

THE EFFECTIVENESS OF SOCIAL MEDIA ACTIVITIES ON TAIWANESE
UNDERGRADUATES' EFL GRAMMAR ACHIEVEMENT

by

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ABSTRACT

The purpose of this study was to compare the effects of social media language learning activities with traditional language learning activities on the development of L2 grammatical competence in two English as a Foreign Language (EFL) classes at a Taiwanese university. The study was grounded in four bodies of knowledge: (a) the Input-Interaction-Output (IIO) model (Block, 2003); (b) the sociocultural/activity theory (Lantolf, 2000); (c) current L2 grammar learning theory (Ellis, 2006); and (d) computer-assisted language learning (CALL) theory (Levy & Stockwell, 2006). A convenience sample of 84 Taiwanese undergraduate students officially enrolled in the college voluntarily participated in the study. A quasi-experimental pretest/posttest design was utilized. An ANCOVA was conducted to assess whether collaborative social media activities can bring about significantly better outcomes regarding EFL grammar usage. Results indicated that the treatment group significantly outperformed the control group when controlling for pre-existing knowledge. Results also indicated that there was a significant difference in students' time devoted to English grammar activities between the treatment group and the control group in favor of the treatment group. Furthermore, there was a statistically significant relationship between the time spent on wiki sites and students' English grammar achievement gains. The time students in the treatment group spent on grammar activities increased when they used the social media, and they self-reported spending more time on task during free time. Overall, treatment group students' devotion to the social media activities brought about effective peer support and collaborative learning.

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CHAPTER I: INTRODUCTION

Background of the Study

During the last three decades, computer-assisted language learning (CALL) has progressed and evolved at a remarkable rate. Although there are many possible ways to approach the practice of CALL, there is a strong history of CALL applications being structured in terms of language skills and areas. In addition, the trend in teaching has shifted from teacher-centered to learner-centered instruction, making learners' needs the core consideration in teaching.

The development of Web 2.0 has created new ways for teachers to communicate with students. Web 2.0, such as facebook, blogs, and wikis, have also been called "social media", Safko (2010) stated that: "wikis are websites that allow people to collect and edit their intelligence in one place at anytime. These web sites truly represent the social media foundation of user generated content and the wisdom of the crowds." (p. 159) Many language teachers have adopted the use of Wiki sites into their traditional teaching mechanisms as part of a blended-learning approach (Evans, 2009). According to *Britannica Online Encyclopedia* (wiki, 2011), a Wiki is a website that can be edited or contributed to by users. "Wikis can be dated to 1995, when American computer programmer Ward Cunningham created a new collaborative technology for organizing information on web sites" (para. 1). The best-known use of wiki software is Wikipedia, an online encyclopedia applying the design of open-source software development. People write articles on Wikipedia, and these articles are open to readers for reviewing

and editing. In addition to encyclopedias, wikis are used in a wide variety of circumstances to expedite interaction and cooperation in projects of different aspects.

Social media have been an asset from which many have profited. They are important for businesses, interests, even education. Owing to some negative media broadcasting, many people hesitate to learn about and use social media. Teachers especially may be hesitant as they are responsible for students' safety and copyright infringements (Chapelle, 2003). This is unfortunate because there are many wiki sites that are not only suitable for academic use, but also have the potential really to enrich a curriculum. The study that follows sought to construct a framework for this author's on-going research into the effect of applying online computer-mediated communication (CMC) tools, particularly social media, in English as a foreign language (EFL) classes in Taiwan.

As many EFL teachers in Taiwan know, it is a challenge to gain access to resources for EFL classes. There is the challenge of providing the number of hours in the target language that is required of fluent speakers. The number of hours teachers have the students in class cannot be increased, but additional hours outside of the class, with online collaborative social media such as wikis, can be provided. Now, students have the opportunity to communicate and interact in English with native speakers, teachers as well as other learners from home.

In second/foreign language learning and teaching, the communicative competence theory presented by Canale and Swain (1980) is the most popularly accepted and

embraced. Communicative competence encapsulates four areas of competence, among which grammatical competence is the first and the most crucial factor and refers to the Chomskyan concept of linguistics. Celce-Murcia, Larsen-Freeman and Williams (1999) maintained that the ultimate goal of grammar instruction is to equip students with communicative competence. Spada and Lightbown (1999) argued that after learners have acquired basic structures and vocabulary and have developed a basic ability to communicate, they should be devoted to form only. They also observed that, even in instances where learners are not completely ready to learn a form, profound focus-on-form instruction can help them learn other structures that are relevant to the target grammatical form (Rodríguez, 2009).

Form-focused instruction and communicative language teaching (CLT) can be integrated through the use of grammar activities in computer-mediated communication (CMC) interactions, which are designed to encourage communication about grammar. These grammar activities have two main purposes, namely to develop explicit second language (L2) grammatical knowledge and to provide opportunities for interaction focused on information exchange. They can be achieved in teacher-directed lessons or they can be used in interactive social media group work in order to increase opportunities for pushed output.

Theoretical Framework

The theoretical framework presents selected influential past and recent theories of second language acquisition and language learning, namely the Input-Interaction-Output

Model (IIO), Sociocultural and Activity Theory (SCT/AT), and Collaborative/cooperative learning (CL).

The Input-Interaction-Output (IIO) Model

Over the last 20 years, there have been many second language acquisition (SLA) theories constructed. Past researchers have emphasized various aspects of SLA in their studies. Starting with the monitor model and input hypothesis, SLA study has extended to the IIO model (Block, 2003) as elaborated by researchers such as Gass (1997), Gass and Selinker (2001/2008), and Long (1996). The role of the three connected hypotheses, namely input, interaction, and output has been acknowledged as an interdisciplinary theory in L2 learning. The input and interaction hypothesis (Long, 1985) combines a perspective with regard to the essence of input comprehension to SLA (e.g., Krashen's input hypothesis: 1983a, 1983b, 1985) and a stance for the importance of modifications to discourse structure for learner comprehension (e.g., Long's interaction hypothesis, 1985).

Both Long (1985) and Krashen (1985) viewed comprehensible input as a derivation of acquisition, but there are other theorists who argued that comprehensible input is not sufficient to reinforce acquisition. Consequently, Swain (1985) advanced what is called "comprehensible output" and studied the effectiveness of pushing language learners to produce language.

In fact, many studies revealed that foreign/second language students must be exposed to two steps of interaction. The first is the presence of comprehensible input in

learner interactions, and the second is the chance for learners to structure their output grammatically (Swain 1985). Specifically, in pursuance of motivating the learner's interlanguage system toward the target language, situations to focus on communication deficiencies must be provided (Nakatani, 2005). These types of situations have been furnished to learners through informal group and pair work that push them to discourse in the target language.

Sociocultural and Activity Theory (SCT/AT)

Sociocultural and activity theories (SCT/AT), which developed from the work of Vygotsky (1978), aim to account for important characteristics of the learning milieu at diverse aspects, from the individual aspect to the broader sociocultural milieu of teaching and learning (Levy & Stockwell, 2006). Various proposals with regard to SCT and AT have become challengers to the cognitive and information-processing approach to the study of language (Lantolf, 2000). A number of studies on web-based collaboration have discovered that social interaction and collaboration play a significant role in the learning processes. From a sociocultural standpoint, language learning is considered to be an active social and collaborative process. Through it, learners use a system of symbols (e.g., language) and tools (e.g. computers) to build a system of linguistic paradigm, in collaborative interaction with other learners, to accomplish a task, rather than simply constructing transmitted language information from the outside world (Lantolf, 2000; Lee, 2009). By means of collaborative interaction, learners expand their linguistic and

cognitive abilities to involve themselves in decision-making and problem-solving (e.g., negotiation of meaning and form) (Lee, 2009).

Collaborative/Cooperative Learning (CL)

Collaborative/cooperative learning (CL) is one of the most popular topics in the education industry. It is a strategy that implies that students would perform better if they were grouped with students of varying levels of ability (Slavin, 1995). The key idea is that students in a cooperative learning group would help each other learn (Levy & Stockwell, 2006). CL research shows that its use in the classroom has pedagogical benefits. Collaborative activities in foreign language classrooms are found to be beneficial, because they provide opportunities for interaction and negotiation of meaning between learners (Swain 1995). Furthermore, it has been shown that when a collaborative learning environment is supported by computer-mediated communication (CMC), its potential success for foreign language learning is remarkably enhanced (Levy & Stockwell, 2006). CMC tools such as wiki could really help manage cooperative learning activities in the classroom. Wikis allow users easily to create and edit pages collaboratively. This CMC tool, therefore, has the potential to complement and enhance online collaboration.

The most important reason that teachers should care about web-based communication is because students are using CMC tools. In order to improve on their instructions, teachers need to understand what students are doing with the online CMC

tools, to understand why they are motivated by that type of technology, and to determine how that new technology can be employed to motivate the students in their classes.

Statement of the Problem

While focusing on form in a communicative context is recognized as one of the most suitable approaches for L2 grammar learning, the way grammar is presented in foreign language textbooks remains outdated, consisting of boring, arbitrary, and tedious explanations. Owing to the abundance of communicative approaches to teach foreign languages, researchers started to query the purpose of mere form-focused or explicit grammar instruction on second/foreign language learning. Meanwhile, in response to the limitations of the purely communicative approach, a number of linguists have proposed a new approach to grammar instruction called *focus on form*.

Ellis (2001) defines focus on form as “any planned or incidental instructional activity that is intended to induce language learners to pay attention to linguistic form” (pp. 1-2). He also emphasized the important fact that focus on form in communicative activities can lead students to connect new and more correct structures with their language use (Ellis, 2001). Much research (Andrews, 2007; Ellis, 2001; Ellis, 2006; Spada & Lightbown, 2009) has examined the role of focus on the grammatical forms of language in teaching/learning practice. Instead of teaching grammar in isolation, a focus-on-form approach to language teaching draws learners’ attention to grammatical form in the context of meaning, and teachers’ attention to form is triggered by learners’ quality linguistic input and output (Long, 2000).

Ideally, the best way to enhance motivation and to make English come alive for EFL learners is through authentic interactive communication in the manner of intensive exposure to the target language. It is also the best way to improve attitudes towards EFL, and to enhance achievement (Salaberry, 1996). Research studies show that one of the most effective ways to foster L2 development is through verbal interaction (either face-to-face or computer-mediated) with the target language speakers or learners (Warschauer, 1997). However, face-to-face interaction is not always possible, especially for the Taiwanese EFL students who rely on their time in classrooms to learn English that is not the typical language of communication outside the classroom, and who do not have the opportunity to participate in exchange visits.

With the development of social media technology and its increasing prevalence within the educational system, the questions then became, does social media really aid in the language learning process? Is it possible to achieve positive attitudes and enhance achievement for the EFL students, including the majority who have no out-of-classroom contact with English? It will be argued in this study that form-focused instruction and communicative language learning can be integrated through the use of English grammar activities in social media interactions, such as wikis, which are designed to encourage communication on grammar; to improve on attitudes towards EFL, and to enhance students' recognition of correct English grammar usage.

Purpose of the Study

This quantitative study used a quasi-experimental, nonequivalent control group design with pretest and posttest. The purpose of this study was to compare the effects of wiki-based collaborative activities to traditional activities on the recognition of correct English grammar usage. The study was conducted in two EFL classes at a Taiwanese university. The study also examined the time devoted to grammar activities and its effect on students' recognition of correct English grammar usage. This was shown by the test scores on TOEIC (*Test of English for International Communication*) practice tests adapted and modified from *TOEIC Test grammar and vocabulary review* (n.d.), produced by the *TOEIC* faculty at the University of California. The study involved 100 students from a cross-section of levels. The length of the study was four weeks.

Research Questions

Given the above information, the research questions examined in this study were:

1. Is there a difference in students' English grammar achievement levels between the treatment (wiki) group and the control (non-wiki) group after controlling for pre-intervention achievement levels?
2. Is there a difference in students' time devoted to English grammar activities between the treatment (wiki) group and the control (non-wiki) group?
3. Is there a relationship between the time spent on wiki sites and students' English grammar achievement levels?

Significance of the Study

This study is significant because there is little research on the use of social media in the Taiwanese college EFL classroom, and there is a lack of evidence concerning the use of wikis as a tool for improving EFL students' recognition of correct English grammar usage. Wiki is a relatively new CMC tool, and there appears to be little scientific research literature that has attempted to investigate if using a wiki is an effective way of learning. Despite the fact that there is a considerable collection of literature that has discussed the creation and use of social media in both formal and informal educational settings, research regarding actual recognition of correct English grammar usage, barely exists. This study addresses research needs in the fields of EFL grammar and social media by comparing the use of wiki-based activities to traditional handwritten activities.

Definition of Terms

Computer-assisted language learning (CALL): Computer-assisted language learning refers to the application and study of the use of computers in language teaching and learning, such as instructional software, multimedia activities, e-learning, distance education, and web-based learning. It also refers to pedagogical strategies to integrate computers into the language curriculum.

Web 2.0: O'Reilly's (2005) term for a new concept in web programming of the Internet, marked by the growth of applications that are web-based; which allow users to

easily publish their files and ideas and collaborate on the Internet. Examples include blogs, Wikis, Flickr, youTube, and Facebook (Myers, 2010).

Social Media: Social media refers to applications that build on ideological and technological foundations of Web 2.0 which allow users to easily communicate, interact, and share resources via World Wide Web. Social media enable individuality as well as connectedness to others crossing political, economic, and geographical borders. Social media, including wiki sites, represent the fast growing set of Web-based tools (Robbie & Zeeng, 2012, p. 74)

Wiki: A wiki is a website that everyone can edit. Contributors do not need to learn complicated programming languages. No software is required beyond a web browser. Wikis are thought to support constructivist learning, which allows groups to share information to improve collaboration, foster knowledge sharing and enable learning. This ability to communicate is important just about everywhere—in large corporations, in small companies, in community groups and in charities—but nowhere more so than in the field of education (Mader, 2006, p. i).

Computer-mediated communication (CMC): Computer-mediated communication (CMC) was coined by Hiltz and Turoff (1978) to refer to computer conferencing. It now refers to all electronic communication between learners and instructors through a computer. It can involve both asynchronous text-based communication (e.g., e-mail, discussion board, blog, and wiki) and technologies using synchronous communication

combining text, audio, and video (e.g. Chat, Skype, Blackboard, and Adobe Connect) (Murray, 2000, p. 397).

Communicative competence: Communicative competence refers to the ability to use language effectively, which includes the grammar rules for the purposes of real-life social communication. Obtaining such competence involves acquiring both sociolinguistic and linguistic knowledge.

Grammatical competence: Grammatical competence refers to the language users' mastery of the language code, such as sounds, words, sentence structure, and spelling. The goal is to use correct forms to achieve grammatical accuracy. Such competence plays a crucial role in developing language learners' communicative competence (Canale & Swain, 1980).

Focus-on-form (FonF): Focus-on-form refers to grammar teaching integrated into a curriculum consisting of communicative tasks without separate grammar lessons. FonF is a concept of instruction in SLA and language education concerning a-structure-of-the-day approach, where accuracy of the learners' output is mainly focused, and the activities are aimed thoroughly at grammatical units. Such an approach features communicative activities that combine focus on meaning and attention to form. Focus on form in communicative lessons can lead learners to connect new and more correct structures with their language use (Ellis, 2001).

Communicative language teaching (CLT): Communicative language teaching is an approach to foreign or second language instruction. It regards language as a

functional system which is used for communication. Its ultimate goal is communication in the foreign-language or second-language learning, which enables learners to use language appropriately and correctly in real-life situations. In the CLT classroom, the teacher is a facilitator who tends to be more student-centered to provide real-life materials and situations for learners to engage in communicative activities. The learner is supposed to be in charge of his or her own learning to practice different scenarios of communication in the “real world” outside the classroom (Savignon, 2002).

Input-interaction-output (IIO) model: The input-interaction-output (IIO) model (Block, 2003) has been elaborated by researchers such as Gass (1997); Gass and Selinker (2001/2008); and Long (1996). The role of the three connected hypotheses, namely input, interaction and output, has been acknowledged as an interdisciplinary theory in second language (L2) learning. The input and interaction hypothesis (Long, 1985) combines a perspective with regard to the essence of input comprehension to SLA (Krashen, 1983a, 1983b, 1985) and a stance for the importance of modifications to discourse structure for learner comprehension (Long, 1985). Both Long and Krashen viewed comprehensible input as a derivation of acquisition. However, there are other theorists who argue that comprehensible input is not sufficient to reinforce acquisition. Consequently, Swain (1985) advanced what is called “comprehensible output” and studied the effectiveness of pushing language learners to produce language.

Sociocultural/Activity theory (SCT/AT): Sociocultural theory, according to Kong and Fitch (2003), delineates learning as a process of transforming participation in

communal practices with the assistance of the more knowledgeable members of the community within the learner's zone of proximal development (p. 355).

Activity theory is an interdisciplinary approach to human sciences that originates in the cultural-historical psychology school of thought. Engeström, Miettinen, and Punamäki-Gitai (1999) said that “activity theory takes the object-oriented, artifact-mediated collective activity system as its unit of analysis, thus bridging the gulf between the individual subject and the societal structure.” (p. 468)

Collaborative/cooperative learning (CL): Cooperative learning is an instructional program in which students work together in small groups to promote academic achievement of educational curricula (Slavin, 1999).

Constructivism: Constructivism is a theory of knowledge that argues that learners construct their own understanding independently and cooperatively from an interaction between their experiences and their ideas and also construct meaning from this understanding (Jonassen, 1999).

Summary

Chapter One presented the background of the study, a brief yet broad overview of the theoretical framework, the statement of problem, and the purpose of the study. The research questions and the significance of the study followed to give a clear idea why the present study was conducted.

Chapter Two reviews the related theories and the pertinent literature review of wiki studies, which are connected to the research questions and theoretical framework in Chapter One.

CHAPTER II: REVIEW OF LITERATURE

The literature review presents the nature of related theories such as Constructivism, Input-Interaction-Output (IIO) Model, sociocultural theory/activity theory (SCT/AT), L2 grammar learning, computer-assisted language learning (CALL), and cooperative/collaborative learning (CL). It also presents selected influential past and recent literature about applying wiki technology in language classrooms. The goal of the literature review is to inform the selection of research methods, substantiate the research questions, and support the need and significance of the study.

Constructivism

Constructivism is a theory of knowledge that states learners construct their own understanding independently and cooperatively from an interaction between their experiences and their ideas. They also construct meaning from this understanding (Jonassen, 1999). Constructivism was created based upon John Dewey's belief that students increase their knowledge as a result of their experiences and social activities (Swan, 2005). According to Dewey's philosophy on teaching, teachers are not just telling students about a new idea, nor should teachers encourage rote memorization, but rather the teacher needs to facilitate new ideas so students understand them or see their relevance and connection to other ideas and the world (Koohang, Harmon, & Institute, 2007). Paulo Freire's philosophy of critical pedagogy also shares several elements with constructivism, such as enabling learners to determine how best to learn, encouraging collaborative work, and achieving true understanding through understanding the social

context in which people learn (Darder, Baltodano, & Torres, 2008). Jean Piaget (1999) theorized that knowledge is actively constructed by the individual interacting with the environment, neither merely transmitted to nor absorbed by the learner. Knowledge does not exist independently of the knower, and the individual constructs his or her own system of knowledge from his or her own experiences. Vygotsky's theory of cognitive development expanded the idea of constructivism into the sociocultural context. This social constructivist theory suggests that knowledge is constructed within a conceptual framework established upon the learner's social environment, which stressed social interaction as a means of acquiring knowledge (Irvin, 2001). In the area of foreign language/L2 education, constructivism is often associated with the use of technology in the classroom (Prefume, 2007). Moreover, a constructivist approach includes interactive and collaborative learning, as well as a flexible curriculum (Murphy, Drabier, & Epps, 1998). Through mediated collaborative interaction, consequently, learners enhance their linguistic and cognitive levels.

The Input-Interaction-Output (IIO) Model

Over the past two decades, there have been many SLA theories constructed. Researchers in the past have emphasized various aspects of SLA in their studies. Starting with the monitor model and input hypothesis, SLA study has extended to the input-interaction-output (IIO) model (Block, 2003) as elaborated by researchers such as Gass (1997), Gass and Selinker (2001), and Long (1996). The role of the three pertinent hypotheses, namely input, interaction and output, has been acknowledged by degrees as

an interdisciplinary theory in second language (L2) learning. The input and interaction hypothesis (Long, 1985) combines a perspective with regard to the essence of input comprehension to SLA (Krashen's input hypothesis: 1983a, 1983b, 1985) and a stance for the importance of modifications to discourse structure for learner comprehension (Long's interaction hypothesis, 1985).

Block (2003) presents a graphic representation of this model, based on Gass (1997). In this graphic, the five primary stages are represented in the square boxes along with the mediating factors which precede each of these stages, are represented by the circles (see Figure 1). Input, at the top of the figure, which is what sets the entire model in motion..

Both Long (1985) and Krashen (1985) view comprehensible input as a derivation of acquisition, whereas there are other theorists who argue that comprehensible input is not sufficient to reinforce acquisition. Consequently, Swain (1985) advanced what is called a "comprehensible output" and studies the effectiveness of pushing language learners to produce language.

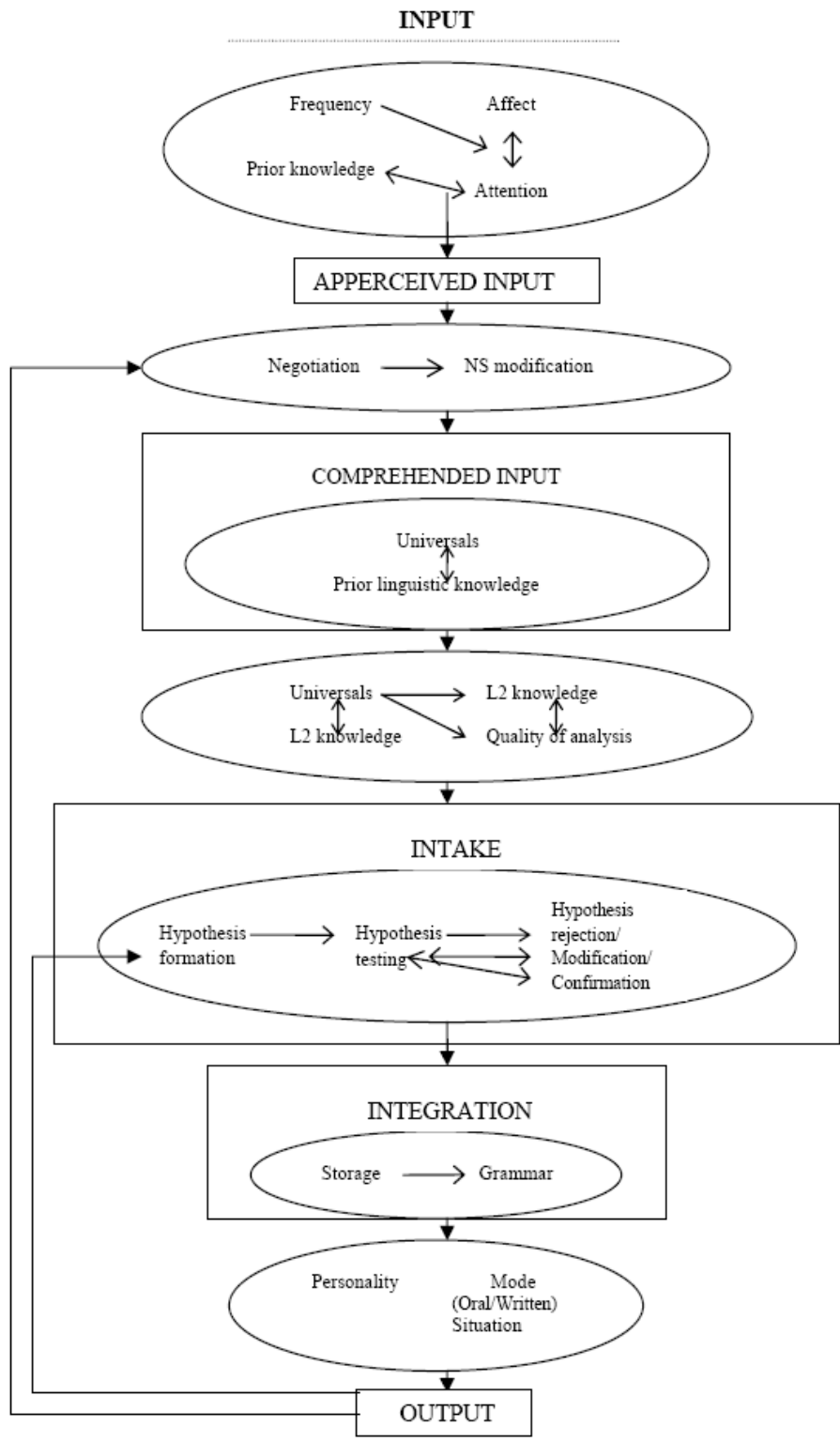


Figure 1 The IIO model of SLA (based on Gass, 1997:3) (Block, 2003 p. 28)

Input Hypothesis

The first factor of IIO model is comprehensible input (Krashen, 1983a, 1983b, 1985, 1994), which, as its name implies, focuses on the role of the input to which learners are exposed. It emphasizes that learners acquire language better when the instruction is just beyond their current levels of language competence. The augmentation of acquisition is symbolized as i (input) + 1. This is similar to Lev Vygotsky's zone of proximal development (ZPD), which refers to the distance between what a child can do with adult guidance or peer cooperation and what the child can achieve without help (as cited in Cummins & Davison, 2007). In other words, if the input contains forms and structures just beyond the learner's current level of competence in the target language, then both comprehension and acquisition will occur (Lantolf, 2000). Krashen (1985) concluded that when language learners succeed in making themselves comprehend in conversation, the right level of input is automatically acquired. He further maintained that the Input Hypothesis is the nucleus of acquisition. That is, L2 acquisition relies on comprehensible input. Thus, the teacher's main role is to provide students with listening and reading materials to make certain that learners receive comprehensible input.

Interaction Hypothesis

The second factor is interaction (Long, 1996). It indicates that the negotiation of meaning through interaction makes input comprehensible, that comprehensible input promotes acquisition because it assists learners in noticing linguistic forms in the input, provides negative evidence, and finally, gives the learners opportunities to modify their

output. That is, interaction provides language learners with opportunities to make modifications in their own linguistic output for clarification, as well as to obtain comprehensible input and feedback (Gass, 1997; Long, 1996; Pica, 1994; Swain, 1995).

In fact, many studies reveal that foreign/second language students must be exposed to two steps of interaction. The first is the presence of comprehensible input in learner interactions; and the second is the chance for learners to structure their output grammatically (Swain 1985). Specifically, in pursuance of motivating learner's interlanguage system toward the target language, situations to focus on communication deficiencies must be provided (Nakatani, 2005). These types of situations have been furnished to learners through informal group and pair work that push them to discourse in the target language.

Empirical second language acquisition (SLA) research supports the argument that applying students' energies to collaborative language interactions facilitates second language development. Storch's (2001) longitudinal research on collaborative interaction in an adult ESL classroom indicated that more instances of knowledge transfer occurred in the pairs with a collaborative orientation than the pairs with a non-collaborative orientation. Watanabe & Swain (2007) noted that when the learners participated in collaborative patterns of interaction, they were apt to achieve higher posttest scores in spite of their partner's proficiency level. It appears that proficiency differences do not inevitably affect the nature of peer assistance and L2 learning. Lee (2009) explored how students collaboratively created blogs and podcasts using task-based activities and how

blogs and podcasts facilitated cross-cultural exchanges. The findings revealed that effective use of task-based instruction created a dynamic climate for interactive collaboration and offered special scenarios for both American and Spanish students to explore the target language and culture.

Generally speaking, research on interaction includes studies of task-based language learning/teaching and focus on form.

Task-based Language Learning and Teaching

Task-based language learning and teaching focuses on the use of authentic language as well as on demanding students do purposeful tasks using the target language.

Task-based instruction provides learners with opportunities for learner-to-learner interactions that encourage meaningful communication. The purpose of a task is to exchange meaning rather than accuracy of language forms (Ellis & Fotos, 1999).

Research indicated that learners in pair and group work produce longer sentences and exchange meaning more frequently than in teacher-centered instruction (Ellis, 2003).

Focus on Form (FonF)

Research has examined the role of focus on the grammatical forms of language in teaching/learning practice. Instead of teaching grammar in isolation, a focus-on-form approach to language teaching draws learners' attention to grammatical form in the context of meaning, and teachers' attention to form is triggered by learners' quality linguistic input and output (Long, 2000). Focus on form in communicative lessons can

lead learners to connect new and more correct structures with their language use (Ellis, 2001). This approach is discussed in more detail later in this chapter.

Interaction hypothesis (IH), which was generally developed to elucidate face-to-face oral conversational interactions, cannot refer to interactions taking place in the written context (Hinkel, 2011). However, at a time when computer-assisted language learning (CALL) supporting written communication is diffusing around the world, it is believed that online collaboration has diversified communication dynamics so that online written conversation should be considered on an equal basis with face-to-face oral communication (Abraham & Williams, 2009).

Output Hypothesis

The third and final factor is comprehensible output (Swain, 1985; Swain & Lapkin, 1998). It highlights that learners need to use language in meaningful contexts by integrating existing linguistic competence with new linguistic input. The output hypothesis proposes that producing language pushes the learner to go beyond semantic to syntactic processing of the target language structures. Consequently, the meaning and form of language use can be simultaneously developed.

Swain (2000) concluded that output can motivate learners to proceed from the “open-ended, semantic, nondeterministic, strategic processing prevalent” (p. 99) in comprehension to the integral grammatical processing required for correct production. Therefore, output may be considered as a key factor in the development of syntax and morphology.

Following Swain's contention, Gass & Selinker (2001) concluded there were four functions of output in language learning: (a) examining hypothesis about the forms and meanings of the target language; (b) receiving important feedback for the validation of these hypotheses; (c) compelling a shift from more meaning-based processing of the target language to a more form-focused mode; and (d) developing speech fluency and automaticity in students' interlanguage production.

Some researchers, such as Takashima & Ellis (1999) and Swain, (2000, 2001) attempted to connect learners' opportunities for output more directly to second language acquisition, particularly in the area of grammatical structure. In their experiments, as learners endeavor to produce the target language, they realize that they are not able to fully express themselves, and this "pushes" them to reach better accuracy. Furthermore, in the later phase of Swain's study (2000), she expanded her output hypothesis to include conscious reflection on grammatical forms as a function of output. She maintained that, with consciously attending to forms while producing language, learners notice crucial linguistic features of the target language and can potentially adopt these syntactic forms in the process of speaking with themselves or with others in the target language.

Meanwhile, Swain (2000) concluded that as learners engage in output during collaborative interaction, they are able to help each other deliberating on the language usage, conjecture about language structure, and, acquire the target language in the process. For instance, Watanabe and Swain's (2007) study showed that students can solve linguistic problems together by discussing target language forms during the process

of a collaborative task. When the students engaged in collaborative patterns of interaction, they were more likely to perform better in the posttest. Remarkably, in Swain and her colleagues' subsequent research on collaborative interaction, they have discussed the findings by integrating sociocultural/activity theory perspectives, which are introduced in the next section.

Sociocultural and Activity Theory (SCT/AT)

In recent years, the concept of the social turn in second language acquisition (SLA) places particular emphasis on a sociocultural and activity theoretical framework originating in part from the work of the Soviet psychologist L.S. Vygotsky (1896-1934) (as cited in Block, 2003; Lantolf, 2000). A key feature of this perspective is that higher order functions develop out of social interactions. The examination of the social environment and the interactions in it is, therefore, an important phase in understanding learners' cognitive development.

Activity theory is an interdisciplinary approach to human sciences which developed from the work of Lev Vygotsky and aims to account for important characteristics of the learning milieu at diverse aspects, from the individual aspect to the broader sociocultural milieu of teaching and learning (Levy & Stockwell, 2006).

Activity theory (AT), which built on and branched out from socio-cultural theory (SCT), has been developed in and has continued to advance through three different stages. The first stage pertained to the work of Vygotsky (see Figure 2). After Vygotsky died in 1934, one of his students, Leont'ev, extended the concept of mediation to develop activity

theory by adopting *activity* as the unit of analysis. The second stage pertained to the work of Leont'ev (1981). Engeström et al. (1999) stated, "Activity theory takes the object-oriented, artifact-mediated collective activity system as its unit of analysis, thus bridging the gulf between the individual subject and the societal structure." (p. 468) (see Figure 3). The third stage pertained to the supplementary concept of interacting activity systems, which is an area still currently developing (Engeström et al., 1999) (see Figure 4).

Activity theory can function as a theoretical lens for examining cooperative learning in technology-assisted learning course settings where specific technologies are used (Dobson, Le Blanc, & Burgoyne, 2004), such as podcasting, chat, or wikis. Various proposals with regard to SCT and AT have become challengers to the cognitive and information processing approach to the study of language. A number of studies on web-based collaboration have discovered that social interaction and collaboration play a significant role in the learning processes (Lee, 2009; Warschauer, 1995; Warschauer & Kern, 2000).

From a sociocultural standpoint (Lantolf, 2000; Lee, 2009), language learning is considered to be an active social and collaborative process, through which learners use a system of symbols (e.g., language) and tools (e.g., computer) to build a system of linguistic paradigm in collaborative interaction with other learners, to accomplish a task, rather than transmission of information of language constructs from the outside world. By means of collaborative interaction, learners expand their linguistic and cognitive abilities

to involve in decision-making and problem-solving (e.g., negotiation of meaning and form) (Lee, 2009). According to Levy & Stockwell (2006), Vygotskian theory supports a collaborative approach and cooperative learning, because it examines how we are learned from one another in a social world, and because it is coherent with a perspective of teaching in which the process of negotiation is essential (McCafferty, Jacob, & Iddings, 2006). In language learning, as elsewhere in education, there is evidence to support that Vygotskian sociocultural theory and activity theory are highly influential.

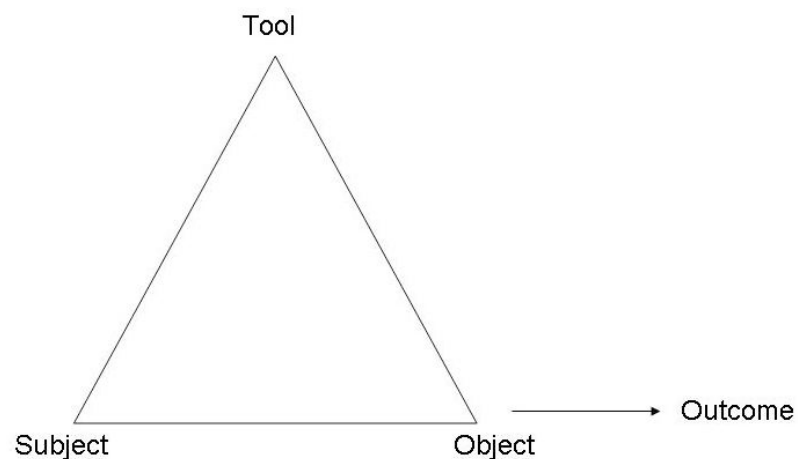


Figure 2 First generation activity theory (Robertson, 2008, p. 820)

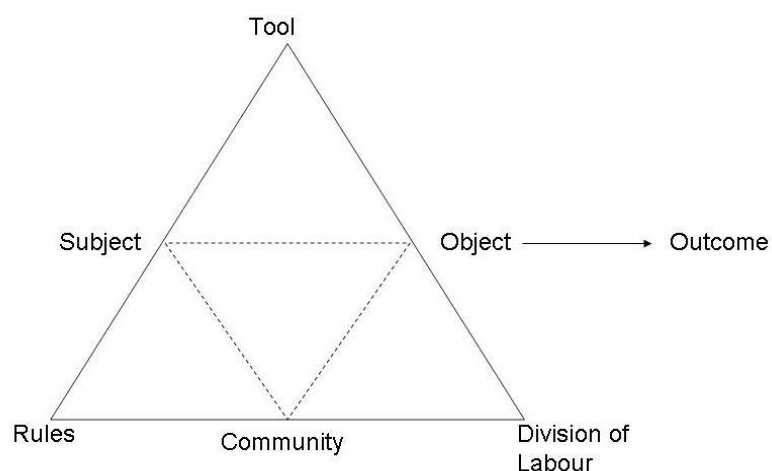


Figure 3 Second generation activity theory (Robertson, 2008 p. 820)

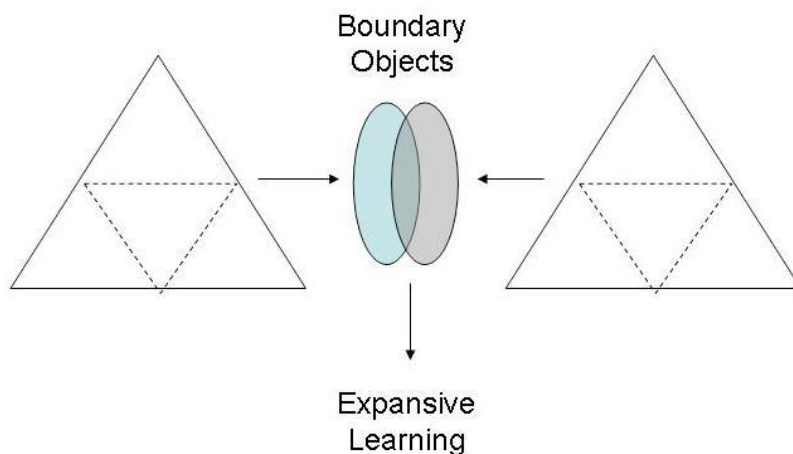


Figure 4 Third generation activity theory (Robertson, 2008 p. 821)

L2 Grammar Learning

Grammar teaching has been in and out as the fashion trends have changed back and forth. Traditionally, grammar teaching is viewed as the presentation and practice of discrete grammatical structures (Hinkel, 2004). Some second or foreign language researchers do not believe grammar to be important in second or foreign language

learning or teaching. They consider language to be learned holistically through the context, without explicit form-focused instruction (Hinkel & Fotos, 2002). For example, Krashen (1985) argued that grammar instruction played no role in acquisition; learned language cannot be turned into acquisition; grammar instruction is useful in a limited way in learning, but communicative ability was dependent on acquisition; thus, it is pointless spending a lot of time learning grammar rules. Others (e.g., Ellis, 2001) believed that grammar is the axis in second/foreign language teaching. They would link up language learning and teaching with grammar. The most important task in learning a foreign/second language is to master the grammatical rules of that language. A typical example of this standpoint is the traditional grammar-translation method—if you can translate the target language based on its grammatical rules into your own language and/or vice versa, you are learning that language (Larsen-Freeman, 2000).

In second/foreign language learning and teaching, the communicative competence theory presented by Canale & Swain (1980) is the most popularly accepted and embraced. Communicative competence refers to the ability to use language effectively, which includes the grammar rules for the purposes of real-life social communication. Obtaining such competence involves acquiring both sociolinguistic and linguistic knowledge (Bialystok, 1981). Communicative competence encapsulates four areas of competence. The first and most important is the grammatical competence or linguistic competence, which refers to the Chomskyan concept of linguistics (Alptekin, 2002). It includes

mastery of the language code, such as sounds, words, and sentence structure and spelling. The goal is to use correct forms to achieve grammatical accuracy.

Communicative language teaching (CLT) is an approach to foreign or second language instruction. In this approach, language is regarded as a functional system that is used for communication. Its ultimate goal is communication in the foreign-language or second-language learning, which enables learners to use language appropriately and correctly in real-life situations (Savignon, 2002). In the CLT classroom, the teacher is a facilitator who tends to be more student-centered and provides real-life materials and situations for learners to engage in communicative activities. The learner is supposed to be in charge of his or her own learning to practice different scenarios of communication in the “real world” outside the classroom (Andrews, 2007). Owing to the success of the CLT approach to teaching foreign languages, people started to query the purpose of form-focused or explicit grammar instruction in second/foreign language learning. Explicit instruction is defined as drawing students’ attention to rules during the learning process, while implicit instruction is aimed at enabling learners to infer rules without awareness (Ellis, 2006).

Many researchers disputed Krashen’s (1985) argument that language acquisition was an implicit process that relied merely on comprehensible input. These disputations came from studies of Canadian immersion programs, which revealed that even after several years of exposure to French through immersion and content-based instruction, students still did not attain native speaker proficiency (Swain, 1985). Studies revealed

that implicit instruction that focused precisely on meaning-oriented activities did not furnish the development of language proficiency with all that was needed. The focus on meaning only in Canadian immersion programs was shown to lead to the fossilization of grammatical errors and failed to help learners develop native-like grammatical competence in the target language (Swain & Lapkin, 1995). Consequently, Swain & Lapkin (1998) suggested that the effect of focus on linguistic forms instruction was advantageous and durable for the French immersion program.

Celce-Murcia et al. (1999) maintained that the ultimate goal of grammar instruction is to equip students with communicative competence, and there are three interrelated or intertwined dimensions of grammar instruction, namely form, meaning, and use. In linguists' terms, these three dimensions refer to “(morpho) syntax, semantics, and pragmatics” (p. 4). That is, social function and discourse are the purpose of grammar instruction.

Ellis (2001) pointed out that focus on form (FonF) and focus on forms refer to grammar teaching integrated into a curriculum consisting of communicative tasks without separate grammar lessons. FonF is a concept of instruction in SLA and language education concerning a structure-of-the-day approach, where the accuracy of the learners' output is mainly focused, and the activities are aimed thoroughly at grammatical units. Such an approach features communicative activities which combine focus on meaning and attention to form.

Ellis (2006) summarized his beliefs about grammar teaching as follows:

1. The grammar taught should be one that emphasizes not just form but also the meanings and uses of different grammatical structures.
2. Teachers should endeavor to focus on those grammatical structures that are known to be problematic to learners rather than try to teach the whole of grammar.
3. Grammar is best taught to learners who have already acquired some ability to use the language (i.e., intermediate level) rather than to complete beginners. However, grammar can be taught through corrective feedback as soon as learners begin to use the language productively.
4. A focus-on-forms approach is valid as long as it includes an opportunity for learners to practice behavior in communicative tasks.
5. Consideration should be given to experimenting with a massed rather than distributed approach to teaching grammar.
6. Use should be made of both input-based and output-based instructional options.
7. A case exists for teaching explicit grammatical knowledge as a means of assisting subsequent acquisition of implicit knowledge. Teaching explicit knowledge can be incorporated into both a focus-on-forms and a focus-on-form approach. In the case of a focus-on-forms approach, a differentiated

approach involving sometimes deductive and sometimes inductive instruction may work best.

8. An incidental focus-on-form approach is of special value because it affords an opportunity for extensive treatment of grammatical problems (in contrast to the intensive treatment afforded by a focus-on-forms approach).
9. Corrective feedback is important for learning grammar. It is best conducted using a mixture of implicit and explicit feedback types that are both input based and output based.
10. In accordance with these beliefs, grammar instruction should take the form of separate grammar lessons (a focus-on-forms approach) and should also be integrated into communicative activities (a focus-on-form approach) (p. 102).

Form-focused instruction and communicative language teaching can be integrated through the use of grammar activities in computer-mediated communication (CMC) interactions, which are designed to encourage communication about grammar. These grammar activities have two main purposes, namely to develop explicit L2 grammatical knowledge and to provide opportunities for interaction focused on information exchange. They can be achieved in teacher directed lessons or they can be used in interactive group work in order to increase opportunities for pushed output.

Collaborative/Cooperative Learning

Social constructivist theory is regarded as the framework for most collaborative learning designs that connected to shared learning goals accomplished by group learning strategies (Slavin, 1999). Collaborative learning involves creating cooperative products by two or more persons, as well as extensive revision by groups, toward a task-based product that manifests inspired learning and an exchange of meaning, understanding, and experience (Johnson, 2011). In a foreign language classroom, working in informal small groups, having pairs or small groups of learners write up dialogue, do exercises, and research a project together has been common practice. The development of computer-supported collaborative learning (CSCL) environments can further maximize learners' potential in the FL classroom (Chapelle, 2001).

In the last two decades, it has been shown that the use of collaborative learning research in the classroom has pedagogical benefits. It has been found that collaborative activities in foreign language classroom are beneficial because they provide opportunities for interaction and negotiation of meaning between learners (Swain 1995). Furthermore, it has been shown that when a collaborative learning environment is supported by computer-mediated communication (CMC), its potential success for foreign language learning is remarkably enhanced (Levy & Stockwell, 2006). Wikis allow users easily to create and edit pages collaboratively. This technology, therefore, has the potential to complement and enhance online collaboration (Parker & Chao, 2007).

Computer-Assisted Language Learning

Much has been written about the influence of technology, in particular computer-assisted language learning (CALL), in enhancing language learning outcomes. A number of studies have been done concerning how the use of CALL affects the development of primary categories of language learning, including three language areas (pronunciation, vocabulary and grammar) and four language skills (listening, speaking, reading and writing) (Levy & Stockwell, 2006). Other subsidiary-learning outcomes from the use of technology in learning are increases in learner autonomy, collaboration, and critical thinking (Allford & Pachler, 2007). While relevant, these issues will not constitute the focus of this paper; they are inevitably in the background and influence the instructional settings and perspectives expressed by numerous researchers, teachers, and learners (Evens, 2009). During the last three decades, CALL has progressed and evolved at a remarkable rate. Although there are many possible ways to approach the practice of CALL, there is a strong history of CALL applications being structured in terms of the language skills and areas (Levy & Stockwell, 2006). In addition, the trend in teaching has shifted from teacher-centered to learner-centered instruction, making learners' needs the core consideration in teaching.

In respect to CALL, language teachers may be considered designers. Not only do many language teachers create or accumulate materials and construct tasks and courses to achieve the objectives of teaching and learning, but they are also designers in the way they manage and coordinate their classes, programs, time, and resources (Fotos &

Browne, 2004). Pusack (1999) contended that it is very important for teachers to successfully combine and/or integrate in-class and out-of-class work at the class level, because assorted technological resources are often acquirable in class (library) and out of class (home). The integration of these components needs to be deliberately and logically designed, and the individual learner's needs and resources should also be considered.

It is evident that the design of language-learning tasks continues to play a very important role in the SLA area to the present day (Ellis, 2003; Skehan, 1998). As far as research on L2 classroom learning is concerned, these tasks have also possessed a definite position (Ellis, 1994; Larsen-Freeman, Long, & Jiang, 1991). Levy and Stockwell (2006) noted "the task construct is frequently often used as a means tool of converting a language teaching approach, or a theory of language learning, into a practical activity for students to accomplish. Studies in CALL include Chapelle's (2003) book and Blake's (2005) study on the distance education design of CMC tasks (*Spanish Without Wall*). In addition, Skehan (2003) and Sauro (2009) produced articles on focus, form, tasks, and technology, which lay great stress on determining proper designs for language-learning tasks.

The importance of the language-learning task in conceptualizing CALL designs is also manifest in recent studies. For example, Dooly (2011) explained how Internet-based CALL interactions are integrated with face-to-face classroom activities, and examined the outcomes of telecollaborative tasks for Spanish ESL students. The conceptual framework

for this design lies in interactionist theory (see Block, 2003) and a specific elucidation for CALL purposes given by Chapelle (2003). Also, the fundamentals of task-based language teaching (TBLT) play a critical role in the design of the activity (Ellis, 2003). Likewise, Mishan and Strunz (2003) took language task as the criterion to develop and organize the design of an electronic resource book. They characterized the creation of interactive resources as authentic language learning. In order to make tasks authentic, they proposed the following outline:

1. Respond to the original communicative purpose of the text.
2. “Rehearse” real-life tasks.
3. Orient toward the goal/outcome.
4. Create genuine suspense as to their outcome.
5. Require natural (native speaker-like) interaction between learner(s) and the text.
6. Involve genuine communication between learners.
7. Activate learners’ existing knowledge of the target language and culture.

(Mishan & Strunz, 2003, p. 240)

Applying computers to assist students to practice and learn grammatical structures traces back to the earliest days of CALL. With the trend towards the Internet era, CALL began being used to aim attention more at the new competence of group connectivity and computer-mediated communication (Skehan, 2003). In recent times, a common

consensus has emerged that for adult learners, by degrees, an awareness of forms and rules is a crucial constituent of online language learning.

There is variation in the approaches used by teachers to teach grammar. Although there are several studies that focus on grammar or the other language skills separately, grammar and vocabulary often appear together. It is difficult to completely isolate these two skills. A number of studies examined web-based activities and included simple grammatical explanations and sample exercises, such as using authoring software such as Hot Potatoes (Levy & Stockwell, 2006).

Other studies examined the use of free source or commercial courseware applications. Sagarra & Zapata (2008) conducted a study that examined the effect of instruction with and without technology on the development of L2 grammatical competence in two consecutive basic Spanish courses at a university. The online activities of the experiments were delivered by means of an online course management system called ANGEL (A New Global Environment for Learning). The findings suggested that combining face-to-face meetings with online activities can be more effective than attending class and using a paper workbook. Jamieson, Chapelle and Preiss (2004) conducted a study on the use of *Longman English Online* with adult ESL learners.

Many researchers have developed their own courseware applications, and these were also tested and found to be supportive. Sauro (2009) conducted a study which investigated the impact of two types of computer-mediated corrective feedback on the

development of adult learners' L2 grammar knowledge. Chen and Tokuda (2003) developed a system entitled *Azalea* for use with Japanese learners in an ESL composition course. The same as teaching vocabulary, concordancing is also used in teaching grammar. A study conducted by Sun and Wang (2003) reported that Taiwanese learners of English who used a concordancer to assist in learning collocations, the results showed that the inductive group improved significantly better than the deductive group in the performance of collocation learning. Finally, there were also studies that investigated the use of CMC technologies in the teaching of grammar, such as that by Stockwell and Harrington (2003) who used email as a means to interact with native speakers of Japanese, the results of that study showed improvement in grammar skill.

Computer-Mediated Communication (CMC)

Research studies show that one of the most effective ways to foster L2 development is through verbal interaction (either face-to-face or computer-mediated) with the target language speakers or learners (Warschauer, 1996). However, face-to-face interaction is not always possible, especially for the EFL students who rely on their time in classrooms to learn English that is not the typical language of communication outside the classroom, and do not have the opportunity to participate in language exchange. Luckily, the boundless accessibility of communication tools such as social networking, chat, e-mail, conferencing and wiki programs has extensively amplified the use of computer-mediated communication (CMC) in second language teaching and learning.

CALL practitioners have enthusiastically adopted these new modes of educational technology (Levy & Stockwell, 2006).

CMC tools utilize technology that affords the user or learner the opportunity to express themselves either synchronously (e.g., chat, conferencing) or asynchronously (e.g., blogs, wikis) in a user-friendly platform. Synchronous means that the communication is taking place in real time, where groups of people can read or listen to messages and respond immediately over the Internet. One of the disadvantages is that all participants must be online at the same time, and it would be challenging if the class times or time zones were different. On the other hand, in asynchronous CMC, group members can log onto the computer whenever they find it convenient to do so, forming a relaxed atmosphere in which online and collaborative tasks can be carried out. Besides the matter of time, CMC can also be categorized in another way, which is regarding the number of group members participating in the communication. CMC interaction allows not only one-to-one settings, but also makes it possible for many people to work on the group project concurrently.

Researchers have manifested that certain characteristics of synchronous and asynchronous CMC make them more suitable for certain circumstances (Gonzalez-Bueno & Perez, 2000; Sotillo, 2000). As Levy and Stockwell (2006) noted,

synchronous CMC places a higher cognitive load on the learner, and as such is better suited to higher-proficiency learners. Asynchronous CMC gives learners

more time to process and produce input, and may be thought to be suitable for lower-proficiency audiences as well as higher. (p. 107)

Synchronous CMC usually is conducive to more output on the learners' side, but the findings often call into question the accuracy of output. On the contrary, asynchronous CMC accommodates users with an opportunity to bring forth refined and deliberative language output as well as well-formed input (Fotos & Browne, 2004).

Gonzalez-Bueno and Perez (2000) also mentioned that synchronous CMC shares many of the characteristics of oral communication, while asynchronous CMC approaches the written form of language. Synchronous forms of CMC usually elicit higher language output from the learners, but bring about higher pressure on the learners to instantly generate language. Thereupon, the aim is directed more to attaining communicative goals than to accuracy. Asynchronous CMC, on the other hand, provides learners opportunities to comprehend and to digest language input while also accommodating students' needs to modify their own language output before submitting or uploading.

In addition to producing written forms of language, web-based asynchronous CMC can improve classroom experiences. Fife (2008) concluded web-based discussions were a well-suited enrichment for face-to-face discussions, which draw in students who hesitate to take part in classroom discussion and improve the depth and insight attained in face-to-face discussion. Because class discussions are an important part in the language classroom, the strength to advance participation and involvement is a categorical asset to

students. The supplementary assistance of providing more hesitant students with a user-friendly CMC tool is an imperative benefit that cannot be overlooked.

There are many researchers conducting studies to investigate how CMC tools could help their students' development in terms of cooperative skill and language proficiency. For example, Kennedy (2010) conducted a study which investigated the effectiveness of using three different asynchronous CMC applications—blogs, wikis, and e-portfolios in College Composition classes. Over a period of three semesters, the work of 207 students was investigated to determine the effectiveness of designated work on blogs, wikis, and e-portfolios. The students were in College Composition I and College Composition II classes at Northern Virginia Community College. The results show that the application of blogs, wikis, and e-portfolios provided a learning environment that enhanced the opportunity for student success. In addition, an examination of student writing showed an improvement in the composition of their academic papers throughout the course.

Miyazoe and Anderson (2010) collaborated on an article that explained asynchronous CMC tools usage and examines their use in cooperative/collaborative and constructivist paradigms. Research was executed by the authors on the usage of forums, blogs, and wikis in an English as foreign language (EFL) class in a university in Tokyo, Japan. A mixed-method approach was utilized with survey, interview, and text analysis used for triangulation. The survey revealed that students had positive perceptions of the blended course design with online writings and (among three asynchronous CMC tools)

wikis being the most favorable, followed by blogs and forums. Qualitative text analysis of forum and wiki writings indicated that students' ability to differentiate English writing styles is elevated. According to Miyazoe and Anderson (2010), wikis can and will have a major impact on the teaching and learning of future students.

Wiki-Based Social Media

Many social media services and products provide a wide range of communication tools all at one site. Communication tools may include blogs, wikis, chat, instant messaging, emails, bulletins, and file sharing. Many students are attracted to sites like Facebook, YouTube, Twitter, Google and Wikis because of this convenience. Luckily, many educational Internet-based services also include communication tools that allow teachers more control to supervise communications. Among these social media, Wikis are considered to be the most suitable one for both teacher and student (Kidd & Chen, 2009).

The term "wiki" originated from the Hawaiian term "wiki wiki," which means "quick." According to *Britannica Online Encyclopedia*, a Wiki is a website that can be edited or contributed to by users. "Wikis can be dated to 1995, when American computer programmer Ward Cunningham created a new collaborative technology for organizing information on web sites (wiki, 2011)." The best-known use of wiki software is Wikipedia, an online encyclopedia applying the design of open-source software development. People write articles on Wikipedia, and these articles are open to readers for reviewing and editing. In addition to encyclopedias, wikis are used in a wide variety

of circumstances to expedite interaction and cooperation in projects of different aspects (Myers, 2010). There are a number of Wiki websites that can be used in a language learning classroom. The following wiki sites offer special features for educators: Wikipedia, Wetpaint, Wikispaces, and Pbworks.

Wikis in Education

Some teachers choose to use wikis as a webpage for their class, some as a bulletin board, and others for collecting student work. And some teachers use all of the above-mentioned functions in their wikis. How teachers decide to use a wiki is flexible. The most important idea to keep in mind is that wikis allow every participant to edit the page. Since wikis allow others to contribute and modify web pages, they are a suitable tool for group activities (Richardson, 2010). John Dewey (1938), the great philosopher of education, argued that teachers should be the leader of group activities. Dewey also argued that educators have the knowledge of subject-matter that empowers them to choose the activities which gives them the opportunity to create a social group, a group in which every student has an opportunity to contribute something, and all the participants in the group are their own dominators.

Mader (2006) maintained that wikis are particularly useful in group assignments. Students are able to store all their information at one site, can leave each other feedback, and their work is displayed online to share with parents, teachers and other students. According to John Dewey (1938), teachers needed to be aware of students' mentalities and demands under instruction, and be ready to make suggestions to students and work

with them as a group. Reo (2007) suggested that wiki is a convenient tool for conducting collaborative practices and principles in the classroom setting. Through the cooperative activity on a wiki, students can interact with each other within a group, so they are exposed to valuable input from other students as well as increasing opportunities for pushed output. Cooperative learning requires that students work together to learn information and carry out a range of tasks. The purpose is to promote peer-group support and peer instruction (Slavin, 1995).

Parker and Chao (2007) coauthored an article entitled “Wiki as Teaching Tool,” which explains the use of wiki and observes its utilization in cooperative/collaborative and constructivist paradigms. They asserted that higher education has just given more weight to wikis as a means to promote deeper learning from both in- and out-of-class settings. Parker and Chao cited comparative research applying threaded discussions or wikis to reinforce their argument that wikis outperform other Web 2.0 CMC technologies. They concluded that wikis can and will have a great impact on future teaching and learning.

In addition, wikis are user-friendly tools. The users can upload related videos, pictures, and links to fulfill their learning. Wikis are also an effective way for students to advance learning in various areas and skill of language. Sweeny (2010) maintained that the skills of problem-solving and critical thinking, collaboration across networks and leading by influence, and effective written and oral communication can be incorporated into language arts instruction that embraces new technologies such as Wikis.

Finally, the most important reason that teachers should care about social networking is because the students are using them. In order to improve instruction, teachers must understand what the students are doing with the online social networking tools, why they are motivated with such technology tools, and determine how they, as teachers, can employ that new technology to motivate the students in their classes.

Wikis in Second Language Learning

The following research depicts how wikis, this new-generation technology, are being used in the L2 classroom to improve students' accuracy of grammar and writing. Kessler (2009) conducted a study in which he examined the student-initiated attention to grammatical forms within the collaborative construction of a wiki among pre-service Non-Native Speaker (NNS) English teachers. Forty pre-service teachers from a large Mexican university were observed over a 16-week semester in an online content-based course aimed at enhancing students' language skills while studying about the cultures of the English-speaking world. A main feature of the course was a wiki that was collaboratively created, developed, and edited across the duration of the courses. Students were encouraged to examine grammatical accuracy while participating and interacting with their peers. Kessler concluded that students were reluctant to edit each other's grammar errors although, overall, students reported that their academic writing skills had improved through their formal participation in the Wiki.

Woo, Chu, Ho, and Li (2011), in a small-scale case study conducted by the faculty of education at the University of Hong Kong, explored the potential benefits of a wiki for

students and teachers in a fifth grade ESL class in Hong Kong. The study examined how the wiki might help in scaffolding students in their collaborative writing projects. The study revealed that the use of a wiki in a Chinese primary school fifth grade ESL class was perceived positively. Students were delighted to use the wiki, and the overall perception was that it helped strengthen collaborative learning and enhanced writing. It is noteworthy that the tracking functionality of the wiki provided detailed information about the edits the students made and helped the teacher offer necessary assistance and comments. Findings from this study helped in understanding how wikis can help scaffold ESL writers in collaborative learning.

In a qualitative research conducted by Bradley, Lindstrom, and Rystedt (2010), the researchers asserted that, through wiki-based collaborative interaction, Swedish university students expanded their linguistic and cognitive abilities. The creation of online collaborative environments can further maximize creative writing skills in the foreign language classroom.

Mak and Coniam (2008) examined authentic writing through the use of wikis by Year 7 ESL learners in a secondary school in Hong Kong. Over a period of two months, they placed authentic writing, situated within the domains of creativity and task-based learning, in ESL learning by integrating wiki technology. They concluded that, by collaborative and meaningful writing within a wiki, learners produced a greater quantity of coherent and accurate texts to authentic audience constituted of their parents and peer

review, resulting in them being creative and authentic writers. They concluded that collaborative Web work is a rewarding experience for language learners.

In Lee's (2009) research, 35 university students at the beginning level, over a period of 14 weeks, engaged in collaborative writing by utilizing a wiki. The pros and cons of using wikis for collaborative writing were analyzed through group wiki pages, student surveys, and final interviews. The findings showed that creating wikis had a positive effect on the development of students' writing skills through collaborative learning. Peer feedback played an important role for scaffolding students in the L2 writing process. The results revealed that task type affected the quantity of writing produced by students. Most important, the students not only helped each other organize the content but also made error corrections for language accuracy.

Two studies were conducted to compare wikis with other learning tools. The first research study, conducted by Colye (2007), compared wikis collaboration with traditional face-to-face group collaboration in report writing. The quality of students' reports was rated by professional subject matter experts according to specified content and format criteria. Results revealed that there was no difference in the quality of reports with regard to the type of collaboration, which means that the wiki is an effective collaboration tool. Wiki collaboration allowed students to work at their own pace, and to see the work of other group members. Online surveys indicated that there was no significant difference in students' perceptions of learning and community between the two methods. However,

it appeared that face-to-face collaboration is more efficient in group communication per se and is sometimes preferred because it is familiar.

Chen (2008) conducted a study involving Taiwanese university level EFL students taking General English courses who kept wiki entries during a six-week period of time. Chen allowed two classes with a total of 97 students to participate in the study. The primary analysis of the blog entries, survey data (n=18) and interview data (N=12) indicated that the participants had a strong preference for blogging versus traditional journals or weekly essays. Chen reports that university EFL students in Taiwan who applied wikis performed better in listening and reading abilities. When compared with the non-wiki students, the wiki students had a more favorable attitude towards the class, their English ability improvement, and cooperative learning. Also, the students agreed that wikis helped them complete their assignments, and they felt positive in the wiki environment, and it was easy for them to use.

Summary

While many studies have been conducted, most are either case studies or qualitative research with a focus on students' perceptions. No previous research has directly or sufficiently addressed the research questions of this proposal. Thus, there was a need for the researcher to conduct a study to explore the proposed questions. In order to examine if social media can enhance students' recognition of correct English grammar usage, the collaborative wiki activities were implemented and the instruments were

administered. Chapter Three will present the research methods and procedures to secure answers to the proposed questions.

CHAPTER III: METHODS

Recent technological advances in web-based communication, along with a shift toward a more social view of learning, present special promise for foreign language learners. In recent years, the integration of CMC tools, such as social media, into the foreign language classroom has become a potential teaching and learning tool. Web-based CMC allows learners to communicate and collaborate with one another online via written text. In this study, the out-of-class, wiki-based social media activities in EFL learning were used to investigate whether the treatment group significantly outperforms the control group, which practiced grammar exercises in the traditional way in the grammar exam. By utilizing collaborative social media activities via the interactive wiki site, the study addresses the research questions below.

Research Questions

1. Is there a difference in students' English grammar achievement levels between the treatment (wiki) group and the control (non-wiki) group after controlling for pre-intervention achievement levels?
2. Is there a difference in students' time devoted to English grammar activities between the treatment (wiki) group and the control (non-wiki) group?
3. Is there a relationship between the time spent on wiki sites and students' English grammar achievement levels?

Variables

The independent variable for research question 1 was the wiki-based collaborative activity. The traditional activity represented the control group. The grammar pre-test was the covariate, which was the same as the posttest. The dependent variable for research question 1 was the students' achievement levels. This variable was assessed by a posttest that contains the targeted grammar structures.

The independent variable for research question 2 was the wiki-based collaborative activity. The traditional activity represented the control group. The dependent variable for question 2 was the time students devoted to the grammar activities.

The variables for Research Question 3 were the time spent on the wiki sites and the students' achievement gains on English grammar.

The statistical procedure used in the present study was ANCOVA. Bivariate correlation analysis and *t*-test were also conducted as needed.

Participants

College students from a suburban area of Taipei participated as intact groups in this study. The participants who represent the population were young adult male and female college EFL students who have received at least seven years of English as a required course since the official start of English education was shifted from junior high to the fifth grade in the year 2001.

When planning the experiment, a power analysis was performed to estimate a sample size that will achieve statistically meaningful results. Given a significance level of .05, assuming a moderate effect size and a desired power of 0.80, a minimum sample

size of 77 was sufficient. Therefore, two existing classes, with 100 sophomores majoring in English, were recruited as subjects in the study. These two classes were selected to participate as the treatment and control groups, and were taught by the same instructor. A total of 16 students (16.0%) were ineligible because of not taking either the pretest or the posttest, missing the activities, or dropping out of the classes. The total participants in the study were 84 students. To be more detailed, the treatment group, consisting of 44 students, was using the wiki-based social media for group activities, while the control group, with 40 students, was practicing with the traditional English grammar exercises.

A Human Subjects Application and a consent form for this study were sent for approval by the Human Subject Committee at the University of Kansas (Appendix A). All participants in the study signed the consent form (Appendix B) prior to the pretest and the intervention training program. Participants' test results were used to examine the effectiveness of the instruction. Participants' responses did not affect their grades and are confidential. There were no consequences associated with not participating in the study and there were no direct benefits to subjects for participating in the study. Participants had the right to withdraw from the study at any time without consequence. Participants did not have to answer any question that they did not wish to answer. A consent form was translated from English to Chinese (Appendix C) and was given to all students who participated in this study prior to the pretest and intervention.

Courses

This experimental study was conducted with undergraduate classes; and was directed at a sophomore-year English course. This course was a required second-year course in the Department of Applied English of the university. The researcher had informally requested the instructor to ask the students if they had used a wiki heretofore. While many students responded that they had heard of a wiki, very few had ever used it, and none had utilized it as a collaborative learning tool.

Instruments

Two different data collection instruments were used in this study: a pre-post English grammar test; and a student survey.

English Grammar Test

The purpose of this task was to address the hypotheses. The data from this task provided information about the effects of social media on EFL students' English grammar skills.

The pretest and posttest both used the TOEIC (*Test of English for International Communication*) practice tests (Appendix D) adapted and modified from *TOEIC Test grammar and vocabulary review* (n.d.) produced by TOEIC faculty at the University of California to test students' grammar comprehension abilities. The test consisted of questions in a multiple-choice format. In this study, the grammar portion of the test review was chosen to measure students' grammar achievements.

The purpose of the TOEIC test is to measure non-native English speakers' English skills for international business communication. It reflects global business communication styles and emphasizes authentic language contexts. One of the reasons the researcher considered using the TOEIC practice tests is that he was able to select some questions that fit the purpose of the intervention training program in this study.

The assessment contains 25 multiple-choice, short problem statements, with regard to five target grammatical forms: (a) word forms (4 items), (b) prepositions (8 items), (c) conjunctions (5 items), (d) verb tenses (3 items), and (e) relative pronouns (5 items). It requires 20 minutes to complete. The students' responses were recorded. All of the multiple-choice items were scored either right or wrong. Sample items are provided in Table 1.

Table 1

Sample Items for English Grammar Test

() 11. We need to find a new administrator for the Human Resources Department _____ has experience in all sectors of our corporation.

- (A) who (B) whom (C) which (D) in whom

() 12. Because the advertising budget is so small this year, breakthroughs _____ new international markets will be minimal.

- (A) on (B) into (C) at (D) during

() 13. Following the advice of her broker, Mrs. Tang _____ to diversify her investments into stocks and bonds.

- (A) deciding (B) decides (C) has decided (D) has been decided
-

Source: TOEIC Test grammar and vocabulary review

Survey

At the end of the treatment period, the students in the both groups completed a survey (Appendix E and F) that includes demographic questions, and retrospective questions about time spent on the activities. The survey in this study was integrated from previous studies (Chen, 2011; Liaw, 2007), and was re-created by the researcher. The survey was translated from English to Chinese (Appendix G and H) and was given to all students who participated in this study. The researcher asked the students to record honestly how many hours they spent on the wiki site and practicing English grammar exercises. Therefore, students in the wiki group recorded the hours they spent on wiki activities, read and commented or edited other students' online postings, and practiced grammar exercises on the wiki site. The students in the control group recorded the hours they spent on traditional individual and group activities, as well as practicing grammar exercises. Furthermore, there were additional questions for the wiki group which intended to give the researcher a broader perspective of the student's experience in the wiki activities.

Validity

Validity, in general, refers to the accurateness of a given test, or any of its component parts, as a measure of what it is intended to measure. The researcher asked the instructor and other professors in the department at the participating Taiwanese university for opinions and judgments as to whether the tests have content validity

(Hughes, 2003). Modifications were made to reflect a reasonable domain of the content before conducting the study.

Reliability

Reliability is an important measure of tests which means consistency in scores regardless of when and how many times a particular test is taken. The more similar the scores are, the more reliable the test is said to be (Hughes, 2003). Reliability coefficients can range between zero and one, with a higher coefficient indicating greater reliability.

In this study, the grammar section from the practice tests was chosen to measure students' ability on the target grammatical forms. Cronbach's alpha (α) reliability was performed to test the internal consistency of the test (Table 2). The Cronbach's α for the grammar test was 0.78, which has reached an acceptable level of reliability.

Table 2

Reliability Statistics of the Grammar Test

Cronbach's	N of Items
0.78	25

Hypotheses

To accomplish the purpose of this research, the study addressed the following three hypotheses:

Hypothesis 1: Students in the treatment (wiki) group will score significantly higher on the posttests than those students in the control (non-wiki) group after controlling for pre-intervention achievement levels.

For this hypothesis, the improvement at the $p < .05$ level was considered statistically significant.

Hypothesis 2: Students in the treatment (wiki) group will devote significantly more time to the activities than those students in the control (non-wiki) group.

For this hypothesis, the improvement at the $p < .05$ level was considered statistically significant.

Hypothesis 3: There is a positive relationship between the time spent on wiki sites and students' achievement levels on English grammar.

Procedures

The procedure for the research included the following steps:

1. Preparing students for using wiki sites.
2. The pretest of recognition of correct English grammar usage was given to a treatment group and a control group.
3. The training program period included four weeks, from the beginning of December 2011 to the end of December 2011. Students in the treatment group were taught with the wiki tool and had the opportunities to create group projects as well as practicing grammar exercises on the wiki site. Those in the control group were taught to learn target English grammar usage, to do handwritten group and individual activities, and to practice grammar exercises in the traditional way.

4. The posttest of recognition of correct English grammar was administered to a treatment group and a control group after the training program.
5. A survey following the posttest was administered to students in both the treatment group and the control group to obtain a comprehensive understanding of the students' responses concerning their use of wiki activities and traditional activities.

The study took place over a four-week period in one semester. In terms of course content, this time frame corresponded to the time period of Unit 5 Chapter 3 and Unit 7 Chapter 2 of the textbook *Reading & Vocabulary Development 3: Cause & Effect*, for which the target grammar structures were taught, as scheduled in the course syllabus.

The pre-intervention data collection took place before the beginning of Unit 5. The pretest was administered to both classes to evaluate the students' previous recognition of correct English grammar usage. This instrument was administered by the instructor.

During the intervention period, the instructor taught the target structures. These structures were presented in the traditional face-to-face setting. Before technology training took place, the instructor divided the treatment group into 10 small groups. Correspondingly, the instructor divided the control group into 10 groups. Each group had four participants. Each group had a leader, and he or she encouraged group members to post, edit, and comment on the wiki. The instructor oversaw the participants' work and gave comments throughout the intervention period.

Students in the wiki group were trained on how to use the wiki. The instructor explained what the students will be creating on the wiki site. The instructor handed out written instructions for each participant. After all students have accessed to their wiki site, the instructor provided directions for the activities. Students posted their assignments outside class time by using their own computers or the ones in the college libraries or computer labs.

Meanwhile, students in the control group were assigned the same activities in the traditional way with the same requirements and due dates.

By the end of December, the post-intervention data collection took place. The student survey and posttest were administered by the instructor. The student survey created for this study includes demographic questions and questions intended to give the researcher a vivid understanding of the student experience in the activities. Students were also asked to provide estimates of time spent on these activities.

Group Design

A quasi-experimental approach was employed in this study. The research consisted of three parts. First, a pretest of English grammar was given to a treatment group and a control group in the beginning. Second, students in a treatment group participated in the wiki-based social media activities, while those in the control group practiced traditional handwritten group activities and homework exercises. Students in both groups were given the same assignment. Additionally, the students in the treatment group took a questionnaire survey, which recorded the students' responses toward time

spent on the wiki site. Lastly, a posttest was given to the treatment group and the control group at the end. Group design is shown in Table 3.

Table 3

Group Design

Group	Pretest	Activity-based learning	Posttest
Treatment group	A pretest adapted and modified from <i>TOEIC® Test grammar and vocabulary review</i> .	Wiki-based collaborative activities	A posttest adapted and modified from <i>TOEIC® Test grammar and vocabulary review</i>
Control group	A pretest adapted and modified from <i>TOEIC® Test grammar and vocabulary review</i>	Traditional grammar activities	A posttest adapted and modified from <i>TOEIC® Test grammar and vocabulary review</i>

Wiki Instruction

The researcher designed an instruction manual for the students who were in the treatment group. This instruction manual provided technical support for the students by answering questions about wikis. The researcher made certain that each student has a copy of the wiki instruction manual at the beginning of the intervention. To overcome the fact that there was no Chinese version of PBworks wiki site, the researcher created a manual in Chinese. The instruction manual consisted of the following topics:

1. PBworks introduction.
2. How to create an account.
3. How to log in to wiki page.

4. Pages and files management.

Wikis were set up through PBworks. Unlike some other wiki sites, PBworks does not require knowledge of “wiki syntax,” nor is the user required to download the program. Students simply access the wiki site online and register for an account. All a student needs, when using PBworks, is a computer with access to the Internet.

To create an account, students provided their email addresses to the teacher, and the teacher invited the students, through their email, to access the wiki site set up by the researcher. After the student accepted the invitation he/she was able to make postings, editing, and comments on the wiki. Postings, editing, and comments could be made only by the invited students, the teacher, and the researcher. The teacher and the researcher were both administrators of the wikis, allowing either of them to monitor posts and make modifications to the wikis.

Wikis offer the “read” and the “edit” modes. The “Read” mode, as the name implies, enables students to read Wiki information and also behaves like any other website. This can include comments that have been made or changes that have been added to the wiki. The “Edit” mode, on the other hand, enables students to change the content or layout. Moving from read mode to edit mode is simply done by clicking on the edit tab on the upper left. Students can then work on their activities by using the editing mode to add content, images, or links. Details about setting up the wiki environment are available in Appendices I through O.

Treatment

During the four weeks of treatment, two instructional units were taught in the subject areas of human beings and science. The activities were designed to stimulate students to think and learn through the use of the target grammar usage. Students in each group (treatment and control) were randomly assigned, within their large group, to create small groups of four students each. Twice a week students used a wiki or handwriting to respond to the assigned activities and questions. Students in both groups were given the same assignments. There were four activities for each unit; and the activities are described as follows.

Activity 1: Hotlist

By conducting Internet searches, students created a hotlist of ten valuable web-based textual resources on given course-related grammar structures (e.g., word forms, prepositions, relative pronoun, conjunctions, and verb tenses). The list students created was used as a reserve of resources and should contain the title of each web resource, its URL, hyperlinks, and a brief annotation about each website that describes the content and the value of that particular resource, etc.

Activity 2: Create Sentences

Students created their own sentences, following the patterns of the sample sentences adapted from the textbook.

Activity 3: Sample Dialog

Students worked as pairs, composing a dialog by using the sentences their partner created.

Activity 4: Short Story

Students worked as groups, composing a short story by using the given sentence patterns.

Students in the wiki group worked on their own computers to post their responses on their group's wiki and to read, comment on, or edit other students' online postings. The instructor made comments to students on the wiki during the study. Students were asked to maintain a log during the study, indicating the time he or she devoted to the activities. The researcher did not make any postings or comments on the wikis during the study. Detailed descriptions of grammar activities are shown in Table 4.

Table 4

Detailed Descriptions of Grammar Activities

Activities	Descriptions	Grammar categories
Activity 1: Hotlist	By conducting Internet searches, students create a hotlist of ten valuable web-based textual resources on a given course-related grammar categories. The list students create is used as a reserve of resources and should contain the title of each web resource, its URL, hyperlinks, a brief annotation about each website that describes the content and the value of that particular resource, etc.	<ul style="list-style-type: none"> • word forms • prepositions • conjunctions • verb tenses • relative pronoun
Activity 2: Create sentences	Students create their own sentences follow the patterns of the sample sentences adapted from the text book.	
Activity 3: Sample dialog	Students work as pairs, compose a dialog by using the sentences their partner created.	
Activity 4: Short story	Students work as groups, compose a short story by using the given sentence patterns.	

Data Analysis

This study used quantitative measures to gather data from Taiwanese EFL students in order to analyze the effects of wiki-based collaborative activities on their English grammar achievement. An ANCOVA was conducted to test the mean differences of grammar scores between the treatment group and the control group, with the assigned activities as the independent variable and the measured variable as the dependent variable, and, the learners' prior knowledge of the target grammar structures as

the covariate. A *t-test* was used to test if students in the wiki group devoted significantly more time to the activities than those students in the non-wiki group. Bivariate correlation analysis was used to find out the possibility of any correlation between the time spent on wiki sites and students' English grammar achievements.

All analyses were conducted using a .05 level of significance. Table 5 shows the summary of data sources and methods of analysis that will be used for each hypothesis.

Summary

The purpose of this study was to compare the effects of wiki-based collaborative activities to traditional activities on students' recognition of correct English grammar usage. A quasi-experimental design with one treatment group and one control group was utilized for this study. A total of 84 undergraduate students in English classes completed pre- and post-English grammar tests and survey questionnaires. A series of descriptive statistics, *t-test*, Bivariate correlation analysis, and a One-Way ANCOVA, were used to answer the hypotheses. Chapter Four will present the results of the study for each research question.

Table 5

Summary of Data Sources and Methods of Analysis for Each Hypothesis

Hypotheses	Data sources	Methods of analysis
Hypothesis 1: Students in the treatment (wiki) group will score significantly higher on the posttests than those students in the control (non-wiki) group after controlling for pre-intervention achievement levels.	<i>TOEIC® Test grammar and vocabulary review</i>	ANCOVA
Hypothesis 2: Students in the treatment (wiki) group will devote significantly more time to the activities than those students in the control (non-wiki) group.	Student survey	t-test
Hypothesis 3: There is a positive relationship between the time spent on wiki sites and students' achievement levels on English grammar.	<i>TOEIC® Test grammar and vocabulary review</i> ; student survey.	Bivariate correlation analysis

CHAPTER IV: RESULTS

Introduction

This chapter summarizes the results of the present study. Information gathered on how social media affects Taiwanese university students' English grammar test scores, along with students' reactions to the social media, are reported. The purposes of this investigation were to explore the effects of using social media activities, as compared to traditional activities, to improve the recognition of correct English grammar usage, and to examine the relationship between the time spent on the social media activities and students' achievement gains on the recognition of correct English grammar usage. The study also surveyed how students viewed the experience of using social media activities as measured by a Likert-scale post-survey.

Sample Demographics

A convenience sample, consisting of 100 undergraduate students enrolled in two sophomore-year EFL classes at a Taiwanese university during the fall semester of 2011, was used. A total of 16 students (16.0%) were ineligible because they did not take either the pretest or the posttest, missed the activities, or dropped out of the classes. The total participants in the study were 84 students.

The students (100%) were solely applied-foreign-languages majors and were sophomores. The majority of the sample was females (67.9%), with 32.1% being males. The majority of participants (48.8%) were 19 years old and 44.0% had been learning English for 6-10 years. A detailed breakdown of the treatment and control group

demographics can be seen in Tables 6 and 7. A breakdown of the total participant demographics can be seen in Appendix P.

Table 6

Demographic Information of Treatment Group Participants (n=44)

Demographic Variables	Frequency (n)	Percentage (%)
Gender		
Male	13	29.5
Female	31	70.5
Age		
18	0	0
19	23	52.3
20	19	43.2
21	2	4.5
22	0	0
23 and above	0	0
Year learned English		
2-5 years	10	22.7
6-10 years	20	45.5
11-15 years	12	27.3
16 years and above	2	4.5

Note: Totals may not equal 100% because of rounding.

Table 7

Demographic Information of Control Group Participants (n=40)

Demographic Variables	Frequency (n)	Percentage (%)
Gender		
Male	14	35.0
Female	26	65.0
Age		
18	1	2.5
19	18	45.0
20	16	40.0
21	3	7.5
22	1	2.5
23 and above	1	2.5
Year learned English		
2-5 years	12	30.0
6-10 years	17	42.5
11-15 years	10	25.0
16 years and above	1	2.5

Note: Totals may not equal 100% because of rounding.

Research Questions

Three questions were tested in this study:

1. Is there a difference in students' English grammar achievement levels between the treatment (wiki) group and the control (non-wiki) group after controlling for pre-intervention achievement levels?
2. Is there a difference in students' time devoted to English grammar activities between the treatment (wiki) group and the control (non-wiki) group?
3. Is there a relationship between the time spent on the wiki-based social media and students' English grammar achievement gains?

Results by Research Questions

This study used quantitative measures to gather data from Taiwanese EFL students in order to analyze the effects of wiki-based social media activities on their English grammar achievement. An ANCOVA was conducted to test the mean differences of grammar scores between the wiki (treatment) group and the non-wiki (control) group, with the assigned activities as the independent variable, the measured variable (students' achievement levels) as the dependent variable, and the learners' prior knowledge of the target grammar structures as the covariate. A *t-test* was used to test if students in the wiki group devoted significantly more time to the activities than those students in the non-wiki group. Bivariate correlation analysis was used to find out the possibility of any correlation between the time spent on wiki-based social media and

students' English grammar achievement gains. All analyses were conducted using a .05 level of significance.

Research Question 1

Research Question 1 asked: "Is there a difference in students' English grammar achievement levels between the treatment (wiki) group and the control (non-wiki) group after controlling for pre-intervention achievement levels?"

First, the scores of the students' pretests and posttests were calculated for both groups (Table 8). The mean of the pretest wiki group was 43.55 ($sd=12.57$), and the mean of the pretest non-wiki group was 40.20 ($sd= 16.28$). The mean of the posttest wiki group was 51.00 ($sd=14.69$), and the mean of the posttest non-wiki group was 41.90 ($sd=14.26$). When assessing the gain, scores overall increased in the grammar test, the treatment group having a gain score mean of 7.45, and the control group having a gain score mean of 1.7.

Table 8

Participating Students' Grammar Scores by Group

Group	Pretest		Posttest		Difference
	Mean	SD	Mean	SD	
Wiki	43.55	12.57	51.00	14.69	7.45
Non-wiki	40.20	16.28	41.90	14.26	1.7

To assess Hypothesis 1, "Students in the treatment (wiki) group will score significantly higher on the posttests than those students in the control (non-wiki) group

after controlling for pre-intervention achievement levels,” an analysis of covariance (ANCOVA) was conducted to test for the group difference on the grammar posttest scores. The pretest scores were used as the covariate. Before an ANCOVA, the homogeneity-of-slope assumption (Table 9) was tested to find out if the interaction between the covariate and the factor in predicting the dependent variable is significant or not. The interaction source is labeled Groups*Pre. The interaction was not significant, $F(1, 80) = .28, p = .60$.

Table 9

Tests of Homogeneity of Slope

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	11515.72		3838.57	41.281	.00	.61
Intercept	1724.62		1724.62	18.547	.00	.19
Groups	21.30		21.301	.229	.63	.003
PreScores	9542.20		9542.20	102.62	.00	.56
Groups * PreScores	192.22		26.06	0.28	.60	.003
Error	7438.95	0	92.987			
Total	201888.00	4				
Corrected Total	18954.67	3				

Since the interaction was not significant, an ANCOVA was conducted. The results of the ANCOVA (Table 10) indicated that the difference on the grammar post-scores

between the two groups was significant after controlling for the pretest performance, $F(1, 81) = 9.70, p = .003$ which was less than .01. The strength of the relationship between the intervention and dependent variable was moderately large, as assessed by partial Eta squared, with the intervention factor accounting for 10.7% of the variance of the dependent variable, holding constant the grades of pre-test (Partial $\eta^2 = .107$).

Table 10

Analysis of Co-variance (ANCOVA) for student levels

Source	SS	f	Mean Square	F	Sig.	Partial Eta Squared
Pre-test	9754.60		9754.60	105.84	.000	.566
Group	893.58		893.58	9.70	.003	.107
Error	7465.01	1	92.16			
Total	201888.00	4				

The test also assessed the difference between the adjusted means for the two groups, which are reported in the output as the Estimated Marginal Means (49.80, 43.22). The difference between the adjusted means for the two groups was not the same as the difference between the means on the dependent measure (51.00, 41.90), in that the two groups had differing grades of pre-test (Table 11).

Table 11

Estimated Marginal Means

Group	M	SEM
Wiki	49.80	1.45
Non-wiki	43.22	1.52

Research Question 2

Research Question 2 asked: Is there a difference in students’ time devoted to English grammar activities between the treatment (wiki) group and the control (non-wiki) group?

An independent-samples *t*- test was conducted to evaluate the hypothesis that “Students in the treatment (wiki) group will devote significantly more time to the activities than those students in the control (non-wiki) group.” First, the mean of the participating students’ self-reported time devoted to English grammar activities between the treatment (wiki) group and the control (non-wiki) group were calculated (Table 12).

Table 12

Participating Students’ Self-reported Time by Group

Time=Hour(s) per week

Group	Non-wiki		Wiki	
	Mean	SD	Mean	SD
Time	1.78	1.14	2.27	1.04

The mean time for the non-wiki group was 1.78 with a standard deviation of 1.14; the mean time for the wiki group was 2.27 with a standard deviation of 1.04. This demonstrates that students in the treatment group, on average, spent more time on English grammar activities than did the control group.

In addition to the descriptive statistics, independent samples *t*- tests, illustrated in Table 13, were conducted on the time spent for both groups. The test was significant, $t(82) = 2.087, p = .04$. The 95% confidence interval for the difference in means was from .023 to 0.97.

Table 13

Independent Samples t Test: Time Spent on English Grammar Activities

Group	Source	df	t	p	95% Confidence Interval of the Difference	
					Lower	Upper
Wiki vs.						
Non-wiki	Time	82	2.09	0.04	.023	.97

Research Question 3

Research Question 3 asked: “Is there a relationship between the time spent on the wiki sites and students’ English grammar achievement levels?” To answer Research Question 3, first, the scores of the students’ pretests to posttests gains were calculated for the wiki group (Table 14). The mean gain was 7.45 ($sd = 10.97$). Correlations were examined between the time spent on wiki sites and students’ English grammar

achievement gains. The results of the correlational analyses indicated that there was a large, statistically significant relation between the time spent on wiki sites and students' English grammar achievement gains ($r = .412, p < .01$). According to Cohen (1988), a correlation of 0.5 is large, 0.3 is moderate, and 0.1 is small. Also, the scatterplot was created to visualize the relationship between English grammar achievement gains and the time spent on the wiki sites (see Figure 5). The result shows that if students spend more time on wiki sites, they gain higher scores on English grammar as well.

Table 14

Descriptive Statistics

Test Score Gains	N	Min	Max	Mean	SD
Wiki group	44	-20.00	28.00	7.45	10.97

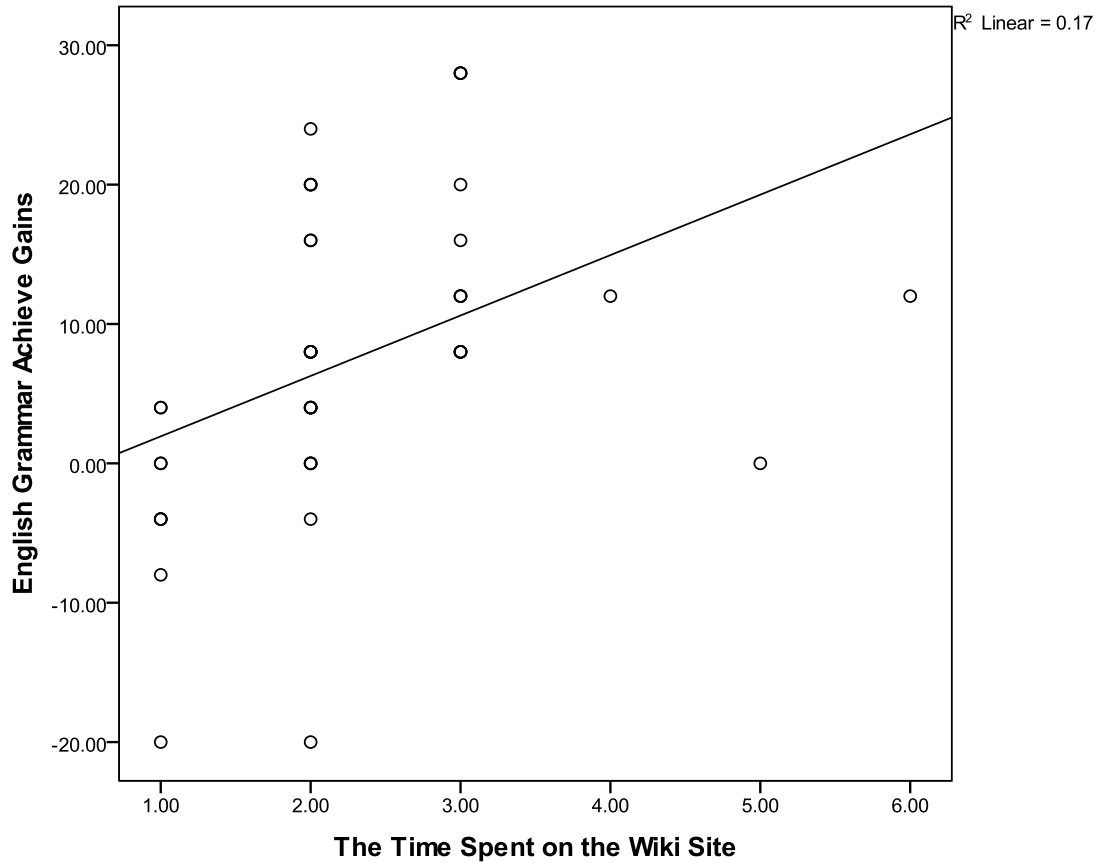


Figure 5 Scatterplot of English Grammar Achievement Gains and the Time Spent on the Wiki Site

Student Experience Survey

For a comprehensive understanding of the students' responses to the use of social media for English grammar activities, an end-of-project questionnaire survey was administered. The questionnaire survey was divided into three sections. The first section included questions concerning students' experiences using wiki activities. The second section contained questions about students' satisfaction levels. The third section included three questions with regard to collaborative learning using wiki activities.

The findings for Section 1 revealed very positive responses from the participating students. Most of the mean scores were above 3.50, and many of them approached 4.00. The average score for Section 1 was 3.59 (see Appendix Q).

The students' responses to Section 2 of the questionnaire survey revealed further insights. Overall, the participating students had very positive responses toward learning using wiki (see Appendix R).

In Section 3 of the satisfaction survey (see Appendix S), the participating students had very positive responses toward collaborative learning using wiki overall. They agreed that the wiki activities provided opportunities to interact with their classmates. The interactions with their group members/partners deepened their English grammar learning, and they were confident that their contributions to the wiki activities influenced their peers in their learning of the target grammar structures.

Summary

This quasi-experiment used both a quantitative posttest and a questionnaire survey to understand better the effects of social media as a collaborative language learning tool. In particular, this study quasi-experimentally investigated the impact of wiki-based collaborative activities on the recognition of correct English grammar usage. The results supported the first hypothesis that there is a difference in the means of the achievement posttest scores on the recognition of correct English grammar usage between the treatment (wiki) group and the control (non-wiki) group, in favor of the treatment group, when controlling for pre-existing knowledge. The results of the second research question

indicated that there is a statistically significant difference in students' time devoted to English grammar activities between the treatment group and the control group in favor of the treatment group. The results also supported the third hypothesis that there is a statistically significant relationship between the time spent on wiki sites and students' pretest to posttest gains on English grammar achievement levels. In addition, students reported liking the social-media activities and felt they gained English language skills as well as content area knowledge. Students also positively reported that the collaborative language learning using social media aided them in interacting with their peers. While this chapter described the results of the present research, Chapter 5 offers an in-depth discussion of the findings, implications for EFL teachers, and recommendations for future research.

CHAPTER V: DISCUSSION

Introduction

This chapter provides an interpretation and review of the study results. Future suggestions for language educators are provided as well as future suggestions for research related to CALL. This chapter also provides an explanation of the limitations of this study and recommendations for future research.

Purpose of the Study

The purposes of this investigation were to explore the effects of using social media activities as compared to traditional activities to improve the recognition of correct English grammar usage and the relationship between the time spent on social media activities and students' pretest to posttest achievement gains on correct English grammar usage. The study also examined how students viewed the experience of using social media activities as measured by a Likert-scale post-survey.

Discussion of the Findings

The first research question asked what effects social media activities had on students, when compared to traditional activities, regarding the recognition of correct English grammar usage. The results of the data analysis showed that there is a statistically significant difference in the means of the achievement posttest scores on the recognition of correct English grammar usage ($F(1, 81) = 9.70, p = .003$) between the treatment (wiki) group and the control (non-wiki) group in favor of the treatment group.

The second research question looked at whether or not there is a difference in students' time devoted to English grammar activities between the treatment (wiki) group and the control (non-wiki) group. The result of the t-test was statistically significant. There is a statistically significant difference in students' time devoted to English grammar activities ($t(82) = 2.087, p = .04$) between the treatment group and the control group in favor of the treatment group.

The third research question examined the correlation between the time spent on wiki sites and students' English grammar achievement levels. Results of Bivariate correlation analysis indicated there is a statistically significant relationship between the time spent on wiki sites and students' English grammar achievement levels ($r = .412, p < .01$).

These statistical findings were supported by other researchers such as Dooly (2011), Chen (2008), and Sagarra and Zapata (2008) who conducted similar studies involving CMC applications and FL/EFL learning. These researchers agreed that social media activities enhance students' abilities to increase their learning and performance of the correct English usage.

At the end of the study, the treatment (wiki) group completed a survey which contained questions related to their views of the wiki as a social-media tool to increase English learning and cooperative environment. The overall score was $M = 3.60$ out of a possible 5.0 on the Likert scale that was used. The participants, on average, agreed that social media, particularly the wiki, increased their motivation to learn English, enhanced

their learning experience, made English learning meaningful, and provided more opportunities to interact with their peers.

The students expressed positive attitudes to the wiki activities, as these were interesting, easy to use, and interactive. The wiki-based social media was effective for learning EFL grammar because students self-reported spending more time on task and had more opportunities to communicate with their peers outside the classroom. The wiki was effective for collaborative learning because the students could put their heads together to work on the group activities, share ideas, and help their partners to complete the tasks. Furthermore, the wiki site was also conducive to self-directed learning because students could spontaneously study at any time, at their own pace, and anywhere they wanted.

The findings in this study are supported by literature of CALL researchers such as Fife (2008), Lee (2009), Miyazoe and Anderson (2010), and Woo et al., (2011). Researchers revealed that students had positive perceptions of the blended course design with computer-mediated communication (CMC) activities, with wikis being the most favorable. Students not only helped each other organize the content but also made error corrections for language accuracy and, as a result, they concluded that a collaborative CMC task is a rewarding experience for language learners.

It was asserted in the theoretical framework and the literature review that the foundation of this study was based on second language acquisition and language learning, namely the Input-Interaction-Output (IIO) Model, computer assisted language learning

(CALL) and Collaborative/cooperative learning (CL) theories. The results of the present study seem to agree with researchers, such as Swain (2000, 2001) and Takashima and Ellis (1999), who attempted to connect learners' opportunities for output more directly to second language acquisition, particularly in the area of grammatical structure. In their experiments, as learners endeavored to produce the target language, they realized that they were not able fully to express themselves, and this "pushes" them to reach better accuracy. Meanwhile, Swain (2000) concluded that, as learners engaged in output during collaborative interaction, they were able to help each other deliberate on the language usage, conjecture about language structure, and, acquire the target language in the process.

In a foreign language (FL) classroom, working in informal small groups, having pairs or small groups of learners write up dialogue, do exercises, and research a project together has been common practice. The development of computer-supported collaborative learning (CSCL) environments can further maximize learners' potential in the FL classroom. As a consequence, less knowledgeable peers would develop or enhance their knowledge by interacting with more knowledgeable peers (Chapelle, 2001).

Based on a review of the literature, this study was the first quasi-experimental research in second language acquisition to explore the effects of social media activities on EFL grammar. Previous studies have explored the effects of social media language learning activities on multiple variables. This topic was explored by focusing on EFL grammar achievement and time-on-task.

Implications

The present study attempted to answer the question: Do students using social media activities score significantly higher on the posttests than those students who received traditional activities? Overall, student achievement and learning outcomes improved with the usage of the social media tool. This research suggests that the use of wiki-based social media activities positively correlates with language learning achievement, motivation, and time on task that were shown by previous research (Chen, 2008; Dooly, 2011; Fife, 2008; Lee, 2009; Miyazoe & Anderson, 2010; Sagarra & Zapata, 2008; Woo et al., 2011). These findings are particularly relevant in the context of a traditional face-to-face EFL course where students have very limited time and interactions with their peers and teachers.

This study provides a valuable starting point for social media collaborative language-learning research. It implies that the recommendations in the IIO model (Block, 2003) can be met by implementing collaborative activities that use social media for the EFL classroom in a Taiwanese university setting. This gives teachers a tool for changing the classroom from transferring information through lecture to a classroom of interactive communication between students and teachers. It has been shown that, when a collaborative learning environment is supported by computer-mediated communication (CMC), its potential success for foreign language learning is remarkably enhanced (Levy & Stockwell, 2006). Furthermore, when the students engaged in collaborative patterns of interaction, they were more likely to perform better in the posttest. Today's Taiwanese

college students are very comfortable using social media. It is important that foreign language teachers become more comfortable with social media to acknowledge the value of integrating it into their instruction.

Social media has opened a new horizon for foreign language learning and teaching involving correct grammar usage. The present study showed that the ways the students used social media for collaborative and interactive grammar learning was pedagogically effective. With more time devoted to collaborative social media assignments, students developed a powerful effect on EFL grammar learning. Moreover, grammar learning accompanied by interactive social media activities can improve motivation. Teachers should increase out-of-class opportunities to help students by bring about discussions that are related to correct grammar usage. They should preview the grammar points in a reading passage, teach high-frequency grammar points, and help students create sentences or write up dialogues by using those grammar points.

Limitations

A number of limitations must be recognized in an interpretation of the results of this study. One of these limitations is the non-random selection procedure. This study contained only 84 students from two existing classes in one Taiwanese university. The research results might be different if the study was conducted in different settings. This was only one study at one university; therefore, the researcher urges future research on this topic. Besides, due to the retrospective survey employed in the present research and the lack of qualitative data, it is unknown to what extent the time on-task improved

positively on students' achievement and how students participated in the group interaction. The wiki sites themselves pose their own limitations. Although the students were given enough chances to interact and communicate on the wikis, they did not practice speaking the target grammar usage during the activities. For this reason, the use of wiki activities cannot replace actual oral practice in the target language. Finally, the addition of qualitative data could have enriched the present research study, for it would have allowed further insight into the students' achievement and satisfaction levels. A mixed-methods study would have been ideal for this research study.

Recommendations for Further Research

This study focused on English grammar achievement and the amount of time spent on grammar activities using wiki-based collaborative social media. Subjects in the treatment and control groups were tested and surveyed. The effects of social media activities and traditional activities on the acquisition of targeted English grammar usage were compared. When analyzing this study, areas were found that could be further researched in the future. First, the present study took place over a total period of 4 weeks and used 84 participants in two existing classes from one university in Taiwan. Further research could be conducted with larger samples and over a longer period of time to determine if findings can be generalized. It is also recommended that future studies include different types of social media, such as podcasting or videoconferencing, so students get chances to practice listening and speaking the target grammar usage during the activities. Finally, it is believed that the addition of qualitative data could have

enriched the present research study, for it would have allowed further insight into the students' achievement and satisfaction levels. Future research should be conducted to study the quality as well as quantity of the interaction between learners for various kinds of social media; such social media should have the functions to count students' time entries and word count for each entry. A mixed-methods study would be ideal for future research. Lastly, future studies should follow up on issues raised by Coyle (2007), who reported that there was no significant difference in students' achievement and perceptions between a wiki group and a traditional face-to-face group. Further research is needed to see how these results might have occurred and whether they hold true in subsequent research.

Conclusion

Based on a review of the literature, this study was the first quasi-experimental research in second language acquisition to explore the effects of social media activities on EFL grammar. Previous studies have explored the effects of social media language learning activities on multiple variables. This topic was explored by focusing on EFL grammar achievement and time-on-task.

The findings showed that Taiwanese university EFL learners' test scores increased significantly from pretest to posttest in the wiki (treatment) group than in the non-wiki (control) group. Also, there was a statistically significant difference in students' time devoted to English grammar activities between the treatment and control groups in favor of the treatment group. In addition, the results of the bivariate correlation analysis

indicated there is a statistically significant relationship between the time spent on wiki sites and students' English grammar achievement levels. Moreover, the students experienced positive EFL learning through collaborative social media grammar activities.

In sum, the study revealed that the use of collaborative wiki-based social media activities is positively correlated with the EFL student grammar achievement. Although both treatment and control groups showed achievement gains from pretest to posttest, the wiki group showed greater overall gains than the non-wiki group. The time students in the treatment group spent on grammar activities increased when they used social media, and they self-reported spending more time on task during free time. Students' devotion to social media activities brought about effective peer support and collaborative learning.

The overall conclusion from this study is that collaborative social media activities can help students in their progress toward learning a foreign language. More research is needed to see if these findings can be replicated in a variety of settings with different populations. In specific, further research is needed to assess the effectiveness of using wikis to teach grammar in other settings.

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APPENDICES

APPENDIX A: HUMAN SUBJECTS COMMITTEE APPROVAL



11/21/2011
HSCL #19736

Cooper Singman
1745 Bagley Drive, #2
Lawrence, KS 66044

The Human Subjects Committee Lawrence reviewed your research update application for project

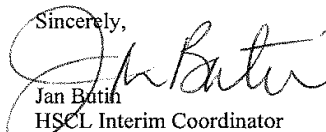
19736 Singman / Markham (C & T) The Effectiveness of Wiki-Based Collaborative Activities on Taiwanese Undergraduates' EFL Grammar Achievements

and approved this project under the expedited procedure provided in 45 CFR 46.110 (f) (7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

The Office for Human Research Protections requires that your consent form must include the note of HSCL approval and expiration date, which has been entered on the consent form sent back to you with this approval.

1. At designated intervals until the project is completed, a Project Status Report must be returned to the HSCL office.
2. Any significant change in the experimental procedure as described should be reviewed by this Committee prior to altering the project.
3. Notify HSCL about any new investigators not named in original application. Note that new investigators must take the online tutorial at http://www.rcr.ku.edu/hsc/hsp_tutorial/000.shtml.
4. Any injury to a subject because of the research procedure must be reported to the Committee immediately.
5. When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity. If you use a signed consent form, provide a copy of the consent form to subjects at the time of consent.
6. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.

Please inform HSCL when this project is terminated. You must also provide HSCL with an annual status report to maintain HSCL approval. Unless renewed, approval lapses one year after approval date. If your project receives funding which requests an annual update approval, you must request this from HSCL one month prior to the annual update. Thanks for your cooperation. If you have any questions, please contact me.

Sincerely,

Jan Batin
HSCL Interim Coordinator
University of Kansas

cc: Paul Markham

APPENDIX B: INFORMED CONSENT STATEMENT

THE EFFECTIVENESS OF WIKI-BASED COLLABORATIVE ACTIVITIES ON TAIWANESE UNDERGRADUATES' EFL GRAMMAR ACHIEVEMENTS

(Name of the Study)

INTRODUCTION

You are invited to participate in a research project conducted by Cooper Singman. The Department of Curriculum & Teaching at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You may refuse to sign this form and not participate in this study. You should be aware that even if you agree to participate, you are free to withdraw at any time. If you do withdraw from this study, it will not affect your relationship with this unit, the services it may provide to you, or the University of Kansas.

PURPOSE OF THE STUDY

The purpose of this project is to compare the effects of wiki-based collaborative activities to traditional activities in out-of-class settings on students' EFL grammar achievement. The present project will examine the use of wiki activities and traditional handwritten activities and their effect on students' grammar achievement, and it will also examine the time devoted on grammar activities and its effect on student's grammar achievement.

PROCEDURES

You will be asked to participate in the following activities, tests, and a survey questionnaire:

- 1.) Wiki instruction
- 2.) The pretest of English grammar comprehension.
- 3.) The training program period will be extended to 4 weeks. Students in an experimental group will be taught with the wiki tool and have the opportunities to create group projects as well as practicing grammar exercises on the wiki site, while those in the control group will be taught to learn English grammar structures and to do handwritten group and individual activities and to practice grammar exercises with the traditional method.
- 4.) The posttest of English grammar comprehension will be administered after the training program.

5.) A survey following the posttest will be for a comprehensive understanding of the students' responses toward time spent and experiences on wiki activities and traditional activities.

Your test and survey results will be used to examine the effectiveness of the instructions. Your responses will not affect your grades and will be stored in a locked cabinet to keep confidential. There are no consequences to not participating and there are no direct benefits to you in participating in the study. You have the right to withdraw from the study at anytime without consequences. You do not have to answer any question that you do not wish to answer.

RISKS

No risks are anticipated.

BENEFITS

Although participation may not directly benefit you, we believe that the research findings will be useful in English grammar learning. It may be used to develop educational curricula to enhance English grammar learning.

PAYMENT TO PARTICIPANTS

Participants will not be paid.

PARTICIPANT CONFIDENTIALITY

Your name will not be associated in any publication or presentation with the information collected about you or with the research findings from this study. Instead, the researcher(s) will use a study number or a pseudonym rather than your name. Your identifiable information will not be shared unless required by law or you give written permission. Permission granted on this date to use and disclose your information remains in effect indefinitely. By signing this form you give permission for the use and disclosure of your information for purposes of this study at any time in the future.

REFUSAL TO SIGN CONSENT AND AUTHORIZATION

You are not required to sign this Consent and Authorization form and you may refuse to do so without affecting your right to any services you are receiving or may receive from the University of Kansas or to participate in any programs or events of the University of Kansas. However, if you refuse to sign, you cannot participate in this study.

CANCELING THIS CONSENT AND AUTHORIZATION

You may withdraw your consent to participate in this study at any time. You also have the right to cancel your permission to use and disclose further information collected about you, in writing, at any time, by sending your written request to principal investigator, Mr. Cooper Singman by email: csingman@ku.edu or the faculty supervisor, Dr. Paul Markham, email: markham@ku.edu. We appreciate your cooperation. If you cancel permission to use your information, the researchers will stop collecting additional information about you. However, the research team may use and disclose information that was gathered before they received your cancellation, as described above.

QUESTIONS ABOUT PARTICIPATION

If you have any questions about procedures or would like additional information concerning this study please do not hesitate to contact the researcher(s) listed at the end of this consent form.

PARTICIPANT CERTIFICATION:

I have read this Consent and Authorization form. I have had the opportunity to ask, and I have received answers to, any questions I had regarding the study. I understand that if I have any additional questions about my rights as a research participant, I may call (785) 864-7429 or (785) 864-7385, write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7568, or email irb@ku.edu.

I agree to take part in this study as a research participant. By my signature I affirm that I am at least 18 years old and that I have received a copy of this Consent and Authorization form.

Type/Print Participant's Name

Date

Participant's Signature

Researcher Contact Information

Cooper Singman
Principal Investigator
Dept. of Curriculum & Teaching
1745 Bagley Dr. #2
Lawrence, KS 66045
785-331-6036

Paul Markham, Ph.D.
Faculty Supervisor
Dept. of Curriculum & Teaching
1122 West Campus Road, JRP 440
University of Kansas
Lawrence, KS 66045
785-864-9677

APPENDIX C: CHINESE INFORMED CONSENT STATEMENT

親愛的學生:

我是堪薩斯大學教育學院的博士研究生. 感謝您在繁忙的課業當中撥冗參與這項研究. 本人目前正在研究探討『維基協作平台(Wiki-based Collaborative Activities)』對促進台灣大學生之英文文法能力之成效。為了完成這項有關電腦輔助英語教學的研究, 本人需要您的合作與參與.

以下的聯絡資料提供給您是否願意參與這個研究, 你可以拒絕參與這項研究, 但您的參與對這項研究是非常重要的並且對電腦輔助英語教學將有所貢獻. 如果您願意參與這項研究, 請在下面的同意書上, 簽上你的名字. 如你有任何疑問, 可連絡我的指導教授, Dr. Paul Markham 電話 (785)864-9677 或電郵 pmarkham@ku.edu 或致電我本人 Cooper Singman (785)331-6036 或電郵 csingman@ku.edu 或寫信到 Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563, Phone: (785)864-7385, Email: jenbutin@ku.edu 或 dew@ku.edu.

敬祝各位身體健康、學業進步!

請簽名: _____ 日期: _____

研究者: Cooper Singman

堪薩斯大學

教育學院

博士候選人

1745 Bagley Dr. #2 Lawrence, KS 66044

電話: 785-331-6036

E-mail: ssingman@ku.edu

APPENDIX D: GRAMMAR COMPREHENSION TEST

Direction: Choose the best answer (A), (B), (C), or (D) to each question and fill in the corresponding oval on your answer sheet.

1. _____ John accomplished little as production supervisor, he was fired.

(A) Even though

(B) In spite of

(C) While

(D) Because

2. Pacific Gas and Electric refused to acknowledge receiving our letter _____ complaint.

(A) by

(B) of

(C) in

(D) to

3. Please note that the address which is listed on our business card has been changed _____ 512 Valencia Avenue.

(A) in

(B) on

(C) by

(D) to

4. One quality of a business leader is the ability to step up to bat and make the hard decisions _____ to ensure business viability.

- (A) necessary
- (B) necessarily
- (C) necessitate
- (D) necessitating

5. The adjuster will be out to review your insurance claim and inspect the damage to your car at 10 a.m. _____ Monday.

- (A) at
- (B) on
- (C) in
- (D) by

6. Following the advice of her broker, Mrs. Tang _____ to diversify her investments into stocks and bonds.

- (A) deciding
- (B) decides
- (C) has decided
- (D) has been decided

7. _____ continued allegations of money laundering, the banks of the Grand Cayman Islands have opened their books to auditors.

- (A) Even though
- (B) Despite of

(C) However

(D) Because of

8. We regret _____ we are unable to sign the contract because of critical ambiguities in the fifth and sixth clauses.

(A) that

(B) what

(C) which

(D) who

9. _____ the amiable relationship between the two companies, the management teams decided the time is not yet ripe for merger.

(A) Despite

(B) Even though

(C) However

(D) Although

10. During the vice-chairwoman's _____, she gave many anecdotes about her years in the business.

(A) speak

(B) speech

(C) speaking

(D) spoken

11. Corporations can not merely rely _____ anecdotal information but must also pursue meticulous research.

- (A) in
- (B) about
- (C) on
- (D) among

12. It is fair to say _____ such an increase in sales has never occurred in the annals of our company.

- (A) when
- (B) that
- (C) which
- (D) although

13. _____ a shift in market prices, both sides decided to annul the agreement before it went into effect.

- (A) Whereas
- (B) Because of
- (C) Because
- (D) Even though

14. We appreciate your _____ of our offer and eagerly await your answer.

- (A) consider
- (B) considerable
- (C) consideration
- (D) considerability

15. _____ customers continually trip over the first step of the escalator, the apparatus that warns them of this danger needs to be redesigned.

- (A) Because
- (B) Because of
- (C) Even though
- (D) Although

16. We apologize _____ the apparent misunderstanding concerning your room reservation.

- (A) to
- (B) for
- (C) in
- (D) from

17. All applicants _____ the job must have a graduate degree, three years of professional work experience, and five recommendations.

- (A) for
- (B) in
- (C) on
- (D) at

18. The union _____ an independent arbiter be chosen to settle the strike against management.

- (A) that has asked
- (B) has what asked
- (C) has asked that

(D) which has asked that

19. We believe _____ our new office arrangement better facilitates communication between management and workers.

(A) what

(B) that

(C) that when

(D) in that

20. His favorite aspect of the business is forging the interpersonal connections _____ to increase business exposure.

(A) necessitate

(B) necessitating

(C) necessary

(D) necessarily

21. Jennifer Wong _____ the responsibility of reorganizing the files of every corporate client.

(A) assigning

(B) has being assigned

(C) has been assigned

(D) who assigned

22. My assumption is _____ transportation will be provided from the JFK airport to the downtown Hyatt Regency.

(A) when

- (B) why
- (C) whose
- (D) that

23. As a stockholder of the Coca-Cola Company, you are invited to attend the annual stockholder's meeting to be held _____ April 15th.

- (A) in Atlanta on
- (B) at Atlanta in
- (C) at Atlanta during
- (D) by Atlanta at

24. Perhaps the most common axiom in business _____ the customer is always right.

- (A) is that
- (B) that is
- (C) what is
- (D) is what

25. I am happy to announce that the company awards banquet will again be held _____ the Sullivan building.

- (A) at December 10th at
- (B) on December 10th in
- (C) in December 10th at
- (D) in December 10th inside

APPENDIX E: STUDENT SURVEY (WIKI GROUP)

I. Demographic information

1. Gender: () Male () Female

2. Name: _____ Student ID#: _____

3. Age: () 18 and under; () 19; () 20; () 21; () 22; () 23 and above.

4. How many years have you been learning English: () 0-2 years; () 2-5 years; () 6-10 years; () 11-15 years; () 16 years and above.

5. During the four week period, on average in one week, how much time did you spend working on the wiki activities?

() 0 hour; () 1 hour; () 2 hours; () 3 hours; () 4 hours; () 5 hours; () 6 hours; () 7 hours; () 8 hours; () 9 hours; () 10 hours and above.

II. Please circle the best statement which concerns your experiences and level of activity engagement of the wiki activities.

1	I gained English language skills through the learning process using the wiki activities.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2	I gained content area knowledge about the topics using the wiki activities.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3	I gained a deeper understanding of the concept when involving in the wiki activities.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

4	Learning English through using wiki activities was interesting.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
5	The instruction had increased my motivation to learn English.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
6	The wiki activities made English learning meaningful.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
7	The wiki activities gave me opportunities to think.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
8	Overall, I thought that taking part in the wiki activities helped me to gain confidence in my own English language ability.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
9	I fulfilled the requirements of the wiki activities	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
10	I will recommend wiki activities to other students.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
11	I feel positive about the wiki activities in this class.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
12	My experience of practicing wiki activities in this class makes me want to take more English classes.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
13	The wiki activities contributed a lot to my learning of the target grammar structures.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

14	Compared to the other activities in this course, the wiki activity was more influential to my learning	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
15	I consider the wiki activities enjoyable learning experiences.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
16	I consider the wiki activities more enjoyable than the other learning activities in this course.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
17	The wiki activities provided opportunities to interact with my classmates	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
18	The interactions with my group members/partners deepened my English grammar learning.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
19	I am confident that my contributions to the wiki activities influenced my peers in their learning of the target grammar structures?	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

APPENDIX F: STUDENT SURVEY (CONTROL GROUP)

1. Gender: Male Female

2. Name: _____ Student ID#: _____

3. Age: 18 and under; 19; 20; 21; 22; 23 and above.

4. How many years have you been learning English: 0-2 years; 2-5 years;
 6-10 years; 11-15 years; 16 years and above.

5. During the four week period, on average in one week, how much time did you
spend working on the grammar activities?

0 hour; 1 hour; 2 hours; 3 hours; 4 hours; 5 hours; 6
hours; 7 hours; 8 hours; 9 hours; 10 hours and above.

APPENDIX G: CHINESE SURVEY (WIKI GROUP)

一、基本資料 (請勾選)

1. 性別: () 男 () 女

2. 姓名: _____ 學號: _____ 座號: _____

3. 年齡: () 18 歲以下 () 19 歲 () 20 歲 () 21 歲 () 22 歲 () 23 歲以上

4. 學習英文的時間: () 0-2 年; () 2-5 年; () 6-10 年 () 11-15 年 () 16 年以上

5. 在過去的四個星期當中, 平均每星期你花多少時間在 wiki 習作?

() 0 小時; () 1 小時; () 2 小時; () 3 小時; () 4 小時; () 5 小時; () 6 小時; () 7 小時;
() 8 小時; () 9 小時; () 10 小時以上

二. 請依照您的看法, 在下列五點量表中, 圈選適當的回答

您認為在學習英語過程中, 使用 wiki 協作平台使我						
1	英語技能進步。	很不同意	不同意	無意見	同意	非常同意
2	獲得主題內容方面的知識。	很不同意	不同意	無意見	同意	非常同意
3	對課程有更深的整體概念。	很不同意	不同意	無意見	同意	非常同意
4	感覺學習英語變有趣。	很不同意	不同意	無意見	同意	非常同意
5	提高對英語學習的興趣	很不同意	不同意	無意見	同意	非常同意
6	感覺英語學習有意義	很不同意	不同意	無意見	同意	非常同意

7	有機會思考所學	很不同意	不同意	無意見	同意	非常同意
8	對自己的英語能力更有自信	很不同意	不同意	無意見	同意	非常同意
9	我完成了 wiki 習作的所有要求。	很不同意	不同意	無意見	同意	非常同意
10	我會推薦 wiki 習作平台給其他學生。	很不同意	不同意	無意見	同意	非常同意
11	我對這門課的 wiki 習作給予正面評價。	很不同意	不同意	無意見	同意	非常同意
12	使用 wiki 習作以後，我覺得我會想修更多的英語課。	很不同意	不同意	無意見	同意	非常同意
13	wiki 習作對於我學習英文文法很有幫助。	很不同意	不同意	無意見	同意	非常同意
14	與這門課其他活動相比較, wiki 習作對我更有助益。	很不同意	不同意	無意見	同意	非常同意
15	我覺得 wiki 習作活動是愉快的學習經驗	很不同意	不同意	無意見	同意	非常同意
16	與這門課其他活動相比較, 我比較喜歡 wiki 習作。	很不同意	不同意	無意見	同意	非常同意
17	wiki 習作提供我與同學互動的機會。	很不同意	不同意	無意見	同意	非常同意
18	我與同學在 wiki 的互動加深了我的英文文法學習。	很不同意	不同意	無意見	同意	非常同意
19	我有自信我對於 wiki 習作的努力貢獻影響了我的組員夥伴。	很不同意	不同意	無意見	同意	非常同意

APPENDIX H: CHINESE SURVEY (CONTROL GROUP)

一、基本資料 (請勾選)

1. 性別: () 男 () 女

2. 姓名: _____ 學號: _____ 座號: _____

3. 年齡: () 18 歲以下 () 19 歲 () 20 歲 () 21 歲 () 22 歲 () 23 歲以上

4. 學習英文的時間: () 0-2 年; () 2-5 年; () 6-10 年 () 11-15 年 () 16 年以上

5. 在過去的四個星期當中, 平均每星期你花多少時間在 wiki 習作?

() 0 小時; () 1 小時; () 2 小時; () 3 小時; () 4 小時; () 5 小時; () 6 小時; () 7 小時;
() 8 小時; () 9 小時; () 10 小時以上

APPENDIX I: WIKI INVITATION

The screenshot shows a Gmail interface. At the top left is the Gmail logo. Below it is a navigation bar with 'Mail' and a search bar. The search bar contains 'Search Mail' and 'Search the Web' buttons, along with links for 'Show search options' and 'Create a filter'. Below the navigation bar is a list of folders: 'Compose mail', 'Inbox (49)', 'Buzz', 'Important', 'Sent Mail', 'Drafts (47)', 'Bowen', 'Bruce Frey', 'Bursar (1)', 'chenJie', 'chinese lesson', 'CI803 (2)', 'com and research (2)', 'curriculum 800 (1)', 'DuDu', 'ELPS770 (2)', 'ELPS810 (5)', 'ELPS811 (5)', 'ELPS812 (4)', 'ELPS871 (1)', 'Ernest (1)', and 'facebook (42)'. The main content area shows an email from 'csingman@ku.edu' with the subject 'csingman@ku.edu has invited you to join their workspace, grammaractivity'. The email body contains the following text: 'cooper via bounce.pbworks.com to me', 'csingman@ku.edu has sent you an invitation to their workspace.', 'You may need to log in to edit. You can use your existing account:', 'Username: hsinlinlu@gmail.com', 'Password: (your existing password)', and a link 'View the workspace grammaractivity.'. Below the email body are 'Reply' and 'Forward' buttons and a text input field.

Mail

LPN to RN Online Programs - www.CollegeNetwork.com/LPN2RN - RN/ADN Degree Online, 12-18 mo. NLN accredited school No Wait List.

Compose mail

Archive Spam Delete Move to Labels More

Inbox (49)

Buzz

Important

Sent Mail

Drafts (47)

Bowen

Bruce Frey

Bursar (1)

chenJie

chinese lesson

CI803 (2)

com and research (2)

curriculum 800 (1)

DuDu

ELPS770 (2)

ELPS810 (5)

ELPS811 (5)

ELPS812 (4)

ELPS871 (1)

Ernest (1)

facebook (42)

csingman@ku.edu has invited you to join their workspace, grammaractivity

cooper via bounce.pbworks.com to me

csingman@ku.edu has sent you an invitation to their workspace.

You may need to log in to edit. You can use your existing account:

Username: hsinlinlu@gmail.com

Password: (your existing password)

[View the workspace grammaractivity.](#)

Thanks,

Your PBworks Team

Reply Forward

APPENDIX J: WIKI SIGN UP PAGE

My PBworks csingman@gmail.com · Log out **PBWORKS**

Set up your account

Need help? Get [support](#).

You have been invited to join a workspace. Please enter your name and make up a password for your account.

Name

Enter password

Confirm password

[PBworks](#) · [Get Help](#)
© 2011 PBworks

APPENDIX K: WIKI WORKSPACE PAGE

The screenshot shows a web browser window with the URL <https://my.pbworks.com/>. The page title is "My PBworks" and the user is logged in as "csingman@gmail.com".

My Workspaces

A list of all the workspaces that you have created or can access. You can't leave workspaces that you have created, but you can delete workspaces you no longer need from the workspace's Settings page.

Workspace	Last Changed	Enable Notifications
grammaractivity.pbworks.com	1 wk ago	<input checked="" type="checkbox"/> Leave this workspace

● - a space you created ● - a space you administer other spaces: editor access or lower

Preferences

Notify me when my workspaces change
At most every hour

This setting applies to each workspace individually; you might get two emails in a given hour about two different workspaces.

Join a workspace

Enter the name of the workspace

[Create a new workspace](#)

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APPENDIX L: WIKI FRONT PAGE





APPENDIX M: GROUP WIKI PAGE

The screenshot shows a web interface for a group wiki page. At the top, the workspace is identified as 'grammaractivity' with a user profile for 'cooper'. The page title is 'Unit 5 Lesson 3: Left-Handedness', last edited by 'cooper' one week ago. The main content area lists ten groups from 'Group 1' to 'Group 10'. Below the list are navigation links: 'Go back to English Grammar Activities Front Page', 'Go back to Unit 5 Lesson 2', and 'Go back to Unit 7 Lesson 2'. A comments section is visible at the bottom with '0' comments and an 'Add comment' button. On the right side, there is a sidebar with a 'Navigator' showing 'Starred Pages and Files' and a 'Sidebar' section with instructions on how to use it. A 'Share this workspace' button is located at the bottom right of the sidebar area.

APPENDIX N: GROUP ACTIVITY PAGE (READ MODE)

VIEW EDIT

☆ **Group 2**

last edited by  cooper 1 week ago  Page history

Lesson 3: Left Handed

Activity 1: Hotlist

Activity 2: Create sentences

Activity 3: Work as pairs; compose a dialog using the sentences your partner created.

Activity 4: Work as groups; compose a story using the sentence patterns given above.

Word forms

- ☞ Do you have a preference for your left hand? If you do, you are one of the millions of "lefties" in the world.
- ☞ To understand left-handedness, it is necessary to look at the brain.
- ☞ In most right-handers, the left hemisphere is the center of language and logical thinking. This is where they do their math problems and memorize vocabulary.
- ☞ The right hemisphere controls how they understand broad, general ideas and how they respond to the five senses.
- ☞ Today many languages like Arabic and Hebrew are written horizontally from the right to the left.
- ☞ Chinese and Japanese can also be written vertically from the right to the left.

Preposition—to; into; with; from; by; in; as.

- ☞ The right hemisphere controls how they understand broad, general ideas and how they respond to the five senses.
- ☞ The brain is divided into two hemispheres.
- ☞ Some left-handed children start to stutter when they are forced to write with their right hand.
- ☞ Although English is written from left to right, the first writing system, invented by the Phoenicians in the Middle East, went from right to left.
- ☞ That is almost exactly the same as the one-in-ten ratio today.
- ☞ In the 1930s, some teachers finally started permitting schoolchildren to write with their left hand. In some countries, however, left-handed children are still forced to write with their right hand.
- ☞ Because there have always been more right-handed people, in many countries right was associated with "good" and left with "bad."

Subordinator/relative pronoun—when; where; how; that; even though...

- ☞ He had to change from left- to right- handed writing when he was a child, and he stuttered all his life.
- ☞ This is because of the position they have to hold their pen when they write from the left side of the page to the right.
- ☞ Are you left-handed even though you write with your right hand?
- ☞ In most right-handers, the left hemisphere is the center of language and logical thinking. This is where they do their math problems and memorize vocabulary.
- ☞ The right hemisphere controls how they understand broad, general ideas and how they respond to the five senses.
- ☞ Anthropologists think that there has always been the same percentage of left- and right-handed people.

APPENDIX O: GROUP ACTIVITY PAGE (EDIT MODE)

My PWORKS | WORKSPACES | grammaractivity | Upgrade Now | cooper | account | log out | help

Wiki | Pages & Files | Users | Settings | Search this workspace

VIEW | EDIT

Group 2

Format | Font | Size | Source | Add Link

Lesson 3: Left Handed

Activity 1: **Hotlist**

Activity 2: Create sentences

Activity 3: Work as pairs; compose a dialog using the sentences your partner created.

Activity 4: Work as groups; compose a story using the sentence patterns given above.

Word forms

- Do you have a preference for your left hand? If you do, you are one of the millions of "lefties" in the world.
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- Today many languages like Arabic and Hebrew are written horizontally from the right to the left.
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Preposition—to; into; with; from; by; in; as.

- The right hemisphere controls how they understand broad, general ideas and how they respond to the five senses.
- The brain is divided into two hemispheres.

Describe your changes: 0/2000 [Hide this](#)

Save | Save and Continue | or Cancel | [Edit text](#)

Page Tools

- Rename this page
- Delete this page

Insert links

Insert links to other pages or uploaded files.

Pages | Images and files

Insert a link to a new page

- From Page
- Snow and Hall: Group 1
- Unit 7 Lesson 2: Snow and Hall
- Group 2
- Group 3
- Left Handed: Activity 4
- Left Handed: Activity 3
- Left Handed: Activity 2
- Left Handed: Activity 1
- Unit 5 Lesson

[Show all 33 pages](#)

Tip: To turn text into a link, highlight the text, then click on a page or file from the list above.

APPENDIX P: DEMOGRAPHIC INFORMATION OF TOTAL PARTICIPANTS

Demographic Variables	Frequency (n)	Percentage (%)
Gender		
Male	27	32.1
Female	57	67.9
Age		
18	1	1.2
19	41	48.8
20	35	41.7
21	5	6.0
22	1	1.2
23 and above	1	1.2
Year learned English		
2-5 years	22	26.2
6-10 years	37	44.0
11-15 years	22	26.2
16 years and above	3	3.6

Note: Totals may not equal 100% because of rounding.

APPENDIX Q: STUDENT EXPERIENCE SURVEY: SECTION 1

Questions	M	SD
1. I gained English language skills through the learning process using wiki activities.	3.63	.61
2. I gained content area knowledge about the topics using wiki activities.	3.77	.57
3. I gained a deeper understanding of the concept when involving in the wiki activities.	3.52	.63
4. Learning English through using wiki activities was interesting.	3.43	.79
5. The wiki activities had increased my motivation to learn English.	3.43	.66
6. The wiki activities made English learning meaningful.	3.68	.67
7. The wiki activities gave me opportunities to think.	3.88	.62
8. Overall, I thought that taking part in the wiki activities helped me to gain confidence in my own English language ability.	3.45	.63
Average	3.59	

APPENDIX R: STUDENT EXPERIENCE SURVEY: SECTION 2

Questions	M	SD
9. I fulfilled the requirements of the wiki activities.	3.16	.83
10. I will recommend wiki activities to other students.	3.70	.73
11. I feel positive about the wiki activities in this class.	3.89	.65
12. My experience of practicing wiki activities in this class makes me want to take more English classes.	3.57	.59
13. The wiki activities contributed a lot to my learning of the target grammar structures.	3.75	.53
14. Compared to the other activities in this course, the wiki activities were more influential to my learning	3.45	.79
15. I consider the wiki activities enjoyable learning experiences.	3.70	.67
16. I consider the wiki activities more enjoyable than the other learning activities in this course.	3.43	.85
Average	3.58	

APPENDIX S: STUDENT EXPERIENCE SURVEY: SECTION 3

Questions	M	SD
17. The wiki activities provided opportunities to interact with my classmates	3.61	.84
18. The interactions with my group members/partners deepened my English grammar learning.	3.68	.67
19. I am confident that my contributions to the wiki activities influenced my peers in their learning of the target grammar structures.	3.54	.59
Average	3.61	