistent with Vygotsky’s socio-cultural historical perspectives. In fact, Little (1996) maintains that the chief argument in favor of group work as a means of developing learner autonomy is Vygotskian in origin. Little’s work in using information systems to encourage autonomous language learning is a good example of how Vygotskian theoretical perspectives can contribute to autonomous language learning. Capitalizing on the Vygotsky’s view of language as an important tool for self-regulation, Little followed a model of language learning which emphasizes ‘learning by doing’ interacting thoroughly with ‘learning by reflection’. The information system was used not only to engage learners in communicative language learning activities but also to involve them in reflective and analytical conversations with the instructor and peers, with the rationale that “the explicit mental processes through interaction would be amenable to intentional control and that it is through such control that learners can make the most of the resources

available to them” (p. 212).

Donato and McCormick (1994), also inspired by Vygotskian sociocultural theory, maintain that language learning strategies are situated activities generated from a culture of learning and are by-product of mediation and socialization that novices depend on to develop into competent members of a community of practice. In order to encourage such a culture of learning in a college-level conversation course, the researchers engaged students in self-assessment, goal setting, and strategy use through the mediation of a portfolio which the learners selected and collected evidence of their own language development. A reflection journal every three weeks and an end-of-semester meta-reflection allowed the learners to be involved in a critical dialogue with themselves and the teacher about their own strategy use and performance. It was found that, as the course developed, the learners’ goal setting and strategy use changed from being general and vague to being focused and precise, indicating that the learners were engaging in “reflective construction of language learning strategies,” rather than merely operating as consumers of other people’s learning directives. Students also became critical of their own strategy use as they engaged in research-like activities problematizing their learning experiences. This study shows that classroom culture developed by “mediated, dialogic cycle of self-assessment, goal setting, and strategy elaboration and reconstruction” (p. 463) is a promising way to encourage autonomous and appropriate strategy use. Nowadays using the computer tool to do the above is likely to facilitate the process even more. For example, while computer tracking programs have been used to collect data for strategy research purposes (Liou, 2000), Alderson (1990) has suggested that the information gathered by the computer could encourage learners to do self-assessment and develop their own strategies for evaluation (Chappelle, 2001, p. 18).

The studies reported above suggest that for self-regulated language learning to work social interaction may be necessary. Both Little (1996) and Donato and McCormick (1994) emphasize learning by doing interacting thoroughly with learning by reflection in social interaction. This emphasis is consistent with Vygotsky’s emphasis of agency, or the learner’s conscious control and internalization of tools as a result of social interaction, encouraging the learner to adopt a new, more strategic conception of the task at hand (Donato & McCormick, 1994). Thus, the emphasis of self-reflective practice supported by collaborative learning

## CHAPTER TWO: VYGOTSKIAN SCT PERSPECTIVES IN CALL

and scaffolding, i.e., allowing opportunities for “transforming interpersonal process into an intrapersonal one” as in Vygotsky’s terms (1978, p. 57), has real potential to introduce a breakthrough to the existing CALL research and practice.

Following previous researchers’ lead, the two studies reported in the chapters to come intend to advance more understanding on how Vygotsky’s perspectives, when applied in CALL research, might lead to deeper understanding of how learners interact with computer tools. The next chapter provides an introduction to AWE tools.

## **Chapter Three**

### **Automated Writing Evaluation System (AWE)**

As background information to two studies reported in the chapters to come, this chapter introduces two AWEs used in the studies: How they work and what feedback systems are provided, in comparison to what previous research has found concerning effective feedback strategies for conventional face-to-face writing instruction.

#### **3.1 Recent Interest in Computer-Supported Writing Instruction**

Using computers to help learners develop writing skills has been an important focus of CALL research. Hyland (2002) pointed out that “Electronic communication technologies have a major impact on the ways we write, the genres we create, and the authorial identities we assume, the forms our finished products take, and the way we engage with readers” (p. 73). Mark Warschauer, on the other hand, identified computer-assisted classroom discussion, email exchanges, web-based writing, and corpus studies of technology-based writing as the emerging areas of CALL research at the time (Matsuda, Canagarajah, Harklau, Hyland, & Warschauer, 2003). Penrod (2005) also emphasizes that changing electronic text genres, such as blogs, MOOs, webpages, email exchanges, text messages, and others, make it necessary to evaluate electronic texts in critical ways.

Among all the variety of e-text genres that new network technology brings to EFL writing instruction in Taiwan, AWE has had probably the most appeal to language educators. It has also been the focus of discussion in the international field of writing instruction in recent years. A book edited by Shermis and Burstein in 2003 is the first edited volume available on this issue. However, despite the fact that the book has “a cross-disciplinary perspective” as its subtitle, most of the chapters are written by people who have been involved in software development with very little discussion contributed by language educators. The major concern is technical, trying to persuade the reader of the validity of machine scoring. Recently, Warschauer and Ware (2006) have discussed AWE in the context of TESOL, and they advocate more research

investigating the process and product of writing with AWE. Another recently edited volume by Ericsson and Haswell (2006) aims to discuss issues that educators are concerned about with AWE with the subtitle indicating its focus on the “truth and consequences.” There is thus clear interest in AWE among researchers and language educators, particularly about moving away from discussing the technical and psychometric aspects of the software to the process of developing writing proficiency through the mediation of AWE.

### **3.2 Types of AWE**

The development of automated writing evaluation programs started in the 1960s in the U.S., and the tool is now available to writing teachers and students, allowing access over the Internet usually with a fee. Termed in many different ways, including Computer Automated Scoring or CAS (Yang, et al., 2002), Intelligent Essay Assessor or IEA (Streeter, et al., 2002), and Automatic Essay Scoring or AES (Cohen, Y. et al., 2003), the technology has served school, military, and other training and examination needs. Williamson, Bejar, and Hone (1999, cited in Yang, et al., 2002) claimed that AWE programs have eight advantages over human scoring, including reproducibility, consistency, tractability, item specification, granularity, objectivity, reliability, and efficiency. With these advantages, many have assumed that the program can single-handedly help learners develop writing proficiency while removing the most tedious burden from the writing teacher — scoring and providing feedback.

### **3.3 How do AWEs Work?**

Indeed, scoring and feedback are at the heart of AWE programs. According to Cohen, et al. (2003), there were six different types of AWEs available at the time and each used different mechanisms and statistical procedures to evaluate an essay, but they mainly differed “in the type of text features extracted from the text and used for scoring and the statistical procedures used to determine the weight of these features and combine them into one or more scores” (p. 5). There are basically two types of approaches for scoring engines to analyze a piece of text:

One focuses on the superficial features of a text, such as word count, number of paragraphs, and average sentence length. If there is a list of specific words to be searched, such as transitional words, the computer is able to analyze certain features of language use as well. The second method uses Natural Language Processing (NLP) techniques, which analyze semantic, morphological and syntactical usage of a text and identify speech parts and sentence structure. The exact process of scoring includes calibrating or training of the system to grade each writing topic separately based on designated proficiency levels. It is therefore not surprising that most of the studies in the past focused mainly on the validity issues related to machine generated scoring.

### 3.3.1 *Criterion* and *MY Access*

This monograph focuses on two U.S. developed AWEs which are widely known among EFL educators in Taiwan: *Criterion* and *MY Access*. The scoring engine behind *Criterion* is called *E-rater*, while *IntelliMetric* is behind *MY Access*.

*Criterion's E-rater* resulted from research in the area of natural language processing and information retrieval. It has been featured in many research papers, mainly by Jull Burstein and her research team in ETS (e.g., Burstein & Higgins, 2005; Burstein & Marcu, 2003). It was the engine behind the Graduate Management Administrations Test (widely known as GMAT test) to score the essay portion of the test together with a human rater from 1999 to 2005. With *E-rater*, if there is any discrepancy between a score given by a human rater and the machine, a human rater will be asked to resolve the score. *E-rater* analyzes the rate of errors in grammar, usage, mechanics and style by comparing essays along a number of dimensions to essays that had previously been scored by humans (Waschauer & Ware, 2006).

Information about how *MY Access's IntelliMetric* operates has been relatively scarce, but it has been used to score the GMAT since January 2006. According to Warschauer and Ware (2006) and the information provided in the product's official website, *IntelliMetric* does not work from a set of pre-specified features like *E-rater* does. It extracts content and structure features (semantic, syntactic and discourse) from 300 essays of the same prompt and then compares these with features from human readers' responses to the same sample essays. It then identifies

the best predictors, and estimates weights, using artificial intelligence techniques and statistical procedures. The scoring model and its five scoring scales derived from this procedure are then used to score new essays, while generic feedback is provided based on grade level, genre, and score.

### 3.3.2 Feedback

If responding to student work is the writing teacher's central concern (Yates & Kenkel, 2002), feedback mechanism would naturally be the heart of an AWE program. Features of machine-generated feedback provided by the two systems can be discussed in four domains: (1) scoring scales, (2) wording, (3) timing, and (4) group feedback.

#### 3.3.2.1 The scoring scales

The criteria adopted by the two online writing evaluation systems have reportedly gone through many adjustments since first being developed (Hyland, 2002). The current version of *MY Access* (6.0) evaluates essays based on Focus and Meaning, Content and Development, Organization, Language and Style, and Mechanics and Conventions; while *Criterion* looks at Organization and Development, Style, Grammar, Mechanics, and Usage. Based on Hyland's (2002) discussion on different paradigms of second language writing instruction, these evaluation items suggest that the conceptual framework and the underlying philosophy of these two AWE programs is basically text-oriented, taking the perspective that texts are "autonomous objects that can be analyzed and described independently of particular contexts, writers, or readers" (p. 6). It is clear that they focus on form, rather than on the process of writing, the reader, or the social or communicative functions of writing. With the form-focused perspective, neither of the programs can really be comprehensive in terms of developing concepts and skills necessary for EFL writing proficiency.

However, this does not mean that the two programs are useless. Just by looking at the scoring scales it is clear that they have some limited but focused evaluation items. Table 3.1 shows that each of the two programs uses a different five-item scale to cover three areas of evaluation: organization, style and mechanics. In the broad category of Organization and Development, *MY Access* provides three sub-categories (Focus &

Meaning, Content & Development, and Organization) of feedback information, which correspond to only one similar category (Organization & Development) in *Criterion*. On the other hand, *Criterion* takes Mechanics & Conventions in *MY Access* to be three different separate categories (Grammar, Mechanics, and Usage). The only category that appears to be the same on the surface-level for both systems is Language and Style. What each of these categories entails, based on the two programs' manuals, is presented in the original wording in Table 3.1. Judging from the surface level categories, *MY Access* seems to put more emphasis on organization, while *Criterion* stresses mechanics and conventions. One would expect that it is more difficult for software to do the former than the later, because of the elusive nature of focus, meaning, content, development, and organization of an essay, particularly based on *MY Access*'s description and wording. However, *Criterion* seems to suggest that evaluation can be made by identifying the position of the thesis statement and keywords.

**Table 3.1**  
**Scoring Scales Used by *MYAccess* and *Criterion*\***

<i>MYAccess</i>	<i>Criterion</i>
<p><b>Focus &amp; Meaning</b>                      The extent to which the response demonstrates understanding of the text and the purpose of the task, and makes connections between them through a controlling or central idea</p> <p><b>Content &amp; Development</b>                      The extent to which ideas are elaborated with specific, accurate, and relevant details (facts, examples, reasons, anecdotes, prior knowledge)</p> <p><b>Organization</b>                      The extent to which the response establishes purposeful structure, direction, and unity, including transitional elements</p>	<p><b>Organization &amp; Development</b></p> <ul style="list-style-type: none"> <li>● Introductory Material</li> <li>● Thesis Statement</li> <li>● Main Ideas</li> <li>● Supporting Ideas</li> <li>● Conclusion</li> <li>● Transitional Words and Phrases</li> </ul>
<p><b>Language &amp; Style</b>                      The extent to which the response demonstrates effective and varied sentences and word choice appropriate to the intended audience</p>	<p><b>Style</b>                      (problems to be detected)</p> <ul style="list-style-type: none"> <li>● Repetition of Words</li> <li>● Inappropriate Words or Phrases</li> <li>● Sentences Beginning with Coordinating Conjunctions</li> <li>● Too Many Short Sentences</li> <li>● Passive Voice</li> </ul> <p>Number of words: (number)                      Number of sentences: (number)                      Average number of words per sentence: (number)</p>

**Table 3.1 (continued)**

<p><b>Mechanics &amp; Conventions</b></p> <p>The extent to which the response demonstrates control of conventions, including paragraphing, grammar, usage, punctuation, and spelling.</p>	<p><b>Grammar</b> (problems to be detected)</p> <ul style="list-style-type: none"> <li>● Fragments</li> <li>● Run-on sentences</li> <li>● Garbled Sentences</li> <li>● Subject-Verb Agreement Errors</li> <li>● Verb-Form Errors</li> <li>● Ill-formed verbs</li> <li>● Pronoun Errors</li> <li>● Possessive Errors</li> <li>● Wrong or Missing Words</li> <li>● Proof read this!</li> </ul> <p><b>Mechanics</b> (problems to be detected)</p> <ul style="list-style-type: none"> <li>● Spelling</li> <li>● Capitalize Proper Nouns</li> <li>● Missing Initial Capitalized Letter in a Sentence</li> <li>● Missing Question Mark</li> <li>● Missing Final Punctuation</li> <li>● Missing Apostrophe</li> <li>● Missing Comma</li> <li>● Hyper Error</li> <li>● Fused Words</li> <li>● Compound Words</li> <li>● Duplicates</li> </ul> <p><b>Usage</b> (problems to be detected)</p> <ul style="list-style-type: none"> <li>● Wrong Article</li> <li>● Missing or Extra Article</li> <li>● Confused Words</li> <li>● Wrong Form of Word</li> <li>● Faulty Comparisons</li> <li>● Preposition Error</li> <li>● Nonstandard Verb or Word Form</li> </ul>
---	---

*Note:* The wording in this table is taken directly from the software.

### 3.3.2.2 The wording of feedback

Beside the criteria discussed in the previous section, the two systems also differ in their wording and timing of individual feedback and group feedback. Comparatively speaking, *Criterion* uses simpler, concise, and concrete descriptors in helping learners understand what needs to be revised, presenting feedback simply in bulleted lists. Each feedback category also has concrete indicators. To help learners focus on the key points, the program highlights the problematic areas in the student's essay. Learners are able to see a short explanation in a pop-up window just by moving the cursor over the highlighted area. The learner then is led to look at the more specific explanation in the "writer's handbook," where information is also presented in a simple and concise way.

*MY Access* uses more descriptive paragraphs, presenting feedback in formulated paragraph or templates with only some key words being replaced to indicate degrees, although more concrete feedback, particularly on grammar points and word use, is provided when the user clicks on the *MY Editor* function in the program during the writing process. Table 3.2 shows examples of different styles of feedback given by the two systems when the essay is given a score of five out of the possible six points:

**Table 3.2**  
**Comparison of Feedback Wording Provided by the Two AWEs**

<i>MY Access</i>	<i>Criterion</i>
Overall 5: On a scale of one to six, your response to this assignment was rated a 5. Your response was evaluated on the basis of how well it communicates its message considering important areas of writing including focus and meaning, content and development, organization, language use and style, and conventions and mechanics.	Score of 5: Skillful Performance <ul style="list-style-type: none"> <li>● Tells a clear story that is well-developed and supported with pertinent details in much of the response.</li> <li>● Well organized with story elements that are connected across most of the response; may have occasional lapses in transitions.</li> <li>● Exhibits some variety in sentence structure and uses good word choice; occasionally, words may be used inaccurately.</li> <li>● Errors in grammar, spelling, and punctuation do not interfere with understanding.</li> </ul>

In terms of tone, *MY Access* addresses the user directly by the name, trying to be friendly and personal, while *Criterion's* comment focuses on the essay, making no attempt to address the learner.

In terms of length, *MY Access's* feedback paragraphs are long and ideas are not concrete, and they can be perceived as repetitive after the learner has received feedback on only one or two essays. In fact, no matter which score the essay is designated, the basic wording for the comments looks the same except for a few key descriptors that show degrees. On the other hand, *Criterion's* bulleted items are easier to read and comprehend; however, a concern is that the user can take a simplified view on English writing, believing that those items examined by the system are sufficient in determining the quality of an essay.

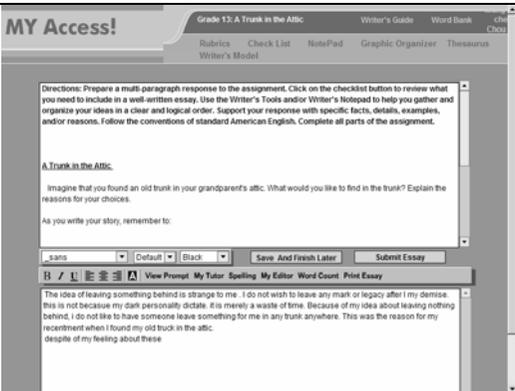
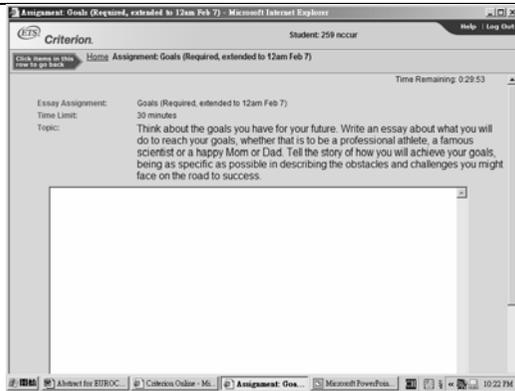
In terms of content of the feedback, both systems simply suggest the learner check for problems on their own, instead of pointing out exactly what is wrong. For example, *Criterion* highlights the position where a thesis statement should be located and asks the learner to decide for themselves whether the sentence highlighted is really the intended

thesis statement. *MY Access*'s approach is listing questions. For example, in Focus and Meaning, there are always these questions: "Did you stay to one purpose in your writing? Did you narrate, inform, or persuade, or did you do a combination?" For learners who are not used to thinking reflectively, these questions are difficult to grasp. Unless there is a teacher available, a learner may find it difficult to know what to do with the feedback.

### 3.3.2.3 The timing of feedback

The two systems are also different in their timing of feedback. *MY Access* provides 11 different tools and grammar feedback during the process of composing and before the learner sends off the article for scoring (more tools are available in the newest version). On the other hand, *Criterion* has only a spell checker during composing while all of the other feedback functions such as grammar suggestions are provided after scoring. When the feedback is provided before scoring as *MY Access* does, the emphasis seems to be on the process of writing. On the other hand, giving a score first would be similar to a testing situation in which the learner's performance is evaluated without any help. In *MY Access*, the instructor can also remove all the supportive tools before scoring and make it an assessment tool; however, *Criterion* does not provide the instructor similar functions to completely remove the assessment emphasis, except that the 30-minute limit on composing an essay can be turned off (see comparison of feedback mechanisms in Table 3.3).

**Table 3.3**  
**Comparison of Feedback Mechanisms by *Criterion* and *MY Access***

	<i>MY Access</i>	<i>Criterion</i>
<b>Before scoring</b>	 <p>Eleven (11) functions are available: a check list, a notepad, some graphic organizers, a thesaurus, model articles, preliminary suggestions by “My Tutor”, a spell checker, a word-count button, a writer’s manual and a word bank</p>	 <p>Three (3) functions are available:</p> <ol style="list-style-type: none"> <li>1. 30-Minute Limit for Composing</li> <li>2. Spell Checker</li> <li>3. Help Manual</li> </ol>

**Table 3.3 (continued)**

<u>After</u> scoring	<ol style="list-style-type: none"> <li>1. Overall Scoring and Comment: Description and suggestions are provided</li> <li>2. Itemized scores and comments on Focus &amp; Meaning, Language &amp; Style, Content &amp; Development, Organization, and Mechanics and Conventions.</li> </ol>	<ol style="list-style-type: none"> <li>1. Score summary in a bullet list.</li> <li>2. Sample essays</li> <li>3. Feedback analysis on Grammar, Usage, Mechanics, Style, Organization &amp; Development by highlighting the locations where thesis statement and topic sentences are supposed to show and asking the learner to check for themselves. Grammatical errors and other items (listed in Table 1) are also highlighted with short feedback messages provided upon a mouse over action. The user is encouraged to access further explanation in the writer's manual inside the system.</li> </ol>
-------------------------	---	---

#### 3.3.2.4 Group feedback

Group feedback is information about how learners of the same group perform as a whole. It is included in the instructor's systems for both AWEs. *MY Access* gives instructors different kinds of graphs (pie charts and bar charts) that show the general performance of students in one class, including how often students access the system, how often they revise, and the average holistic and itemized scores at different time phases. These graphs help the instructor see what kind of help the class as a whole might need. When learners are shown these graphics, they will have the chance to compare their own performance with that of the whole group. *MY Access* provides a lot of support not only for the learner but also for the instructor. For example, it has four different rubrics for informative, narrative, and persuasive essays, and four for literary essays, further divided into six levels (inadequate, minimal, limited, adequate, good, and very effective). Each finished essay will get a holistic score and five scores for subcategories. The designer also uses a lot of statements to describe what each category means in the feedback. However, the language used in the feedback is often found to be too general, repetitive, and abstract, making it very difficult for the EFL learner to derive meaningful and concrete suggestions to improve the essay. On the other hand, *Criterion* does not have such group feedback. The teacher can see how many essays have been done, but not how the class has performed as a whole.

### 3.4 Conclusion

Although the two AWE tools are somewhat different in their wording, mechanisms for feedback, and the resources available to learners and teachers, they are actually more similar than different. First of all, both are originally developed for the purpose of automating the process of essay evaluation, rather than for supporting the development of L2 writing proficiency. Second, both adopt a text-oriented model of writing instruction, focusing on developing basically the concept of organization, style and mechanics. Third, their feedback is a combination of simple numerical grading and written comments, with the latter being more elusive than clear and specific. With the understanding of feedback provided by previous research, that it is necessary to tell the learner the

### CHAPTER THREE: AUTOMATED WRITING EVALUATION SYSTEM (AWE)

exact location of errors and the type of error being made, the expectation is that it would not be an easy task for learners to follow the machine-generated comment, no matter which of the two AWEs they work with. Learners will have to be careful readers and must employ sufficient metacognitive strategies before they could take full advantage of the comments and tools provided by the two AWEs. Based on these reasons, there is no attempt to distinguish between the two AWEs in the studies reported in the chapters to come. Although the two studies adopted different AWEs, with the first one adopting *Criterion* while the second one *MY Access*, what the study focused on is the SCT issues revealed by the learners' actual experiences, not the trivial differences between the two AWEs. The next chapter reports the first study in which AWE was expected to support learning with minimum support from a teacher.

## Chapter Four

### Study One: AWE as the Sole Mediation

In the spring of 2005, the Taiwanese representative of *Criterion* offered the author's affiliated College of Foreign Language 265 free accounts for promotional purposes, allowing students unlimited use of the AWE for a period of twelve months. To take advantage of this opportunity, two other professors and I were asked to put the tool into use. We offered this opportunity to all the students of the university as a way to develop English writing skills in autonomous self-access mode. This experience became a small-scale study on using the AWE as the sole mediator in writing instruction. This study, which was considered a precursor to the writing course offered later and discussed in Chapter Five of this volume and to the study that is to be reported in Chapter Six, was guided by three research questions —

1. How is the opportunity to use the AWE program in a self-access mode helpful?
2. How is the AWE feedback system helpful in developing writing skills in a self-access learning mode?
3. What major instructional support may be necessary to help learners develop writing proficiency with the AWE program?

#### 4.1 Methods

Two hundred and fifty three Taiwanese college students volunteered to use the AWE as the sole mediator to develop EFL writing skills in an autonomous learning mode. Because the students were from a prestigious university in the northern Taiwan and that the students volunteered to be part of the writing program, it was expected that they would finish the writing assignments with sufficient self-generated motivation. All of the students were informed of the research project from the very beginning. Most of their initial emails expressed a high level of willingness and enthusiasm to participate in this study and to develop their English writing skills with the help of AWE. In other words, there is no reason to think that these students might have serious

hesitation about performing knowing that their writing was being evaluated for research purposes.

Before started writing into the program, students were asked to fill out a survey containing questions about their experience with and views about English writing. Only when they finished the survey and sent it back through email would they receive passwords to the AWE system. After careful examination, two hundred and thirty four surveys received were considered complete and valid for analysis. For the purpose of this study, only responses to the open question “what is good writing to you?” was analyzed to see whether learners’ views about good writing were more text-oriented, writer-oriented, or reader-oriented, following Hyland’s framework (2002). The result of this analysis is presented here and later in the next chapter to support the instructional design of the writing program. Responses to other questions are to be analyzed for other research purposes and will not be reported here in this monograph.

Over a period of six weeks, including three weeks during the winter break, students were asked to write at least six required essays in the AWE system. There were also optional prompts which the students could follow to develop essays as they wished. ‘Prompts’ are system-provided topics that the user needs to follow in order to develop essays, usually in the form of a short title followed by some explanation, instruction, or reminder to make users understand what is required of them. Because AWE companies usually consider prompts part of their trade secret, an example is not to be presented here, but it is suffice to know that prompts are topics that the user needs to follow in developing essays.

The use of the AWE system was completely free of charge for the students in this study, and they had access to it 24 hours a day, seven days a week, for the period of twelve months. For the purpose of data collection for this study, the learners were told to write as often and as much as they wanted during the first six weeks. Although they were free to write afterwards on their own till the end of the year, their writing after the first six weeks was not included in this study.

The reason for using data from the first six weeks only is that it was during a semester break and the beginning of a new semester. The students should have sufficient time to use the system to its full potential. If the students were not able to develop essays during this period of time, they would be less likely to write during the following months in the new semester, because there were no vacations that were as long as the winter break.

Because the AWE program was expected to provide most of the necessary support to the learners, teacher support was kept to a minimum. Besides the initial help in making sure that the passwords worked and students understood which required prompts to follow, the researcher sent a group email every other week to answer questions. Six weeks later, a meeting was held for the whole group as the ending point of this activity.

In the meeting, only 30 out of the total 253 students actually showed up to meet the researcher, the two other professors, and representatives from *Criterion*, despite the fact that reminders had been sent through e-mail in advance. At the meeting, participants' questions about the software were answered, and their opinions toward the AWE program were solicited. Students were also offered a chance to discuss their writing with the researcher by making additional appointments. Twelve of the thirty attendees accepted the offer, and each had a one-hour meeting in the researcher's office at a time that was convenient to both the researcher and the student.

During the one-on-one conferences, in-depth comments about their writing were given by the researcher in return for an interview opportunity to understand the learners' experiences with the AWE program. These twelve participants provided the main source of data for the qualitative analysis of this study. The interview questions were semi-structured, focusing on the learner's experience with the program — what went well, what did not go well, and how the learner wanted to see the AWE program improved. The interviews were recorded and transcribed verbatim for analysis.

The procedure for analyzing responses to the question "What is good writing to you?" and the interview data included identifying themes being discussed and categorizing the data based on the themes. The frequency of student writing recorded by the AWE system was also analyzed and is presented below to show how students actually made use of the program.

## **4.2 The Findings**

Presented as paradoxes, the findings in the form of assertions below are derived from the learners' self-reports during interviews, comments made in one-on-one meetings, and their responses to the one survey

question for this study.

#### **4.2.1 How is the Opportunity to Use the AWE Program Helpful?**

Assertion 1: The learner liked the opportunity to practice writing at their own pace, but very few of them actually took advantage of it.

When asked what was one thing that they liked most about the AWE program, participants always responded with the opportunity to practice writing an essay and get instant feedback. The computer became a safe and convenient environment for users to experiment with ideas and try new strategies without worrying about consequences or losing face. Many students said that they would not have written anything if the program had not been readily available on the computer. Thus, the opportunity to write was highly appreciated by the participants. A conscientious learner would spend many days thinking about what the prompt required and how the essay should be developed. They often spent a lot of time searching for a perfect word to express an idea. When they showed up with their writing in hand at the researcher's office for the conference, there was pride in their eyes because they knew they had done everything they could to improve the essay. Their sense of achievement was obvious.

However, only a few participants actually took advantage of the opportunity to improve their English writing skills. As indicated in Table and Figure 4.1, nearly 71% of the total 253 participants wrote at least one topic. This means that about 30% of the learners did not even start using the program, even though it was conveniently available on the Internet 24/7. What is more, only 13 of the total 253 participants (5.13%) finished writing all of the six required essays over the six-week period. This shows that just having access to the program and liking the opportunity to practice do not necessarily lead to good use. What is more, about 95% of the total submissions were essays following the required prompts; only 5% were self-selected prompts. The reason could be that the students were busy enough to deal with the six required topics. Nevertheless, the numbers show that students did not use the system to the full, even though they had the opportunity to do so.

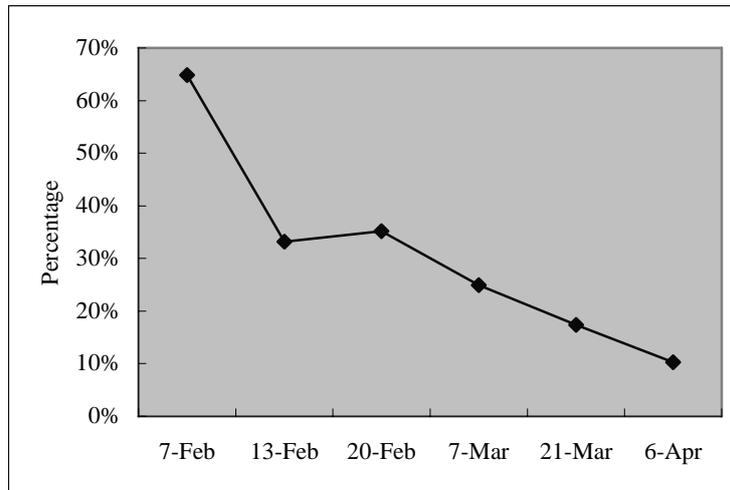
Looking at the number of people who actually worked on each of the required topics over the six weeks, one can also see a clear decline. For the first topic, 64.82% of the students submitted an essay; for the

**Table 4.1**  
**Frequency of Use**

	<i>Topics</i>	<i>Due Date</i>	<i>Number of students who wrote this topic</i>	<i>Number of submissions*</i>	<i>Total</i>
Required Topics	Goals	Feb 7	164 (64.82% of the total number of students)	375	1017 submissions (94.96% of the total number)
	Technology	Feb 13	84 (33.20%)	167	
	Special Object	Feb 20	89 (35.18%)	206	
	Teaching Styles	Mar 7	63 (24.90%)	118	
	Guest Speaker	Mar 21	44 (17.39%)	98	
	Make a Change	Apr 4	26 (10.28%)	53	
Self-selected Topics			31 (12.25%)	54	54 submissions (5.04%)
Total:	Number of students in the program: 253				1071 submissions*
	Students who wrote at least one topic: 179 (70.75%).				Revision: avg. 2.19
	Students who finished all six required topics: 13 (5.13%)				times per topic

\*Number of submission: Some students sent in more than one submission as they tried to develop the topic in different ways or make revisions.

- Percentage of Students who Wrote during the First Six Weeks
- Each dot on the line represents the percentage of students who wrote a topic. The first dot on the left is the percentage of students who wrote the first topic (Goals); while the one on the right is that for the sixth topic (Make a change).



**Figure 4.1. Frequency of Use**

second, which was during the Chinese New Year festival, the rate of submission was down to 33.20%. The numbers continued to consistently decline until the last one, of which only 10.28% of the students actually wrote something. (See Table and Figure 4.1 for the frequency of use during the six weeks.)

In interviews, students justified their infrequent use of the AWE with all kinds of excuses; for example, the need to participate in many activities during the New Year festival, to deal with family problems, to work, to travel, or to manage other pressure from life. For teachers, these can be considered common student excuses which are not surprising at all. What they reveal, however, is that the students' initial enthusiasm to develop writing skills with the AWE tool was not sustained.

Another major reason for the declining use of the system is that many learners gave up on writing as soon as they realized that the

program was not capable of spotting the easiest grammar or word choice problems in their writing. Some quickly found that as long as they managed to make the essay long enough, no matter what they wrote, they would get a higher score. Upon finding this ‘problem’, some students gave up on writing and felt very disappointed. Others started to play smart and try to figure out more ways to fool the system, which means their focus changed from developing writing skills to detecting technical problems. In interviews, these students felt more motivated to comment on the technical problems of the AWE rather than discuss how they developed writing skills. As a program evaluator who saw many problems with the system, students found it silly to talk about developing writing skills with the help of the AWE.

#### **4.2.2 How is the AWE Feedback System Helpful in Developing Writing Skills?**

Assertion 2: The feedback system is adequate in aspects of writing which a definite comment is possible and which are included in the criteria, but it is inadequate in other aspects which are more complex or illusive.

Lin and Chen’s (2004) study found that high school EFL students using *Criterion* perceived most improvement in writing topic sentence, paragraph transitions, structures and organizations. The two researchers also pointed out that *Criterion* was quite limited in diagnosing grammatical errors made by their EFL learners. This comment was, in fact, similar to the perceptions the learners in the current study had with the program. The following are views given by the students of the current study:

- a. The grammar and spelling help is good, particularly because the system highlights the problematic areas and brings the user’s awareness to possible problems. The program also points out the position where the thesis statement and topic sentence should be in the essay. Both of these highlights are specific, allowing the user to think about whether the highlighted sentences are really meant to be the thesis statement or the topic sentence or whether revision may be necessary. This highlighting function represents a strength of the AWE. However, the kind of grammatical errors that the program can

- identify is limited.
- b. The formulated comment is almost useless. Once when the problematic areas have been identified, the learner has some decisions to make. The real problem comes when the learner does not know what to do with the highlighted areas. The machine-generated feedback or comment either does not tell exactly where the problem is or it points out where the problem is but without giving specific suggestions as to how to revise the problematic text.

One could reason that, when it comes to ‘language and style’ or ‘mechanics and conventions’, there may not be simple principles which the learner could hold on to or for the AWE program to operate on in providing context-sensitive feedback. Thus, the learners were not able to respond properly in their favorite trial-and-error way. What is more, the build-in grammar tutor and spell checker, like the grammar and spell checker in *Microsoft Word*®, can be misleading. They cannot take the context of a word into consideration. For example, sometimes the problem was in word choice or other conventional usages, but the program suggested our learners that it was a grammatical error. Often, the learner had no way to know that there was a problem or that there were other alternatives. All in all, the program fell short in supporting the user’s favorite trail-and-error strategy.

Assertion 3: Those who made the most of the program chose to trust the feedback and used metacognitive strategies extensively, although they were fully aware of the program’s insufficiencies.

Those who got the best from the program believed in the feedback they received and actually spent time revising the work based on their own understanding of the feedback. As an example, I talked to a junior from the English department in May 2005, about one month after the group meeting. This female student had attended the meeting in April and was one of the few students who were still trying to write in May. This showed that she was indeed a self-motivated learner. She said developing good writing skills was very important to her since she was about to graduate from college in a few months. She showed me her essay on “A Special Object,” for which topic she had written two essays. I asked her what made the two versions different; she said mostly in word choice. The program always said that she used too many repeated

words, but she did not know how to address the problem. She said she always got 6s as her scores but she was not sure if her 6s were really good work. She wanted to know, based on my experience as a writing teacher, if I would say it was a piece of good writing. I read a few lines and said it was. Her writing did not read like those of any other learners who had come to see me. It was like a story, rather than following a formula. She said she tried not to follow a formula because she knew that did not create good writing. At first I thought the reflective questions asked by the program, such as “Is this your thesis statement?” would not be very useful, but she said even though she knew the program always asked the same questions, she could not help but examining her essay when the questions were asked. These reflective questions worked for her, she assured me. She said she could always find something in the feedback that directly addressed the problems in her writing. The problem was she did not know how to revise her work to make her essay to meet the criteria of a good writing in her mind.

I asked her what her criteria for good writing were and where they were from. She said they were based on the writing instruction she received in writing class. Her teacher would explain why an essay was well developed and what elements made it effective. She would therefore examine her writing using this experience from her previous writing instruction in conjunction with the prompts and feedback the program gave her.

I continued my reading and saw that she used “company” at a place where “companion” might be more appropriate, and I pointed out the difference for her. She said that was her problem too. She could not capture the feel of an English word as precisely as a Chinese word. Unfortunately, the system could not help her solve this problem, either.

Here we have an autonomous learner whose metacognitive strategies were clearly at work. She believed that the AWE program was a good tool to practice writing on, even though she was fully aware of the program’s problems. The machine-generated feedback was studied carefully and taken into serious consideration to improve her writing. When the feedback provided by the program fell short, the learner’s previous writing instruction backed her up. She also took advantage of the opportunity to talk to me, the researcher, for problems that she could not solve. Her resourcefulness indeed allowed her to make full use of the AWE program.

Since the majority of the students in the group were less forgiving,

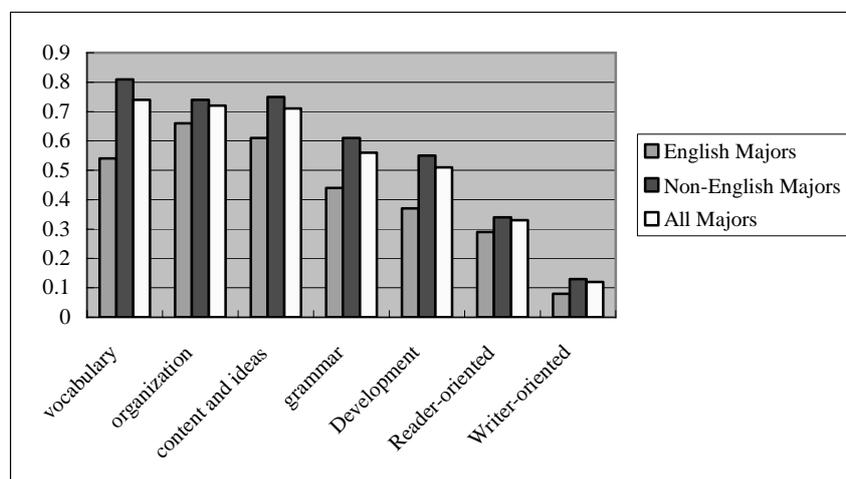
trusting, and resourceful, and perhaps they also gave up too easily, the AWE program clearly has some important tasks ahead. For example, its feedback mechanism must be improved before learners can trust the result of its evaluation and learn from it.

To understand what exactly good writing was for the participating students and why they could not trust the AWE program, I analyzed the participants' responses to the open-ended survey question, "What is good writing to you?" The result is presented in Table and Figure 4.2. The analysis found that vocabulary was overall the most important criterion, with 74% of the total participants (81% of the non-English majors and 54% of English majors) said that accurate or beautifully use of vocabulary was the feature of a piece of good writing. Content and ideas were also mentioned as important by 71% of the total participants. Unfortunately, these two areas, word choice and idea development, are exactly what the AWE's feedback fell short of. Most of the time, the program was not able to explain to the learner why a word was considered not properly used or to tell them specifically how to develop and enrich an idea. Moreover, 66% of the English majors also mentioned that organization was important, while 74% of the non-majors thought so. Organization is the aspect of writing that the AWE could help if the learner was willing to work reflectively, as in the case of the student that I talked to earlier. But again, not many learners had the patience to follow the program's hint and feedback in examining the organization of their essays.

**Table 4.2**  
**Responses to the Question "What is Good Writing to You?"**

Features of Good Writing	<i>English Majors</i> (n=59, 25%)	<i>Other Majors</i> (n=175, 75%)	<i>All Majors</i> (N=234*)
Vocabulary	54%	81%	74%
Organization	66%	74%	72%
Content and ideas	61%	75%	71%
Grammar	44%	61%	56%
Development	37%	55%	51%
Reader-orientation	29%	34%	33%
Writer-orientation	8%	13%	12%

*Note:* The total number of valid responses is 234.



**Figure 4.2. Responses to the Question “What is Good Writing to You?”**

The students’ responses to the open-ended question ‘What is good writing to you?’ also revealed that very few of them thought of writing as a reader or writer-oriented activity. Reader-orientation is when the learner believed that the writing had to be comprehended well by the reader; while writer-orientation was when the writer believed that writing was to show his or her unique identity or for his or her own purposes and meaningfulness. That is, the social interactive nature of writing was seldom mentioned when learners discussed good writing. More about this will be discussed in the next chapter when design of a new writing course is presented.

#### **4.2.3 What Kind of Instructional Solutions May be Necessary to Help Learners Develop Writing Proficiency with the AWE Program?**

Assertion 4: Learners liked to develop their writing in private, but they also wanted a sense of group to keep them going.

Students made a lot of suggestions about the technical aspects of

AWE, but one suggestion most related to classroom instruction is their need for a group. In our final meeting in April, some learners commented on this need for a sense of being in a group. When they were in the meeting, they realized there were people they knew that were in the program. If they had known this earlier, they would have asked for help from these friends when they experienced problems or had questions. On the other hand, one learner mentioned that when the researcher posted the percentage of writing produced by the whole group before the meeting in April (i.e., Table 4.1), she realized that she was one of the very few participants who had finished all six required essays. She had thought that everybody was writing, and because of this misconception, she had tried very hard to keep up. This information, that only few learners finished all six topics, gave her a feeling of wasting her effort, if not also one of being cheated. This comment was very interesting. The learner needed peers not just to get support and help but also in order to gauge the amount of effort she put into the writing task. The need to know what others are doing in order to decide how much effort to put into the task reveals the competitive nature of the learner's mind. At the very least, a sense of group seems to provide an important reason for working hard in this supposedly self-regulated language learning environment.

### **4.3 More Questions to Investigate**

In this initial study, the purpose was to understand what it was like when AWE was used as the sole mediation to developing English writing skills. The result of this study shows that learners liked the opportunity to practice writing at their own pace but very few of them actually took advantage of it. Those who made the most of the program chose to trust the feedback and used the AWE tool reflectively. Learners knew that the AWE feedback was effective in providing form-related feedback, rather than content-wise comments. The AWE program also highlighted the exact location of the error (e.g., underlining the error) and pointed out the type of error being made (using a code or direct correction), but these were mostly errors that had fixed correction. Although learners were allowed to self-correct their errors and they could revise as many times as needed, they must be resourceful, reflective, and self-disciplinary because the program did not give sufficient hints and did not have the

power to require the learner to do anything. In addition, learners often had problems understanding machine-generated comments and suggestions. Disappointed with the system, some learners even tried to fool the system or willingly took on the role of a program evaluator, giving up their original roles as learners.

Was it the program's fault or the learner's 'laziness' that was at the core of the problem? Perhaps both. However, as an educator, I was more willing to stand by the learner and sought to understand how it was possible to provide learners with more useful support.

Many more questions remained. For example, why did most learners use the AWE system so little and what sustained those who used it most? If it was the nature of the AWE that made it only capable of handling definite aspects of writing, what would be the best use of AWE? How AWE should be positioned in the overall language learning process so that our learners could best benefit from having the tool? According to the learners' experiences in the first study, I believed much of what was lacking in the interaction between the learner and the program could be provided by interacting with other human beings, for example a human teacher and peers. I decided to continue the investigation by designing a course, using SCT perspectives as the design framework and AWE as the tool.

## Chapter Five

### Designing a Writing Course With SCT Touch

#### 5.1 Teaching Approaches to EFL Writing

AWE programs support the development of writing proficiency with such tools as spelling and grammar check and by giving feedback on organization, style, and mechanical aspects of student essays. According to Hyland (2002), this is a text-oriented approach to writing, which “focuses on the products of writing by examining texts in various ways, either through their formal surface elements or their discourse structures” (p. 5). Johns (1997), on the other hand, characterizes this camp of writing instruction as focusing on formal facts of language (e.g., sentence-level grammar, vocabulary, and discourse models). The goal of such instruction is production of error-free sentences and texts. For Gabrielatos (2002), the emphasis is on three activities: creating a text according to a model, creating a text from prompts, re-writing a text following specific guidelines, and he calls these global practice procedures. These are what the AWE programs provide with their models, prompts, feedback, and unlimited opportunities for revision. Thus, it is reasonable to categorize AWEs as providing text-oriented global practice.

Although text-oriented global practice is an instructional approach widely adopted in EFL writing classes, it is not the only focus that EFL writing instruction needs to have. Hyland (2002) points out that, besides a text-oriented approach, there are two other main ways to handle writing instruction: the writer-oriented and reader-oriented approach. The writer-oriented approach focuses on the writer and describes writing in terms of the processes used to create texts, including the views of writing as personal expression, writing as a cognitive process, and writing as a situated act. A reader-oriented approach, on the other hand, emphasizes the role that readers play in writing, including such views as writing as social interaction, writing as social construction, and writing as power and ideology.

Among all three orientations, the social focus of writing instruction is most consistent with the SCT perspectives because of its focus on

writing with an intention to be part of a discourse community. It is important to point out that the social focus discussed here is not equivalent to the idea of process writing, an approach widely known among writing teachers for emphasizing learners working in a cycle of pre-writing, writing, and post-writing activities with feedback provided by their teachers and peers (Hyland, 2002, p. 25). In Johns's view (1997), process writing is learner-centered instruction which starts with activating learner's schemata and encouraging learner to use strategies, most importantly metacognitive skills, throughout the whole process characterized as individual meaning-making. In fact, the process-writing model has been criticized as overemphasizing psychological factors with little attention being paid to the help offered to the individual during problem-definition, solution framing, and shaping of writing (Faigley, 1986). Thus, although it is useful and commonly adopted in writing instruction, process writing belongs to the writer-oriented view, following the cognitive perspective of learning, not as social as it is commonly conceived.

Models of writing instruction that follow sociocultural historical perspectives would have the characteristic of being reader-conscious, which refers to such considerations as who the readers are, what contextualized discourses they operate in, what conventions they expect to see, and what background information they hold as shared assumption (Johns, 1997). That is, as Nystrand (1989) puts it, the writer has to reasonably assume and respond to what the reader likely knows and expects, or, in Hyland's words, "balances their purposes with the reader's expectations" (2002, p. 34) so that the reader could properly make sense of the writer's intentions. Thus, writing, together with reading, is a process of social interaction in which both writer and reader engage and bring their views to the text.

The social concept of writing also includes the idea that the writer writes as a member of a discourse community, or writing as a social construction. This is not just a matter of adopting the patterns and conventions of that community but also "positioning themselves and their ideas in relation to other ideas and texts in their communities" (Hyland, 2002, p. 41), as is commonly the case with academic writing or in the situation of English as a Specific Purposes (ESP).

Although it is not common for school composition to value such contextualized considerations, once when learners think beyond the classroom and the idea that the teacher is the only audience, these

reader-oriented considerations are likely to be real, critical, and pressing. For adult learners, writing to a particular group of readers or as a member of a professional community (or ‘a community of practice’, in Lave and Wenger’s term, 1991) is often expected and considered to be the common practice for professional writing. There is thus a pressing need to develop reader-oriented writing.

Thus, the newly-designed course here was to have a focus on readers. This focus could also serve as a way to distinguish conventional school writing courses from what these adult learners will experience here. This does not mean that text-oriented or writer-oriented instruction is considered unnecessary or unimportant. In fact, having sufficient text-based skills is prerequisite to EFL writing while writer-oriented support such as process writing an indispensable part of writing instruction. Indeed, text elements have always been the focus of EFL writing instruction, and, admittedly, for some realistic reasons. However, with too much text-oriented emphasis, as we have seen in Table 4.2, learners tend to value mechanical elements, organization, and development much more than the conception of reader. For adult learners this view of writing could post serious consequences to their development of writing proficiency, for example, making it hard for them to see learning to write in English is related to their professional life and personal growth.

Thus, in light of SCT perspective, my goals in designing a new writing course was to mediate conceptual change from overly text-oriented writing skill development to adopting some reader-oriented perspectives toward writing while supporting learners to continuously develop text-oriented skills and writer-oriented strategies when necessary.

For the goal of developing reader-oriented writing, Ann Johns’s book on developing what she called “socioliteracy” (1997) is particularly helpful. In developing awareness to academic audience, Johns engages learners in a process of investigation, including interviewing professors and analyzing genre used in the students’ disciplines using a series of scaffolding measures. The whole procedure is consistent with Vygotsky’s view of teaching, which is characterized by the interaction between the learner and a more knowledgeable other within the learner’s zone of proximal development (ZPD), defined as the distance between actual or independent problem solving and assisted performance. Scaffolding (Bruner, 1966) is the concept derived from this interaction, which is to

actively engage the learner while providing only necessary supports for the goal of the learner's eventual independent performance. For Johns, her scaffolding measures included modeling, coaching, scaffolding and fading, questioning, encouraging articulation, pushing for exploration, fostering reflection and self-awareness, which are indeed consistent with teaching and learning processes postulated by researchers such as Bonk and Cunningham (1998). For the purpose of helping learners develop a concept of readers and the community of practice that they write for, Johns' approaches served as useful examples.

## **5.2 Writing Instruction with SCT Touch**

The SCT touch in this writing course lies in its emphasis of writers as unique contributors and creators of world knowledge who are capable of dialoguing with the reader. They are not lone learners, as the AWE system is likely to make them feel. Instead, they are supported by a learning community that encourages constant dialogic interaction through which participants and the instructor engage collaboratively and reflectively in the inquiry into EFL writing. In this community, the instructor serves as a more experienced peer, who scaffolds and models the process of writing and encourages the participants to examine their existing concepts of writing and to bring readers into their consciousness. The participants, on the other hand, develop self-regulated writing capability using the AWE program as the mediation while being supported by the whole learning community. One of the new concepts, for example, is that any piece of composition should be considered a dialogue between the learner and his or her expected reader. Writing is thus a long and recurring process of imaginary interaction between the writer and his or her reader, requiring elaboration and revision whenever necessary. It is not a product of 30-minute rough work, which is a common misconception that many students have acquired through years of school-based writing instruction and high-stakes writing assessments. Examining concepts like these collaboratively as a group is expected to impact student writers' long-term development.

### 5.3 The Writing Skills Development Cycle

To describe the design of the course, Gabrielatos's writing skills development cycle was adopted as the framework for the discussion of awareness-raising, support, practice, and feedback as the key activities:

1. Awareness-raising
  - a. Each class meeting starts with a performance report of the whole class, pointing out growth and weakness in *our* (the class's) work. This is done together with individual report, in which each participant talks about the process of his or her writing since the class met the last time. Participants are free to make comments on the group report or make comparison of their own performance and group averages. This report helps to meet the learner's needs to see what others have done in order to gauge one's own effort, addressing a need discovered in the first study.
  - b. After the performance report, there is a short introduction to one of the five criteria in *MY Access*: Focus & Meaning, Development & Content, Organization, Sentence Structure & Style, and Mechanics & Convention. Although this activity takes a teacher-fronted lecture style, the instructor makes sure to maintain the presentation in a dialogic and inquiry mode, always inviting comments, questions, and discussion among the students.
  - c. The instructor analyzes an anonymous students' work in front of everybody as a model for revising the composition. This analysis activity started with reading and making sense of the machine-generated feedback, with special focus on the particular criterion discussed previously in presentation (b) and moving on to other criteria that had been discussed previously. This is to reinforce the presentation while avoiding overwhelming the writer and other participants.
2. Support by developing self-regulated learning capability
  - a. Introducing reference books and online resources.
  - b. Emphasizing revision and time investment. For example, participants were told that, unlike school writing

assignments or examinations which always have time limit, writing for real-world purposes requires sufficient time to develop, revise, and enrich. Brainstorming and discussion are the most important part of the class.

- c. Discussing ways to maintain reasonable routines and work schedules so that writing could be an integrated part of the participants' daily activity. Sharing tips to keep the writing going when it seems impossible to do so.
  - d. Individual accountability was encouraged by having each participant report their progress in each meeting.
3. Practice: The AWE program is used as the major tool for global practice.
  4. Additional feedback: Additional feedback is provided by peers and the instructor in class meetings and conferences, taking the role of interested readers.

In order to encourage social interaction, the following activities were added to the original cycle:

5. Group interaction
  - a. Creating an encouraging and supportive atmosphere from the very first meeting.
  - b. Brainstorming and discussion before and after each writing prompt.
  - c. Encouraging each member to bring unique contribution to the writing prompt being discussed.

#### **5.4 The Course Design**

The class lasted for eighteen weeks. In the first 12 weeks, the class met once every two weeks for three hours (totally six times). During this three-hour face-to-face meeting, the participants first reported their progress during the past two weeks. Then, the instructor went over the materials in the handbook provided by the program and selected student writings to comment on the spot as a demonstration for the class. The activities for each class meeting followed the schedule are presented in Table 5.1. Feedback was also provided in face-to-face conferences by appointment, which usually lasted for one hour. During the last six

weeks the participants continued writing on their own through *MY Access* in a self-access mode; no classroom interaction was planned. They were encouraged to keep in touch with each other and the teacher through e-mail or MSN Instant Messenger. They could also ask for face-to-face conferences with the teacher if needed.

The complete timetable with activities and focus for each class meeting are provided in Table 5.1. In the next chapter reports the result of their implementation.

**Table 5.1**  
**Timetable and Activities for the Course**

<i>Meeting</i>	<i>Activities</i>	<i>Focus</i>
1	<ul style="list-style-type: none"> <li>a. Introduction to the AWE program (how to use, schedule for writing, and criteria)</li> <li>b. Introduction to the support system and personnel</li> <li>c. Identifying learners' purposes and needs through a background questionnaire</li> <li>d. Brainstorming on the first prompt and then start writing on the AWE system (providing help that might be useful for the first assigned topic)</li> </ul>	General introduction
2	<ul style="list-style-type: none"> <li>a. Progress Report</li> <li>b. Discussing Content &amp; Development</li> <li>c. Analyzing content and development of one participant's work</li> <li>d. Peer review on content development</li> <li>e. How to read and get the most from the feedback?</li> <li>f. Introducing self-study tools — online concordancers, dictionaries, and useful books</li> </ul>	<b>Content &amp; Development</b> The extent to which ideas are elaborated with specific, accurate, and relevant details (facts, examples, reasons, anecdotes, prior knowledge)

**Table 5.1 (continued)**

3	<ul style="list-style-type: none"> <li>a. Progress Report</li> <li>b. Comparing and contrasting focus and meaning of all student work</li> <li>c. Group discussion on what controlling ideas are appropriate for the required prompts</li> <li>d. How to research a topic through the Internet. Make sure that you paraphrase rather than copy.</li> <li>e. Preparing to write the new topic, focus on <i>focus &amp; meaning, content &amp; development</i></li> <li>f. Setting up conference schedule</li> </ul>	<p><b>Focus &amp; Meaning</b></p> <p>The extent to which the response demonstrates understanding of the text and <u>the purpose of the task</u>, and makes connections between them through <u>a controlling or central idea</u></p>
4	<ul style="list-style-type: none"> <li>a. Progress Report</li> <li>b. Analyzing organization and supportive information of all student work</li> <li>c. What are purposeful structures?</li> <li>d. Group discussion on the organization for selected prompts</li> </ul>	<p><b>Organization</b></p> <p>The extent to which the response establishes <u>purposeful structure, direction, and unity, including transitional elements</u></p>
5	<ul style="list-style-type: none"> <li>a. Progress Report</li> <li>b. Analyzing the language and style of students' work</li> <li>c. How to write like a polite, educated adult?</li> <li>d. How to be casual in everyday communication (such as email)?</li> <li>e. How to develop active vocabulary?</li> </ul>	<p><b>Language &amp; Style</b></p> <p>The extent to which the response demonstrates effective and varied sentences and word choice appropriate to the intended audience</p>

**Table 5.1 (continued)**

6	<ul style="list-style-type: none"> <li>a. Progress Report</li> <li>b. Analyzing the mechanics and conventions of student work</li> <li>c. What are some basic conventions for paragraphing, grammar, usage, punctuation, and spelling?</li> <li>d. Useful tools for developing appropriate use of mechanics and conventions</li> </ul>	<p><b>Mechanics &amp; Conventions</b></p> <p>The extent to which the response demonstrates control of conventions, including paragraphing, grammar, usage, punctuation, and spelling.</p>
7-12	<p>Self-study with <i>MYAccess</i></p> <p>Support for this self-study period has been provided, including</p> <ul style="list-style-type: none"> <li>a. identifying the meaning and purpose of each prompt</li> <li>b. brainstorming ideas</li> <li>c. determining ways to organize ideas</li> </ul>	<p>Global practice</p>

## Chapter Six

### Study Two: Mediated Learning With and Around AWE

What does it feel like to be in a writing course that is designed on the basis of socio-cultural-historical perspectives and is mediated by AWE, peers, and the instructor? How do learners make use of all the resources that are available to them? How does the learner position AWE in the overall EFL learning experience and what role does it play? These questions are what the second study aimed to understand. The researcher documented and analyzed the experiences of two learners, aiming to acquire deeper understanding of the phenomena involved. The research question that guided this inquiry was:

*How did the two learners regulate their learning through the mediation system formed by the AWE program, the teacher, and fellow students?*

#### 6.1 The Context

The context of this study was an English writing course offered at a university extension center. It featured the use of *MY Access* as the AWE tool for developing writing skills. The researcher was the instructor, and this was the fourth time that I offered this course at the same extension center affiliated to the university. Nine people enrolled in the writing course this time. They were teachers, government officials, students, college professors, or bank clerks who were interested in advancing their English writing skills. All of them had college degrees, with five (5) of them having an advanced graduate degree, including one Ph.D. and one MFA in fine art (the highest degree in the particular discipline). Their writing proficiency levels, based on their self-report on the first day of the class, ranged from low intermediate to high intermediate (see Table 6.1 for a background summary.) As a smaller class than those in previous years and with students having higher education levels, it was expected that these learners would be better at using metacognitive strategies and interacting more intensively as a class.

**Table 6.1**  
**Student Background Summary**

<i>Pseudo-nym</i>	<i>Profession</i>	<i>Reason for taking the course</i>	<i>Writing Proficiency</i>
1	University secretary	Failed in GEPT examination (high intermediate) and wanted to pass the examination	High intermediate
2 Anne	Nursing	Failed in GEPT examination (intermediate) and wanted to pass the examination	Intermediate MA in Nursing
3	Government official	Failed in GEPT examination (intermediate) and wanted to pass the examination	Intermediate MA in Electronic Engineering
4	University student (history)	Wanted to develop English writing proficiency in order to prepare for advanced graduate study	High intermediate undergraduate
5	University associate professor	Received his PhD in Taiwan, and wanted to acquire English writing proficiency in order to publish research papers internationally	High intermediate Ph.D.
6	Sales Manager of an import company	Wanted to be able to more efficiently report problems (email) to head office abroad	Intermediate
7	Webpage Designer	Self-improvement. To be able to write without errors	Low Intermediate Master in Fine Arts
8 Grace	Bank clerk	Self-improvement	High intermediate TOEIC 905
9	Junior high school teacher	Wanted to past the writing part of the TOEFL test	Low intermediate MA in Counseling

## 6.2 The Two Learners Focused in this Study

In order to understand the day-to-day interaction among the learners, the AWE system, and the class, the researcher documented two participants' experiences in the class through observation, interviews, and document analysis (written products). There were two reasons to choose these two learners to focus on in this study. First of all, these two participants were among the most motivated in the class. They never missed a class, and their participation in discussion and submission of written works were more frequent than others (See Table 6.2 for a comparison between them and the other participants'). They were comfortable about articulating their thoughts in class and in face-to-face conferences, which allowed me many opportunities throughout the course to understand how they regulated their learning in this context. Second, the rapport existing between them and me since the first day of the class was expected to lubricate the data collection process.

The two learners were given pseudonyms as Anne and Grace in this study. Anne was in her middle fifties, married with two children. She had had two years' experience studying for a master's degree in the U.S. about fifteen years before. Being in the nursing profession which required certificates of English proficiency, she took the intermediate level of GEPT test, a Taiwan-developed English proficiency test, right before the course. Since she failed the writing section of the test, Anne took this course with the intention to get some tips and to pass the test on her second attempt. She was goal-oriented throughout the course, although she was not the best writer in the class, judged from the amount of text-based errors she made and the conceptual gaps in writing she was able to detect on her own.

Grace, on the other hand, was in her early forties, married with a teenage daughter. She had worked as a computer programmer in a well-established local bank for fifteen years. Now that the job was no longer a challenge and that her daughter was more independent as a high school student, Grace decided to take some time to develop her interest in English. She said she took the course purely for interest, as she did not intend to take any examination like Anne, nor did her job require any English writing proficiency. However, her writing was better than Anne and many other members of this class, with fewer text-based errors and more interesting information to share with the reader.

In class the two learners were similar in the sense that they were among the most active and motivated in the class. They participated in the discussion without reservation, and they continuously developed their writing on the AWE throughout the course. However, they were also different in many aspects. For example, Anne had a clear goal to pass the GEPT proficiency test, while Grace was there to develop her interest in learning English — a goal that was comparatively vague. Anne focused, at least initially, on writing techniques, while Grace was more interested in developing content of her writing. These differences in goal and focus eventually created different results in these two learners' experiences in the class and in their interaction with the AWE tool.

It is important to point out that there were both male and female students in the class and that most of the class members were like Anne and Grace in terms of participating in the discussion. Except for two members who seldom showed up in class, the other members' participation and contribution were equally enthusiastic and interesting. Some of them also consistently made effort to develop their writing skills with the mediation of the AWE throughout the course, just like Anne and Grace. However, as a middle-aged female researcher myself, I found it easier to talk to Anne and Grace outside the class than other members. There were also more shared discussion topics among us which helped develop the kind of rapport necessary for this study. Because of these reasons, Anne and Grace were invited to be the focus of this study.

### **6.3 Data Sources**

Data sources for this study included class observation, field notes, interviews, learner's written products, and records of conferences with the instructor. There were also archival data taken directly from the AWE system, such as frequency of access, numbers of prompts used, numbers of scored essays, number of pending essays, scores for different versions of drafts, average scores for the whole class, and the date when the participant used the system for the last time.

Most of the interviews were conducted in a coffee shop near the language training center where the course was offered. During the first twelve weeks of the class, I met with both Anne and Grace outside of the

class once, mainly for the purpose of discussing their compositions. There were some conversations about their lives, work environments, and their reactions to the course. Although these opportunities were not for data collection, rapport was developed through these conversations. After the first twelve weeks, we had two lunch meetings in which I was able to ask them questions more directly related to this study. The two learners were informed of the study and explicitly gave permission to use the content of our discussion for this study. Their written works stored in the AWE system were also available for analysis.

Besides interviews and conferences, I also kept a class log, which recorded what had been accomplished and discussed in each class. It was sent to all the class members as a review and member check after each class meeting. The log detailed what we did as a class during the previous meeting, including the focus of our discussion and additional resources mentioned. The class members had the chance to respond with confirmation or correction, if necessary. This strategy served as a way to address the concern of trustworthiness for this study.

#### **6.4 Data Analysis**

The philosophical underpinning of this research is interpretivist in nature. The aim was not to offer causal explanations, but to understand the experience by way of “reconstructing the self-understandings of actors engaged in the action” (Schwandt, 2000, p. 191). In other words, the study had as its goal to grasp the meanings that constitute the action of learning to write in English in the AWE mediated learning environment, seeking to discover some of the essence of that experience through the intensive study of individual cases.

The analysis of this study included two types of process. One was applied to the data provided by the AWE system, including frequency and numerical data. This part of the data was managed by constructing graphs, tables, and timelines in order to reveal underlying patterns. All of the above were also used to triangulate with the participants’ comments in class discussion and interviews. The background data are organized and presented in Table 6.1, while Table 6.2 provides an overlook of all members’ activities in class. (Please refer to section 6.5.1. for an explanation of Table 6.2.)

The second part of the data analysis included description,

categorization, and interpretation, which according to Richards (2003) exist in all successful analysis of qualitative studies. The analysis process basically followed the procedure suggested by Lincoln and Guba (1985, pp. 336-356). To help organize the data during initial analysis, the research question was divided into three sub-questions:

1. How do the two participants regulate their learning with the mediation of the AWE program?
2. How do they regulate their learning with the help of the teacher and peers in the class?
3. What meaningfulness do they derive from their experiences in this writing course?

I first identified critical issues related to the above questions, breaking down all the textual data sets (interviews and field notes) into then-appropriate categories and then developing proper descriptions for the category. By contrasting and comparing multiple data sources, I identified conflicts among various accounts and then worked to resolve them by providing proper explanation and interpretation. Through this process, interpretation was formed and tested continuously as the analysis proceeded. Some initial interpretations and descriptions were also sent to the two participants for member checking. Their feedback was helpful in making sure that the interpretation was accurate and trustworthy.

## **6.5 Results**

### **6.5.1 Overview of the Class Members' Performance**

Table 6.2 indicates what happened in the 12 weeks of the class. Gray areas are information about the two learners focused on in this study, Anne and Grace. The asterisk shows the top three extreme cases in any one particular item. The asterisk next to a number indicates that for this item the learner has a particularly noticeable performance. For example, Anne and Grace did not miss a class (zero absences). They asked for one or two conferences with the instructor. They each wrote six out of twenty prompts during the course, which was the highest number in the class,

with Anne having 24 scored essays while Grace having 10. In total, Anne wrote 30 essays, while Grace wrote 14. Anne's first writing got her an average score of 3 only, but when she finished the course, her highest score was 6, with an average of 5. Grace started with high scores of 5 and 6, and when she finished her scores were also around 5 and 6. By carefully documenting the process, I expected to see the phenomena this study was interested in — self-regulated learning in a mediated environment.

### **6.5.2 Classroom Interaction for Conceptual Change**

This section discusses how classroom interaction serves as important mediation which contributes to conceptual changes in writing. The discussion and description below follow the lead of the research question: "How do the two learners regulate their learning through the mediation system formed by the AWE program, the teacher, and fellow students?" Below are four critical incidents in which important conceptual changes happened. These incidents show how social interaction enabled learners to develop the concept of (1) analyzing techniques in model essays, (2) adopting external resources to enrich writing, (3) using AWE functions and feedback, and (4) deriving insights from class activities.

**Table 6.2**  
**An Overview of All Members' Activities in class**

<i>Pseudo- nym</i>	<i>Abs (6mx)</i>	<i>Cf</i>	<i>Pmpt (20)</i>	<i>Scored Essays</i>	<i>Pending</i>	<i>Total Try</i>	<i>First Try</i>	<i>Best Scores &amp; Date</i>	<i>Avg Scores</i>	<i>Last Input</i>
1	4	0	4	1	6	7	1/15 443344	n/a	443344	3/28*
<b>2 Anne</b>	<b>0*</b>	<b>1</b>	<b>6*</b>	<b>24*</b>	<b>6*</b>	<b>30*</b>	<b>1/8*</b> <b>333333</b>	<b>3/3, 12*</b> <b>666666</b>	<b>555455</b>	<b>3/30*</b>
3	2	0	6*	8	3	11	1/19 555555	2/2 665565	554455	3/10
4	1	1	5	5	5	10	1/15 555565	1/28 666666	665565	3/11
5	2	0	5	8	4	12	1/13* 333333	2/12 665566	554455	2/20
6	5	0	1	0	2	2	n/a	n/a	n/a	1/7

**Table 6.2 (continued)**

7	1	1	5	16*	7*	23*	1/11* 111111	3/7, 11 65565	444444	3/22
<b>8 Grace</b>	<b>0*</b>	<b>2*</b>	<b>6*</b>	<b>10</b>	<b>4</b>	<b>14</b>	<b>1/13 555565</b>	<b>2/10, 13, 9* 666666</b>	<b>555565</b>	<b>3/24</b>
9	0*	4*	5	13*	12*	25*	2/10* 222222	3/10.3* 665566	554455	4/1*
Avg	1.57	1	3.14	9.44	5.44	10.29				

*Note:* (1) Abs=absence; cf=number of conference; pmpt=number of prompts written; n/a = not available. (2) The six digits refer to scores gained, including the overall score and scores for organization, development, style, and mechanics, respectively. The highest number one could get for each category is six.

### 6.5.2.1 Analyzing techniques in model essays of the AWE

In each class meeting, members of the class were always asked to make a progress report, through which each took some time to discuss their new findings about the AWE system or their writing process. They could also talk about difficulties and challenges, while the other participants would provide help, feedback, or simply share similar experiences. It was in this discussion participants reported having a chance to peek into other people's strategies. Most noticeable was Anne's progress report in the third meeting. She said the function in *MY Access* that she used most often was model essays. Every time when she started a new topic she would check out the model essays in the system to see how other authors developed the same topic. This strategy helped her understand the prompt better: "Giving me some ideas to get started," she said. She tried to analyze the model essay for techniques and features that she could pick up and use while appreciating the beauty of other people's work. It was through this process of reading and studying exemplary works that she managed to generate ideas and thoughts to develop a satisfying essay of her own. In order to continue developing writing, she later found a website with abundant writing samples and recommended it to the other class members. She said studying sample essays was an important strategy she would use to prepare for her second GEPT, which took place right after the course in April.

Interestingly, Grace at first did not agree with Anne about the usefulness of model essays. She thought the model essays in the system were too childish. The details were "too emotional and illogical," she said. An example she gave was model essays for the prompt, "Choosing a Rewarding Profession." She said the model essays made it seem that the author always needed to write something fun and interesting, rather than discussing more important issues, such as preparing oneself for a profession by attending professional development programs, finding a profession that matches one's personality styles and aptitudes, understanding divisions and subdivisions of a profession, and thinking about making contributions rather than making money. Grace said because young students would never write about these issues it was clear that the model essays reflected school children's thinking and lifestyle, which was too distant from what she wanted to write.

Perhaps the difference in opinions lies in the fact that Anne

considered herself a beginner writer, focusing on acquiring text-based techniques, while Grace tended to use writing as a tool to discuss issues about which she felt strongly, focusing on expressing her views and sharing information.

Because of her focus in writing, Grace held the view that writing from experiences or reference materials was the only way she knew how to write. She said,

My problem is that I can only write topics that I feel most strongly about or with which I have some experience or knowledge to relate. If this is the case, I could really enjoy writing. If not, I don't know what to say in my essay.

The class discussion eventually helped her. In the class after we discussed what to write about according to a new prompt, students were asked to give a final comment before we called it a day. Grace said,

I was really concerned about this problem of mine [note: writing only topics that she felt strongly about], but today Anne said that she found an essay on nursing which developed its arguments in a very brilliant way. Then, the instructor said she agreed that it was a good strategy to use some articles that we like as models to develop our ideas. I like that strategy very much. All of a sudden, I realized that I could use Anne's nursing example to rewrite my essay about finding a rewarding occupation. After all, I don't know much about writing. Finding a pattern would be of great help, just like the way we learned to write with a pen brush back in our school years.

Grace now accepted the usefulness of model essays that Anne emphasized a lot in class. It is clear that Anne's discussion in her progress report had the power to influence others, helping Grace to find solutions to her problems, although Grace was more interested in finding external source of model essays instead of Anne's examples taken from the AWE system itself.

### 6.5.2.2 Adopting external resources to enrich writing

Contrast to Anne's use of model essays within the AWE, Grace said her writing always started with reading information from external resources, and she was obviously good at searching for them on the Internet. Once she surprised the whole class by bringing a book written by one of the participants in the class who was a professor in architecture. She said she had spent some time searching for everybody's information and found that this professor participant had published an interesting book. She purchased the book and brought it in for his autograph that day. Grace always had a way of enriching the class conversations by providing various kinds of linkages, including outdoor activities, parenting, education, technology and something she had experienced or read. It was thus quite natural for her to incorporate what she read into her writing from the very first assignment. When she described her experience hiking on Mt. Pacific (or 'Taipinshan' in Chinese), her essay had information about temperatures, altitudes, and other statistical facts of the mountain, providing the class with a good example of incorporating published data into essays. She also found useful words. Her experience of finding the word "depot" just by chance was particularly exciting for her as she mentioned this incident on many occasions. She wrote in her reflection:

As English is a foreign language which is not familiar for us, we need tools, like dictionary or reference books, to help the correct use of words. Nowadays, the Internet also helps a lot. Take, for example, one of my writing experiences, the topic was "Memorable Places": I told the reader we rode a train in the mountain. I thought it was probable that there were some good terms about riding a train in the mountain, so I surfed the Internet with the keyword "mountain train", and then I got everything related to it. To my surprise, I saw a term 'depot', being used to stand for mountain train station. Proper usage of words can make our product much better, thanks to the quick searching of internet, I can learn the correct usage of mountain train station — depot, in such short time. (*Note: This writing was originally in English with all typos unedited.*)

Using external resources gave Grace's writing instant five's and

six's on AWE. Her impressive scores quickly got the other members' attention. In class they expressed great interest in adopting Grace's way of incorporating reference information and enriching writing. As discussed earlier, some learners, like Anne, started to read external materials. This gave Anne, in particular, more leverage over her writing, even as a relatively slower learner.

The concept of writing to learn, or writing as a process of developing new learning, opened up a new way to look at writing for Anne. Before following Grace's example, Anne's strategy was mainly like that for a school-based writing assignment: that is, focusing on techniques and writing directly from her mind without using any reference materials. She believed this was the reason why her scores for earlier prompts were very low. Indeed, her scores were mostly 3 or 4 when she wrote the first prompt "Favorite Hobbies" from January 8 to 17 (see Anne's timeline table). Her scores became better for the second topic, "Happiest Time in Your Life," for which she wrote about a skit she put on for the party celebrating the New Year Festival in her office. In the skit, she, a woman in her late 50s, played a ballerina dressed in a pink tutu. Anne talked with enthusiasm and excitement about her writing at this time. She eagerly wanted to share with the whole class the funny thing she did and described in the essay. In her writing at this time, it was mostly personal experience; there was no trace of using reference materials.

When she wrote the third prompt "An important change," Anne's writing started to have information from external sources. Although it was still mainly about personal experiences, Ann provided quotations from the Bible. She admitted that Grace's experience discussed in the class made her decide to try adopting information she read. For later essays, it became Anne's routine to search for and read external sources before writing. It is clear that Anne was so influenced by the class discussion that she began to adopt a completely different writing strategy, which indeed helped to improve her writing greatly.

#### **6.5.2.3 Interacting with AWE**

The two participants interacted very differently with the program. For Grace, the interaction with the AWE program was infrequent, as evidenced by her timeline (see Section 6.5.3) and her own statement that she did not make full use of the system. Tool and individuals are not

supposed to be separate units within an activity, but in this case Grace and the AWE seemed to be pursuing different goals: Grace is Grace, and AWE is AWE. Although Grace found it interesting to input her completed essay and get immediate numerical evaluation and she was very interested in getting six's, the scores were not a result of collaboration between the tool and the individual. The scores also served no obvious purpose for Grace, because she said she was not particularly motivated to make any kind improvement in her writing after scoring. It should also be mentioned that a lot of time Grace wanted to stand above the writing activity that she and the AWE were supposed to be in together and started to make comments that positioned herself as a program evaluator — which involved totally different activities from developing writing proficiency. The shift of activity again indicates that Grace and AWE did not work together for a common goal.

Part of the reason, according to Grace, was that for some prompts it was too easy to get high scores and for the others she found it hard to relate. Scores were quick references that Grace relied on to judge the quality of feedback provided by the system. When she received high scores early in her writing activity, it suggested to her that the system had lower criteria than those she set for herself. Then, she saw the model essays being of childish content and the feedback being vague statements which did not seem to match what she wrote. Distrust was generated. The AWE system did not seem to offer a trustworthy scaffold appropriate for her zone of proximal development.

It is clear that AWE as a tool is not just a blank piece of paper nor a simple word processor. It carries the designer's ideal about writing and writing instruction. While a word processor feels almost unobtrusive in the process of writing, giving the user a lot of space to create, an AWE has content, which includes prompts and model essays of differing levels of maturity, tools that check spelling and grammar, feedback systems, and evaluation schemes which help to determine the quality of an essay created by the learner. Unfortunately, many of these tools are still inadequate: the dictionary and suggested word list are too primitive; the model essays included are childish (according to Grace); and, most importantly, the evaluation scheme and feedback never point out exactly where there is a problem and how one should revise. AWE, as a mediation tool, can be obtrusive to the process of creation, particularly when the help it provides does not fall within the learner's ZPD, like in Grace's case.

In Anne's case, however, there was better interaction between the tool and the individual which was geared toward the common goal of developing writing proficiency. First of all, Anne's goal to pass another run of the GEPT writing examination was sharp and clear. With this obvious goal in mind, she saw that the AWE and its feedback, albeit subtle, actually guided her toward improvement, allowing her to revise her essays through trial and error. She was interested in getting the highest possible scores, like Grace. However, for Anne, acquiring six's was a means to improvement, not just a fun thing to do, perhaps because getting six's was not easy at all. Anne did not get good scores right away. Instead, she had to work really hard, trying everything she could to make her grades grow.

Based on the discussion in class, Anne was the only member in the class who made the most use of the AWE system and its functions, taking a trial-and-error method to fix her essay on the basis of clues and feedback given by the system. She said her writing routines started everyday the moment she arrived at the office early in the morning. Sometimes she wrote multiple drafts on a prompt and very often she developed one prompt continuously for many consecutive days. Some of her comments about the system and the functions are presented below.

I basically think that the system is helpful when there is an instructor. It has had great impact [on my writing], especially when I play with it and try very hard to raise my scores from four to five and from five to six every single day. Every time when the system gives me some advice, I feel the urge to revise my essay immediately. I revise my essay everyday, trying to improve it everyday. And then, I found the scores actually rise! That makes me very, very happy.

Writers tend to use certain words repetitively. I too use a lot of "I can, can, can." There are lots of "I can's" in my essays. Now I know... I would try to change "can" to "be able to"--find a different way to express the same idea. All of a sudden I realized: So, that's the way to do it! You know, in this system, if you use different words, it will raise your scores. Yes, you can feel it very clearly...

The system gives you grammar and punctuation check. It will

tell you if you have any errors in the essay. I try to revise my errors in my own way, saving the file, putting it back to the system again to see what feedback I get this time. That's the kind of game I play with the system.

Anne's enthusiasm is very clear. For her, the whole process of writing on the AWE is similar to a game, with a lot of interaction between her and the software. This metaphor of playing a game is important to our understanding of Anne's experience. It indicates fun, suspension, winning and losing, and getting into a flow status (Csikszentmihalyi, 1990, 1997), to name just a few types of emotion which might be associated with the metaphor. For Anne, the AWE system served as a reliable companion and reader in the process of developing her writing skills, allowing her to see an imaginary reader's immediate responses which were impossible with any human readers.

Unfortunately, this machine reader could only respond at some limited text-based levels. It was not capable of assuming different reader roles, and it did not allow our budding writers to experiment with and develop other useful concepts about writing other than merely text-oriented techniques. What is more, once when Anne made it to six's, she was not motivated to revise any more. After all, the goal was reached and the essay was done. It was time to take a break and celebrate her achievement, even though she knew very well there were still many problems to be worked out.

Although other class members knew Anne use the system to the full, they did not necessarily want to follow her. Grace asked Anne, "So, you mean that the feedback is useful?" The answer was a definite yes. Grace was amazed. She turned to me and said, "You are right. If we could develop faith in the system, no matter how silly such faith may be, it would be helpful. But I just find it very hard to trust it that way." Grace said she did not use the functions provided by the AWE at all. She developed her essay mostly on *Microsoft Word* and then copied and pasted the completed work to the AWE for scores, expecting the software to do nothing more than accept her essays and give her instant evaluation in numerical terms. The discussion in class showed that most of the participants were like Grace: they wanted mainly numbers from the system.

It is important to point out that the reason class members chose to use the system this way is not that they were in need of any kind of

resourcing strategies, as previous research would assume. According to Grace, it was actually a decision based on her judgment, experience, and understanding of what the tool could and could not do well. After all, Grace's experience interacting with the system and the quality of feedback given by system were not persuasive, making the idea of engaging in more intensive interaction with the AWE rather silly.

Grace's experience brings up a distinction made by Lantolf and Thorne (2006, p. 164) between tools that make people dependent and independent. They discussed this distinction with the example of a calculator and an old-fashioned abacus: although they both calculate and respond with correct answers, the latter develops skills that eventually enable people to generate answers without the tool, but not the former: one still has to depend on the calculator for an answer no matter how familiar he or she is with the number pad. That is, an abacus develops skills and concepts of mathematical operation that can benefit the learner for a long time, while an electronic calculator only does the work for the learner. For the purpose of developing writing proficiency, one would definitely expect AWE to do the former rather than the latter.

In terms of our two participants' experience with AWE, there was no evidence to show that they became dependent on the AWE tool, perhaps because they were both mature adults, having some ideas about how to develop their writing. Grace was completely independent of the AWE, while Anne used the tool only as a temporary support. For a while, the AWE was Anne's best companion. It allowed her to experiment with new concepts about writing which often were generated from interaction with peers and the instructor. With interaction with the instructor, peers, and the system, Anne indeed developed useful concepts about writing. However, at the end of the course, she actually decided to continue her learning without the AWE. On the one hand, it is good that our learners considered the AWE tool only as one of the many tools available for their learning. On the other, however, our learners' experiences also suggest that this AWE tool was not indispensable. It was actually replaceable.

Nevertheless, Anne is probably an ideal learner that the software company would like to claim possible, as the software company often promotes their product by saying that with the AWE, "students are motivated to write more and attain higher scores on statewide writing assessments" (from the Vantage Learning website). However, it is important to note that only one out of nine participants in the class was

able to be as motivated as Anne. The result is consistent with the previous study (Chapter Four, this volume) in that only a small number of the learners made full advantage of the system. It is clear that AWE programs benefit very specific kind of learners who are, perhaps, very similar to Anne, motivated by a specific and immediate goal, not the program, and who manage to develop trust in the system through long-term engagement in the writing activity and interaction with the system. While Grace and many other students complained about the inadequacy of AWE, Anne found the feedback fall right within her ZPD, allowing her to enjoy the trial and error processes to figure out how exactly she needed to revise her essay to make the AWE program respond with more positive feedback. In the process, she and the tool became one, generating total engagement and flow experience.

#### 6.5.2.4 Getting insights from interacting with the instructor

The critical incidents with the instructor can be discussed in two aspects: (1) Insights from class activities, as represented by Anne's statement: "*Now I realize why I failed!*" And, (2) Insights from one-on-one conferences: "*In my mind, there was never a reader!*"

##### (1) Insights from class activities: *Now I realize why I failed!*

An ecological approach to language learning asserts that the perceptual and social activity of the learner, and particularly the verbal and nonverbal interaction in which the learner engages, are central to an understanding of learning. In other words, they do not just facilitate learning, they *are* learning in a fundamental way (van Lier, 2000, p. 246).

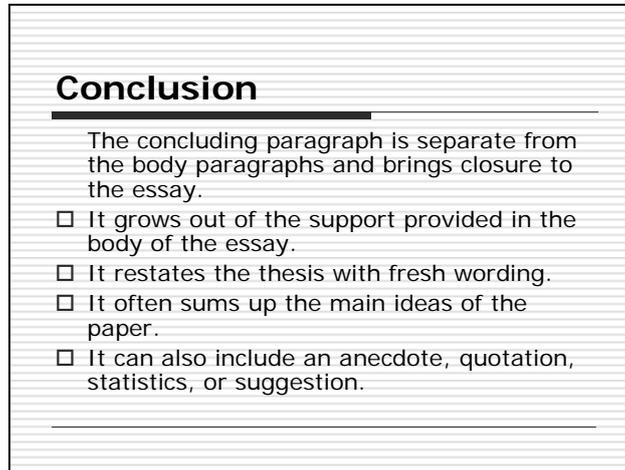
The major classroom activities in this class included lectures and discussions. Lectures were not intended to be monographs by the instructor. I made sure to make the class members know that they could engage in open dialogues with me or the other class members whenever needed. Although I intended to make the classroom atmosphere fun, dynamic, and accepting of all the members and multiple perspectives, the learners had to actively moves to explore ideas and concepts that each of them wanted to work on. When they were willing to express their views, I had the chance to peek into the learner's mind, understand their difficulties, and provide appropriate scaffolding whenever necessary.

This happened in this class because dialogues and expressing views were encouraged from the very first class meeting.

In the first meeting, I intended for the participants to brainstorm on what they wanted to write for the first topic and then write something to the AWE system right away. However, the class members found it hard to discuss without having some understanding of the other members, so they decided to engage in some quick conversations to get to know each other. Surprisingly this incident set the tone for the encouraging atmosphere afterwards. Grace described the first class in her reflective journal this way (original in English):

The class, to my dismay, my teacher and my classmates are quite special... A male manager of a German company who has the hobbies usually for woman, like flower arranging and gardening; and he plans to transfer the hobbies to another career. An architecture professor takes this course for more skills on English writing for his essay. A government officer who is about to take a GEPT test in the near future, takes this course for preparation. As for me, it needs a bit courage to speak out: I come without any purpose, with interest only. The first day in the class, our teacher returned a warming comment on my learning for nothing, "The one who works for interest only is a very fortunate person."

As a result of the students sharing something about themselves with each other early on, it became easy for many of them to speak out whenever they had a view to share or a question to ask. For example, once I was finishing up the lecture on organization with the slide below:



**Figure 6.3. A Slide Used in the Class**

All of a sudden, Anne exclaimed in excitement: “Now I realize why I failed the test!” She repeated the main point of my presentation in her own words, “So, you mean that the conclusion has to correspond to the previous parts of the essay and all parts of the essay must look like a fully integrated piece of writing?” A big mistake she said she had made in the writing section of GEPT was to let the guided questions get in the way; she responded to the questions one by one in a way similar to answering essay questions, rather than integrating and organizing her responses in an essay structure. Thus, her paragraphs did not flow; they were all disjointed.

This spontaneous comment, with Anne’s exciting voice and tone, was significant to her as well as to the other participants. Anne attended this course with the intention to figure out a way to pass the writing test in her second attempt. For her, the answer was found here. By articulating and elaborating her thoughts in the open forum, in a way similar to a private speech in Vygotky’s terms, she was able to claim the new discovery in her consciousness, which further reinforced her realization. The episode thus marked the breakthrough of her writing development. At the end of the class, she mentioned this incident in her reflective comment as one of her significant learning experiences:

After taking this course... my feeling is that... I have developed more sense to logics and essay structure. For example, as the teacher said, there should only be one controlling idea in each paragraph. If the paragraph is about love, I can talk about nothing but love. In the past... although I did fine with main topic (theme), my tactics had a lot to be demanded, for example, in terms of trying to extend the theme with supportive details and examples, to provide transitions and linkages to all paragraphs, to conclude with a short summary in different wording and my further opinions. I realized, as I mentioned before, that my ideas were all over the place when I wrote in the test. When I was asked if I would purchase things from street vendors in the test, I should have incorporated my answer in the essay. How else would an essay be an essay! I was so silly not to realize it until now (laugh). I wish I would not make the same mistake next time

Grace described the classroom atmosphere and interaction in her journal, which could represent a general response from the participants:

Working on the assignment alone is hard work, but getting together with the teacher and classmates during the course is quite a great time. Our teacher leads us into discussions on the topics we are going to tackle. She builds up a mood [atmosphere] to make us feel free to express our opinions; and through such interaction, we have a broader view on the subject that we are going to write.

(2) Insights from conferences: *In my mind, there was never a reader!*

When class members and I met at the one-on-one conference, we went over one essay chosen by them. I would comment on logic and organizational problems in their writing but try to avoid overwhelming them with too many details. During the conference with Anne, I told her that her readers would have to ask a lot of questions because there was important information she did not tell them. Then, I imitated the voice and tone of a reader and made her understand what her writing was like from the reader's point of view. As we talked, we added in details to

make her writing more comprehensible and approachable. This experience was mentioned in her final reflection, she said:

There is another important insight. When the teacher worked with me on my writing, she often asked what I tried to tell my readers. I never thought about writing that way. As a unique individual, [I see things from my own perspective] and never really look at my work from a reader's point of view. In my mind, there was never a reader! Because of the teacher's questions, I gradually learn to think about how to write my essays in such a way that other people would be interested in what I have to say.

Taking this course changed my concept about writing. I realized that reviewers are concerned about the whole structure of an essay... When they review your essay, they are looking for uniqueness. They will give you high scores only if you can offer something special and unique.

From Anne's comment it is clear that she originally held some concepts about writing that were more appropriate for school compositions: There was not a reader that she wrote to, except the teacher. When I asked her questions with the tone of a reader inquiring about more information and trying to have a dialogue with the writer, she suddenly became aware of the existence of readers. Anne realized that readers want to learn something new, significant, interesting, or informative and that they want to be introduced to the issues in an organized and systematic way. This conceptual change for the learner may not have been possible if the learner interacted only with the AWE system or of the AWE as the only (virtual) reader.

Grace, on the other hand, derived confirmation of her uniqueness from our conferences, which covered topics from a wide portion of her life besides writing, including her reading, marriage, daughter, and work. She said she wrote in English because of "interest." I asked her what it meant by learning to write "for interest." Is it like learning how to knit a sweater or developing some kind of hobby?" She explained,

No, it's not like knitting, because when knitting you have a good idea of what the result will be like. You have a clear

picture of your final product. But, writing is different. The unexpected discovery in the process is what attracts me the most.

How interesting that a second language learner of writing would think about writing this way! For me, this is what it means by being autonomous to the task of learning how to write.

Then, she said apagogically that she did not expect herself to have the ability to pass any English examinations, because she could not write without spending a lot of time in preparation and research. Without research, she doesn't know how to write. I responded, "Grace, you should consider attending graduate school!"

I realize that there are self-regulated learners, like Grace, who have been thinking about and doing the right thing for their learning but they may feel that they are not, simply because their intuition is different from social values, which in this case have to do with the concept that learning to write in English has to be about passing an examination or getting job promotion. One on one, conferences with the students allowed me, as the instructor, to see the learner's concerns and provide encouragement when necessary, which of course not to be expected of AWE.

### **6.5.3 Analyzing the Timelines**

Tables 6.4 and 6.5 are timelines reconstructed based on the two learners' performance with the system and their experiences in the course. These two tables reveal more clearly the two learners' differences.

Anne was motivated to write from beginning to the end, due to the fact that she had a clear goal in front of her: passing the GEPT examination. As she said in interviews, she did try to work on her essays frequently over many consecutive days. The only exception was when she got all six's at her first attempt, suggesting that the scores made her feel the essay was done and perfect, no need for revision. In total Anne created thirty drafts of different topics, which is the highest among all the class members.

Grace, on the other hand, was more motivated to write at the beginning of the course. She acquired high scores almost immediately, but because of this she developed the idea that the system was not reliable. After all, she knew her essays were not as good as what the

scores suggested. The required topics were also becoming more and more difficult for her to write. Grace felt that she did not have much to contribute as a writer, and thus she lost her motivation to write in the later part of the course, even though she was still among the most active members contributing much to the class discussions.

**Table 6.4**  
**Anne's Timeline**

<i>Writing Activity</i>	<i>Date and Scores</i>
<b>[1/6 First Class]</b>	1/8 333333
First topic: Favorite Hobby	1/10 333344
During this period of time, Anne wrote intensively, but her scores were low. She did not know how to improve them.	1/11 333333
	1/11 443343
	1/12 444444
	1/13 444344
	1/17 444444
<b>[1/20 2nd class]</b>	1/25 n/a (3times)
Second Topic: Happiest Time in Your Life	1/26 433344
The scores were improving as she tried each day.	2/3 554455
	2/6 554455
	2/7 555455
	2/9 555555
	3/30 555555
<b>[2/10 3rd class]</b>	Pending
Third Topic: An Important Change	2/14 665555
During the third class, she heard about writing from resources. She tried the strategy and then her scores improved greatly. She was very happy in the first conference and in the next class.	2/14 pending
	2/15 Conference
	2/15 665555
	2/16 665555
	2/16 665555
	2/17 665555
	2/20 665555

**Table 6.4 (continued)**

<b>[2/24 4th class]</b> Fourth Topic: Effect of Technology This time she got all six's in the very first attempt. No more revision was done afterwards on this essay.	3/3 666666
<b>[3/10 5th class]</b> Fifth Topic: Choosing a Rewarding Occupation She found a nursing article and used it as an example to write hers. Right away the AWE gave her all six's. Again, no more revision was attempted.	Pending 3/12 666666
<b>[3/24 6th class]</b> Sixth Topic: Society's Biggest Problem Originally this was a difficult topic for Anne, but in the discussion in class the class members encouraged her to stick to her nursing expertise, and then she did well again. She did not get all six's right away, and more revisions were done.	3/29 666566 3/30 666566 3/30 666566
Total prompts attempted	6
Total number of scored essays	24
Total number of pending essays	6
Average score	555455
Total try	30

**Table 6.5**  
**Grace's Timeline**

<i>Writing Activity</i>	<i>Date and Scores</i>
<b>[1/6 First class]</b>	
First Topic: Favorite Hobby	1/7 Pending
Grace received good scores right away. She therefore did not think the feedback was useful and decided to use the system only for scores.	1/13 555565 1/24 555565 2/23 665565
<b>[1/20 2nd class]</b>	
Second Topic: The Person You Most Admire	1/24 Pending
Again she received all six's the moment the essay was put to the system. During the conference she and the instructor looked carefully into her essays and she realized there were a lot of errors.	2/10 666666 2/13 666666 2/22 Conference 2/23 666566 3/9 666666
<b>[2/10 3rd class]</b>	
Third Topic: Learning from Experience	
Grace said she did not have experiences that she could relate, so she did not finish writing this topic.	Pending
<b>[2/24 4th class]</b>	
Fourth Topic: Effect of Technology	
The discussion in class helped her come up with some ideas to write.	3/8 554455 3/9 555565
<b>[3/10 5th class]</b>	
Sixth Topic: Choosing a Rewarding Occupation	
Grace thought she had little to share with the reader about her occupation because she did not feel that hers was rewarding. Her writing did not go well because of this concern.	3/24 443343

**Table 6.5 (continued)**

<b>[3/24 6th class]</b>	
Seventh Topic: Society's biggest problem	Pending
Again Grace felt that she did not have much to share about this topic, in spite of the fact that in class discussion she helped others develop their ideas.	4/7 Conference (interview)
Total prompts attempted	7
Total number of scored essays	10
Total number of pending essays	4
Average scores	555565
Total try	14

#### **6.5.4 Continuing to Learn**

During conferences and class discussions, I had much opportunity to understand what these adult learners thought about English writing and how it related to their work and life meaningfulness. Although every member perceived affordances in the language learning ecology differently, all were able to find their own ways to enhance their overall language learning experience. For Anne, writing was originally a necessary skill that she needed in order to pass GEPT, and passing the test was related to job security. Anne impressed me with her determination, making use of the AWE system to the full and constantly relating her previous test experience to what she heard, saw, did, and read in the class. Through these actions, she was able to transcend the original simple intention of passing GEPT and getting higher scores to more important issues which would have longer-term impact, such as understanding what it means to be an author and what responsibility she has for her readers.

For Grace, developing English writing capability was “just an interest.” It was a way to develop herself, as she felt it necessary to have some space for herself outside of her family. In order to write well, she developed the habit of reading a large amount of information and then incorporating what she read into her writing, making her writing full of

interesting information and supporting details. This strategy worked well; it was easy for her to get high scores. However, she thought the AWE system was only a score dispenser. It did not tell her how to improve her writing and thus was not useful to her. At the end of the course, she found a new way to continue her learning—attending the Toast Master meetings. She believed that the group would allow her to extend her interest in developing English writing skills to multi-dimensional language learning opportunities. It would also allow her to develop necessary language proficiency and people skills to be successful in her work environment.

After the course ended in April, I met with Anne and Grace again in a coffee shop near Grace's office. Anne just finished her second GEPT examination. This time she was lucky. The required composition was about swimming, a topic she had written about during the course. Anne knew that writing with resources in hand was different from the examination situation for which she was trying to prepare herself. After all, in the examination, she would be asked to finish an essay in thirty minutes, and there would be no chance for her to use any external resources. Her strategy was to intensively and carefully analyze a large number of example essays. Although her goal at the time was to pass a high-stakes writing examination, the experience with the course allowed her to see the fulfilling side of developing writing proficiency. She said,

It was in the process of making errors and trying to revise that I realized what it means when you (the instructor/researcher) said ... What did you say about writing in our first class meeting? ...that writing is about expressing feelings, subtle feelings. In the game of trying to move from four to five and five to six (*Note: referring to scores given by AWE*), I fully understand that writing is like... growing a plant. It is like ... full of life [laugh]. You see it budding right in front of you. There is tremendous joy to be in the process.

Grace, on the other hand, gave me a tour of her office and introduced me to her colleagues, making me understand her work environment. She worked at one cubicle among at least 100 others in a large bank. This understanding of her work environment was very helpful, making what she told me about her work become concrete. She also told me that she started to go to the Toast Masters (TM) club, under

the recommendation of another member of the class. Grace called TM an opportunity to provide three dimensional (3D) experience to her originally one dimensional writing activity, since she had to write a script and organize her ideas before she could deliver a speech and there has to be proper body gesture and facial expressions during delivery. Now that there is a group of real audience right in front of her, the process of writing became very different. “For one thing, long sentences are not appropriate,” she said. She was happy to continue her learning this way, and it was clear that audience had become a real concept to her now.

Conversations with these adult learners made me realize that the class and I were not just dealing with learning how to write. Through developing writing skills, we also explored new possibilities for life and tried to understand who we are as individuals. These adult learners knew very well what they wanted to do with their lives and how developing writing proficiency might help them reach their goals. Their action was not confined by the limitation of the objects (the computer software) or others (the teachers or fellow students). No matter how they interacted with the AWE tool, they are surely self-regulated learners.

## **6.6 What We Learned from the Two Learners**

In addressing the research question, “How do the two learners regulate their learning through the mediation system formed by the AWE program, the teacher, and fellow students?” I see two important concepts from the two learners’ experiences that need to be further explored. First of all, the learner’s goal for learning how to write played an important role in determining how they interacted with the tool. A concrete goal like Anne’s helped her engage more in the learning process, allowing her to make the most use of the tool even though she was totally aware of the problems that her peers saw. Grace’s “pure” interest in developing writing did not seem to sustain her effort throughout the whole course, especially when the AWE tool fell short of her expectations. Goals obviously matter.

Second, AWE is not a neutral tool: It can best serve a specific type of learner, who is perhaps more like Anne than Grace in terms of goals and proficiency levels. For the tool and its feedback to be considered useful, the learner must be able to see the point of interacting with the tool. For this to happen, the learner must perceive that the feedback

provided by the AWE fall right within her zone of proximal development. There should be a reciprocal relationship between the learner and the tool if they really work well together for a meaningful common goal. How this is possible with a large variety of learners is a big challenge for software designers, but it is unrealistic to expect one tool to fit all.

As to the role that AWE plays in the overall language learning environment, Anne's and Grace's experiences also show that their development of writing-related concepts did not originate from their interaction with the AWE tool. Rather, new concepts about writing were best initiated during person-to-person interactions in class or in conferences and then verified in the learner's private space as she engaged in trial and error, problem-solving, and continuous reflection on her own experience during (but certainly not limited to) her interaction with the AWE tool. This whole process of development from social interaction to personal awareness is consistent with Vygotsky's perspective that

Any function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an interpsychological category, and then within the child as an intrapsychological category. (1978, p. 57)

This is not a trivial finding, because it helps position the AWE tool as a mediator to self-regulated learning in support of classroom interaction, rather than being the leading character as many software developers, teachers, and learners would like to see it play. Perhaps by positioning the tool to a proper mediator's role in the overall language learning environment, teachers as well as software designers will eventually figure out ways to allow individuals to work with the AWE in their own ways and thus to meet their needs.

The next chapter discusses more about both theoretical and pedagogical implications pertinent to the relationship between learners, CALL tools, and social interaction in the process of self-regulated learning.

## **Chapter Seven**

### **Implications and Conclusion**

In the introduction chapter, I mentioned that the goal of this monograph is to understand how Vygotsky's socio-cultural-historical theory could serve as a useful framework and provide inspiration for the study of second or foreign language learning mediated by the computer, focusing on self-regulated learning through the mediation of an automated writing evaluation (AWE) program. With the two studies, I tried to understand how interaction with and around AWE benefits the development of EFL writing proficiency. As a conclusion, this chapter focuses on theoretical and pedagogical implications of the findings.

#### **7.1 Theoretical Implications**

##### **7.1.1 The Concept of Mediation in Light of the Two Studies**

In this section, the concept of mediation is explored in light of what have been observed in the two studies. Mediation, as discussed in Chapter Two, refers to the physical and symbolic tools in activities that human beings rely on to change the world around them and to regulate their relationships with others. In the two studies reported here, we have mostly considered the AWE tool as the mediation, although it is also possible to think of the various new concepts about writing that the participants acquired (such as writing for a reader and writing from external sources), as mediation. It is necessary to point out, however, that the new concepts about writing and the AWE tool as mediation have some fundamental differences: for example, the former is most appropriately considered symbolic and conceptual tools while the latter, a physical artifact.

The learners such as Anne and Grace in the second study developed new concepts about writing over a long period of time through a variety of inter-personal activities, such as dialogues, discussions, and observation, and intra-personal activities, such as self-directed experiments on the AWE. We can expect that the new concepts will stay

with them, to help them regulate their writing activities, and to change the world around them when writing English. These concepts about writing can now serve as conceptual tools for them to think differently about the literary world around them and to build upon as they continue their learning activities in their own ways.

On the other hand, the AWE tool is very different in nature when it comes to mediation. As a physical tool, first of all, it was useful for some people, but not for others. The most interesting finding from the two studies reported in the previous chapters is perhaps that learners, like Anne, who chose to trust the system — even though people around them thought it was silly to do so — seemed to benefit most from the software. What is more, those who were in the same group with Anne, such as Grace, could not interact with the system the way that Anne did even though they said they admired Anne and they saw the benefits that Anne received from the program. However, they were not motivated to do what Anne did. Many of them became more motivated to play the role of a program evaluator than pursue their original goal of developing writing skills. It is not that they did not want to, but that the tool was considered not likely to support their learning. Interestingly, as Anne continued to develop her writing and work toward her goal of passing the examination, she too gave up on the AWE tool. However, she continued to follow Grace's lead by searching for and incorporating information and other resources. In other words, the new concept stayed with her, but the AWE tool was eventually abandoned.

Based on these learners' experiences, it is safe to say that AWE as mediation actually serves limited purposes for a specific kind of learner for a limited time in the overall learning process. It does not have the continuous nature we see in new concepts of writing which learners can use and build on over time. Even if the tool is very useful for a learner, she or he will eventually outgrow the tool if the learning goes well. Thus, it is not always negative when a learner decides to abandon a computer tool. Moreover, there may often be good reasons for the learner to give up on a tool: reasons caused by the software designer's oversight, for example. This position is well-supported by arguments made by Norman (1994, 2002), a professor of cognitive science who is interested in human errors caused by insufficient design in everyday objects. Norman emphasizes that it is not always the user's fault when a tool is causing human errors. AWEs may not be poorly designed, but they definitely pose limitations for many learners. It is important to understand why

some learners use the tool well, while others simply do not use it. It is also important to keep in mind that a single CALL tool with fixed content, like the AWEs in these two studies, simply cannot serve all learners.

From Anne's case, we also see that learners hold in their hands a lot of power when "effectiveness" is concerned. In discussing affordance as a property of a relationship between the actor and an object, van Lier said that, "If the language learner is active and engaged, she will perceive linguistic affordances and use them for linguistic actions" (van Lier, 2000, p. 252). Lantolf and Thorne (2006) also discussed that mediational means do not need to be used as they were originally intended. New and potentially more complex uses are invented all the time by people when they interact with tools. After all, based on Vygotsky's perspective, Lantolf and Thorne maintain that "artifacts assume their character from the activities they mediate" (pp. 66-67). Indeed, in the cases discussed earlier, we see that developing writing with the AWE tool required patience and concentration, but because Anne had a clear goal: getting ready for a high-stakes examination, she had a way to develop her own strategy and routine to use and interact with the AWE system. The goal enabled her to make full use of the AWE tool as well as the opportunity to interact with the other members of the class. Thus, the user's intention and goals are paramount in interacting with the tool. Simply having access to the computer tool certainly does not guarantee effective use. This serves as another reason why conventional comparison research focusing merely on the effectiveness of software without taking context into consideration may be limiting and inappropriate (Felix, 2005).

### **7.1.2 AWE as Mediation in the Intrapyschological Categories**

Another issue we need to explore is the proper position of AWE in the overall language learning "ecosystem". In the cases reported earlier, the AWE tool enabled Anne to engage in "learning by doing" interacting with "learning by reflection," in Little's terms (1996). Through the AWE tool, she was observed constantly going back and forth between processes which Schön (1987) characterizes as 'reflection in action' and 'reflection on action', with the former being thinking along the way of doing, while the latter is thinking about what one has done after the

event. There was also flow experience or total engagement in psychological terms (Csikszentmihalyi, 1990, 1997), with the primary condition for realizing flow experience being having clear goals and feeling that one has a sense of control over the situation or activity that is intrinsically rewarding creating effortless action. These are all related to what we see in Anne's experience of interacting with the AWE. It is clear that AWE as mediation belongs most appropriately to the intrapsychological category, which allows the learner to internalize what she learns from social interaction.

We have also seen in the first study that learners working only within the intrapsychological category did not go far. One of the reasons was that there were few new concepts to be internalized given AWE's limitation in providing new conceptual understanding in writing. This explains why most learners in the first study could not sustain their learning even though they said they enjoyed working on the AWE. Once when there was learning in the interpsychological category, as in Study Two, it could be observed that even Grace, who did not consider AWE useful, expressed a sense of fulfillment toward the experience.

Theoretically speaking, there is a need to capitalize on Vygotsky's intrapsychological category through more discussion of the learner's internal experience with CALL and connecting the internal processing such as reflection and flow experience to the dimension of social interaction. It seems that existing research in second language CALL has not emphasized Vygotsky's intrapsychological category as much as his interpsychological category. The latter is often related to the currently popular Computer-mediated Communication (CMC) research, in which researchers explore how communication, communicative competence, or other aspects of language learning happens through network interaction (for example, email projects between learners from two different countries), while the former does not seem to have a directly related research area in CALL. When it comes to Vygotsky, CALL researchers tend to emphasize the social interaction aspects of learning; issues in the intrapsychological category are seldom mentioned. Private speech is often the means to understand such a process happening within an individual learner. Agency, self-determination, purposefulness, internalization, and meaning have also been discussed in the Vygotskian perspective, but these concepts have not been sufficiently addressed in CALL. In some academic conference situations in which Vygotskian perspectives are the focus, we can even sense uneasiness among

participants when mentioning such intrapsychological process as autonomous learning, or how language learners control their own learning, in Vygotsky's framework. Perhaps the concept of "autonomous learning" is too anti-social on the surface, but this uneasiness is rather strange given Vygotsky's famous quote, "Any function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an interpsychological category, and then within the child as an intrapsychological category" (Vygotsky, 1978, p. 57). Although social interaction is critical, eventually the learner has to go back to him- or herself to make sense of the experience. It is not possible for researchers to fully understand how individuals learn without discussing the process within both the inter- and intrapsychological categories.

Thus, research that focuses on discussion of the two categories of Vygotskian psychological theory could contribute to a better understanding of engagement in interaction with and around AWE, or any CALL applications, and how it benefits the learner's development of EFL proficiency. More research and theoretical exploration in this aspect is obviously necessary.

In sum, the two studies have allowed us the opportunity to explore how the concept of mediation is related to two CALL-related artifacts: one physical, as in the AWE software, while the other conceptual, as in the case of concepts of English writing. We see that the AWE tool is limited, while the concept of English writing can be built on and have continuing impacts on learning. Which of the two should be the focus of CALL research and practice is obvious.

## **7.2 Pedagogical Implications**

Much research is still needed to investigate self-regulation and internalization in terms of Vygotskian social cultural theory in the context of CALL, but an urgent question for practitioners is whether there are ways to capitalize on this intra- psychological process and make average learners of writing become aware of the importance of analyzing their essay and engaging in the process of reflection and repeated revision. This question can be addressed in two ways: one is in terms of software design, while the other is design for social interaction.

### 7.2.1 Designing AWE

Most of the participants in these two studies believed that the AWE systems were not designed in a way that allowed them to see the point of engaging in such a process of carefully analyzing the essay while writing it. First of all, the feedback system is not useful for EFL learners; for example, it does not identify errors that Taiwanese EFL learners actually make, nor does it provide specific suggestion for revising and improving the essay. Mounting evidence in the literature on writing evaluation has shown that it is not useful for learners to know *what* is wrong only; they must also know exactly *where* the problem is and *how* to correct it (Ferris, 2002). The AWE system must be able to do both, again in more concrete and specific ways, instead of expecting the writer to engage in trial and error processes like Anne did.

With *MyAccess*, learners generally did not like consulting the feedback information because it is phrased too much alike no matter which numerical point the essay was evaluated to be. When the users actually read the feedback information, it was often too general and too wordy, making the feedback rather meaningless. In the end, the learner merely became very concerned about the numerical value of his/her work. A score became the most important feedback *MY Access* learners relied on to improve their writing. They did not necessarily care about what the number meant, but getting the highest score for each of the criteria was motivating enough. What is worse, as both Grace's and Anne's experiences show, once the learners receive the highest scores, they might consider the essay perfect and attempt no further revision.

It is also quite puzzling why some functions which are popular in certain situations are seldom used, such as concept mapping and spell check. Concept mapping is well supported by the literature as a useful way to organize writing or learning materials, but on the AWE system the tool is quite restricted. It does not allow learners to manipulate items or change perimeters according to constant changing ideas during the process of forming the essay. A much better tool would simply be paper and pencil, or a computer tool called *Inspiration*, which is a type of concept mapping software popular among schools in the United States. The spell check function, another widely used tool available on any word processor, is also surprisingly seldom used in AWE, mainly because of insufficient entries. Participants would rather use online dictionaries

found on the Internet. For the participants of this study, those functions which were common and efficient to use in other familiar computer tools were seen as dysfunctional here, and this was particularly disappointing and inexcusable.

As discussed earlier, an AWE program functions best in the intra-psychological category. If this is the case, the goal of the AWE program should be supporting thoughtful engagement, in the process of 'learning by doing' and 'learning by reflection' (Little, 1996). John Seely Brown (2000), in talking about Web applications, argued that the point in designing tools is to support functions that are most comfortable and natural to human learning in the everyday environment. He says, "Our challenge and opportunity, then, is to foster an entrepreneurial spirit toward creating new learning environments — a spirit that will use the unique capabilities of the Web to leverage the natural ways that humans learn" (p. 13). Here, "the natural ways that humans learn" is emphasized. This requires that the designers observe carefully what people do when they actually engage in the task in front of them. If CALL program designers could truly tap into the natural ways that language learners engage in learning activities, we would see more people, like Anne, highly motivated and effectively self-regulated in the learning goals they set for themselves. With more effort being put into discovering wise use of technological tools, we trust that these wishes of having software that encourage engagement and reflective learning will not be too far away from becoming a reality.

### **7.2.2 Design for Social Interaction**

The opportunity for social interaction is the key to raise awareness of the process of analysis and reflection. For the participants of the second study, this was a highly appreciated aspect of the class, particularly because for many of the class members the software was not able to support learning in a fulfilling way. From the learner's comments, it is clear that learning did not happen only with the interaction with the computer. Instead, two types of human to human interaction are critical: one is in class with the teacher and peers; while the other is with the teacher in one-on-one conferences.

Interaction with peers allowed participants an open space to search for possible solutions. Learners do this by articulating problems and

thoughts, seeking help, listening for other people's solutions to similar problems, and getting opinions to problems at hand. Important interaction also includes talking to self in an open-thinking process in which the learner tells the class about an experience and provides self-evaluation of work, including difficulties, successes, and possible ways to improve her writing and her experience with the AWE program.

Student-teacher conferences provide an opportunity to encourage learning within the zone of proximal development (ZPD), in which the teacher serves as an expert or a more capable other who provides guidance with her understanding and experience with language learning. She could also be a supportive reviewer of the learner's work, telling the learner her response to the words, sentences, and stories created by the learner. Using scaffolding as the instructional framework, the teacher also models ways to revise a piece of work and invite learners to make suggestions and find clues from the machine-generated feedback. During conferences, conversations that touch on life and work are also opportunities to gain mutual understanding and build rapport. According to the experiences of learners in the second study, this personal interaction is important for learners to feel fulfilled in their learning experiences.

These interactions in the study reported here usually were recurring, as I observed the participant moving back and forth between self and other, independent work and social interaction, and private speech and open discussion, not just from social to private realms emphasized in Vygotsky's SCT. A lot of breakthroughs for students could be observed happening in such interactions.

Interestingly, when asked about their experience in class during interviews, participants seldom mentioned interaction, especially with peers. To them, interacting with peers seemed to be too natural a part of the class to be mentioned. This reaction probably reflected the general public's view that learning is an idiosyncratic endeavor. It was also my observation that women seem to be more comfortable with reflective interaction, and they appreciate person-to-person interaction more than men, perhaps because this kind of emphasis is not conventional among all the other language courses that our learners have experienced. It would be necessary to explain to learners the importance of interaction so that they do not think of reflective conversations as a waste of time. More research is necessary to investigate learner difference in response to the emphasis of interaction and reflection in language learning

Chin-Chi Chao

environments.

### **7.3 Conclusion**

In this monograph, I have attempted to examine the interaction between a computer tool and second language learners through Vygotskian sociocultural historical perspectives. The discussion and the studies reported here show that SCT perspectives allow us CALL researchers and practitioners to probe deep into the tool-mediated language learning process. Many of the insights generated from Vygotskian perspectives help shed light on the relationship between tools and human beings, preventing us from being technocentric in research and teaching. Continuous development of technology is expected to generate more tools and to enable more frequent interaction among human beings. It is thus our responsibility as language educators to make sure that enriched language learning happens in both inter- and intra-psychological categories and to deepen our understanding of how new computer tools mediate language learning.

## References

- Alderson, J. C. (1990). Learner-centered testing through computers: Institutional issues in individual assessment. In J. H. A. L. de Jong & D. K. Stevenson (Eds.), *Individualizing the assessment of language abilities* (pp. 20-27). Clevedon, UK: Multilingual Matters.
- Bell, F., & LeBlanc, L. (2000). The language of glosses in L2 reading on computer: Learners' preferences. *Hispania*, 83, 274-285.
- Bell, F. L. (2005). *Comprehension aids, internet technologies, and the reading of authentic materials by adult second language learners*. Unpublished doctoral dissertation, Florida State University.
- Benson, P. (2001). *Teaching and researching autonomy in language learning*. Harlow, UK: Pearson Education.
- Block, D. (2003). *The social turn in second language acquisition*. Washington, D.C.: Georgetown University Press.
- Bonk, C. J., & Cunningham, D. J. (1998). Searching for learner-centered, constructivist and sociocultural components of collaborative educational learning tools. In C. J. Bonk & K. S. King (Eds.), *Electronic collaborators*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Bruner, J. (1962). *On knowing: Essays for the left hand*. Cambridge, MA: Harvard University Press. (Reprinted 1979)
- Bruner, J. S. (1966). *Toward a theory of instruction*. Cambridge, MA: Harvard University Press.
- Brown, J. S. (2000, Mar/Apr). Growing up digital: How the Web changes work, education, and the ways people learn. *Change*, 32(2), 10-20.
- Burstein, J., & Marcu, D. (2003). Developing technology for automated evaluation of discourse structure in student essays. In M. D. Shermis & J. Burstein (Eds.), *Automated essay scoring: A cross-disciplinary perspective*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Burstein, J., & Higgins, D. (2005). Advanced capabilities for evaluating student writing: Detecting off-topic essays without topic-specific training. Proceedings of the International Conference on Artificial Intelligence in Education, July 2005, Amsterdam, The Netherlands.
- Chao, C. (2003). 建構新世紀語言學習環境：東吳大學外語自學室的理念架構。 *東吳外語學報*, 18.
- Chao, C. (2005). Encouraging self-regulated EFL learning in Taiwanese higher education: activity types and analysis. *English Teaching & Learning*, 29(4), 1-20.
- Chao, C. (2006). How WebQuests send technology to the background: Scaffolding EFL teacher professional development in CALL. In Phil Hubbart & Mike Levy (Eds.), *Teacher Education in CALL*. John Benjamins.
- Chapelle, C. A. (1997). CALL in the year 2000: Still in search of research paradigms? *Language Learning and Technology*, 1(1), 19-43.

- Chapelle, C. A. (1999). Research questions for a CALL research agenda: A reply to Rafael Salaberry. *Language Learning and Technology*, 3(1), 108-113.
- Chapelle, C. A. (2001). *Computer applications in second language acquisition: Foundations for teaching, testing and research*. Cambridge: Cambridge University Press.
- Chapelle, C. A., & Mizuno, S. (1989). Students' strategies with learner-controlled CALL. *CALICO Journal*, 7(2), 25-47.
- Cohen, Y., Ben-Simon, A., & Hovav, M. (2003). *The effect of specific language features on the complexity of systems for automated essay scoring*. Paper presented at the IAEA 29th Annual Conference, Manchester, UK.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper Perennial.
- Csikszentmihalyi, M. (1997). *Finding flow: The psychology of engagement with everyday life*. New York: Basic Books.
- Davis, J. N., & Lyman-Hager, M. A. (1997). Computers and L2 reading: Student performance, student attitudes. *Foreign Language Annals*, 30, 58-72.
- Donato, R. & McCormick, D. (1994). A sociocultural perspective on language learning strategies: The role of mediation. *The Modern Language Journal*, 78(4), 453-464
- Ericsson, P. F. & Haswell, R. (2006). *Machine scoring of student essays: Truth and consequences*. Logan, UT: Utah State University Press.
- Faigley, L. (1986). Competing theories of process: A critique and a proposal. *College English*, 48, 527-42.
- Felix, U. (2005). Analysing recent CALL effectiveness research — Towards a common agenda. *Computer Assisted Language Learning*, 18(1-2), 1-32.
- Ferris, D. R. (2002). *Treatment of error in second language student writing*. Ann Arbor, MI: University of Michigan Press.
- Gabrielatos, C. (2002). *EFL writing: Product and process*. (ERIC Document Reproduction Service No. ED476839)
- Garrett, N. (1991). Technology in the service of language learning: Trends and issues. *The Modern Language Journal*, 75(1), 74-101.
- Holec, H. (1980). Learner training: meeting needs in self-directed learning. In H. B. Altman & C. V. James (Eds.), *Foreign language learning: Meeting individual needs* (pp. 30-45). Oxford: Pergamon.
- Hubbard, P. (1996). Elements of CALL methodology: Development, evaluation, and implementation. In Martha C. Pennington (Ed.), *The power of CALL* (pp. 15-32). Houston, TX: Athelstan.
- Hyland, K. (2002). *Teaching and researching writing*. Harlow, UK: Pearson Education.
- Johns, A. M. (1997). *Text, role, and context: Developing academic literacies*. Cambridge: Cambridge University Press.
- Johnson, M. (2004). *A philosophy of second language acquisition*. New Haven: Yale University Press.
- John-Steiner, V., Panofsky, C., & Smith, L. W. (Eds.). (1994). *Sociocultural approaches*

## REFERENCES

- to language and literacy: An interactionist perspective*. Cambridge: Cambridge University Press.
- Jonassen, D. H., & Rorrer-Murphy, L. (1999). Activity theory as a framework for designing constructivist learning environments. *ETR&D*, 47(1), 61-79.
- Lantolf, J. (Ed.). (2000). *Sociocultural theory and second language learning*. Oxford, UK: Oxford University Press.
- Lantolf, J., & Appel, G., (Eds.). (1994). *Vygotskian approaches to second language research*. NJ: Ablex Publishing.
- Lantolf, J., & Thorne, S. (2006). *Sociocultural theory and the genesis of second language development*. Oxford: Oxford University Press.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, U.K.: Cambridge University Press.
- Laufer, B., & Hill, M. (2000). What lexical information do L2 learners select in a CALL dictionary and how does it affect word retention? *Language Learning and Technology*, 3(2), 58-76.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: SAGE.
- Lin, H.F. (林惠芬) & Chen, C. P (陳翠萍) (2004). *Criterion: Is there a criterion — limitations of online automatic writing*. Paper presented in the 2004 International Conference on English Language Teaching. Department of Foreign Languages and Literature, National Chung Cheng University, Taiwan.
- Little, D. (1996). Freedom to learn and compulsion to interact: Promoting learner autonomy through the use of information systems and information technologies. In Richard Pemberton, Edward S. L. Li, Winnie W. F. Or, & Herbert D. Pierson (Eds.), *Taking control: Autonomy in language learning*. Hong Kong: Hong Kong University Press.
- Liou, H. C. (2000). Assessing learner strategies using computers: New insights and limitations. *Computer Assisted Language Learning*, 13(1), 65-78.
- Matsuda, P. K., Canagarajah, A. S., Harklau, L., Hyland, K., & Warschauer, M. (2003). Changing currents in second language writing research: A colloquium. *Journal of Second Language Writing*, 12, 151-179.
- Montalvo, F. T., & Torres, M. G. (2004). Self-regulated learning: Current and future direction. *Electronic Journal of Research in Educational Psychology*, 2(1), 1-34.
- Norman, D. (1994). *Things that make us smart: Defending human attributes in the age of the Machine* (Reprint edition). New York: Addison Wesley.
- Norman, D. (2002). *The design of everyday things*. (Reprint edition) New York: Basic Books.
- Nystrand, M. (1989). A social interactive model of writing. *Writing Communication*, 6, 66-85.
- O'Malley, J.M., Chamot, A. U., Stewner-Manzanares, C., Kupper, L., & Russo, R.P. (1985). Learning strategies used by beginning and intermediate ESL students. *Language Learning*, 35(1), 21-46.
- Pavlenko, A., & Lantolf, J. (2000). Second language learning as participation and the

- (re)construction of selves. In James Lantolf (Ed.), *Sociocultural theory and second language learning* (pp. 155-177). Oxford: Oxford University Press.
- Pennington, M. C. (Ed.). (1996). *The power of CALL*. Houston, TX: Athelstan.
- Penrod, D. (2005). *Composition in convergence: The impact of new media on writing assessment*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Pederson, K. M. (1987). Research on CALL. In W. F. Smith (Ed.), *Modern Media in Foreign Language Education: Theory and Implementation* (pp. 99-132). Lincolnwood, IL: National Textbook Company.
- Richards, K. (2003). *Qualitative inquiry in TESOL*. New York: Palgrave MacMillan.
- Robbins, D. (2001). *Vygotsky's psychology-philosophy: A metaphor for language theory and learning*. New York: Kluwer Academic/Plenum Publishers.
- Russell, T. E. (2001). *The no significant difference phenomenon: A comparative research annotated bibliography on technology for distance education*. Alabama: IDECC (with additional information available at <http://www.nosignificantdifference.org/>)
- Salaberry, R. (1999). CALL in the year 2000: Still developing the research agenda. *Language Learning and Technology*, 3(1), 104-107.
- Schön, D. A. (1987). *Educating the reflective practitioner*. San Francisco, CA: Jossey-Bass.
- Shermis, M. D., & Burstein, J. C. (2003). *Automated essay scoring: A cross-disciplinary perspective*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Schwandt, T. A. (2000). Three epistemological stances for qualitative inquiry: Interpretivism, hermeneutics, and social constructionism. In Norman K. Denzin & Yvonna S. Lincoln (Eds.), *Handbook of qualitative research* (2<sup>nd</sup> edition, pp. 189-213). Thousand Oaks, CA: Sage.
- Streeter, L., Psota, J., Laham, D., & MacCuish, D. (2002). *The credible grading machine: Automated essay scoring in the DOD*. Retrieved February 17, 2007 from <http://www.pearsonkt.com/papers/CredGrading2002.pdf>
- Thorne, S. (1999). *An activity theoretic analysis of foreign language electronic discourse*. Unpublished doctoral dissertation. University of California, Berkeley, CA.
- Thorne, S. (2003). Artifacts and cultures-of-use in intercultural communication. *Language Teaching and Technology*, 7, 38-67.
- Thorne, S. (2004). Cultural historical activity theory and the object of innovation. In Oliver S. J., Kees, van E., & Schalkwijk, E. (Eds). *New Insights into Foreign Language Learning and Teaching*. Frankfurt, Germany: Peter Lang Verlag.
- Ultisky, H. (2000). Language learner strategies with technology. *Journal of Educational Computing Research*, 22(3), 285-322.
- van Lier, L. (2000). From input to affordance: Social-interactive learning from an ecological perspective. In J. P. Lantolf (Ed.), *Sociocultural theory and second language learning* (pp. 245-259). Oxford: Oxford University Press.
- Vygotsky, L. S. (1978). *Mind in Society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Warschauer, M., & Ware, P. (2006). Automated writing evaluation: Defining the

## REFERENCES

- classroom research agenda. *Language Teaching Research*, 10(2), 157-180.
- Wertsch, J. V. (Ed.). (1985). *Culture, communication, and cognition: Vygotskian perspectives*. Cambridge: Cambridge University Press.
- Yang, Y. W., Buckendahl, C. W., Juskiewicz, P. J., Bholá, D. S., & the Gallup Organization (2002). *Validating computer automated scoring: A conceptual framework and a review of strategies*. Paper presented at AERA 2002. Retrieved January 28, 2005 from <http://www.unl.edu/BIACO/AERA/AERA CAS 2002.pdf>
- Yates, R., & Kenkel, J. (2002). Responding to sentence-level errors in writing. *Journal of Second Language Writing*, 11, 29-47.

## Appendix

### Additional Resources for SCT and CALL

- Alm-Lequeux, A. (2001). Using the Internet as a zone of proximal development for teaching indirect speech: A Vygotskian approach. *Die Unterrichtspraxis*, 34, 1-9.
- Darhower, M. (2002). Interactional features of synchronous computer-mediated communication in the intermediate L2 class: A sociocultural case study. *CALICO Journal*, 19, 251-277.
- Fiori-Agoren, M. (2004). The development of grammatical competence through synchronous computer-mediated communication. Unpublished doctoral dissertation, The Pennsylvania State University.
- Kim, M. H. (1994). Vygotsky's inner speech and ESL composing processes: A case study of two advanced ESL students. Unpublished doctoral dissertation, University of Missouri, Columbia, MO.
- Kinging, C. (1998). Videoconferencing as access to spoken French. *The Modern Language Journal*, 82, 502-513.
- Kinging, C. (2000). Learning the pragmatics of solidarity in the networked foreign language classroom. In J. K. Hall & L. S. Verplaetse (Eds.). *Second and foreign language learning through classroom interaction* (Chapter 2, pp. 23-46.).
- Thorne, S. (1999). An activity theoretic analysis of foreign language electronic discourse. Unpublished doctoral dissertation. University of California, Berkeley, CA.
- Thorne, S. (2003). Artifacts and cultures-of-use in intercultural communication. *Language Teaching and Technology*, 7, 38-67.
- Thorne, S. (2004). Cultural historical activity theory and the object of innovation. In Oliver S. J., Kees, van E., & Schalkwijk, E. (Eds.). *New Insights into Foreign Language Learning and Teaching*. Frankfurt, Germany: Peter Lang Verlag.
- Warschauer, M. (1997). Computer-mediated collaborative learning: Theory and practice. *The Modern Language Journal*, 81, 470-481.