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Effects of a Critical Thinking College English Writing Class

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English writing instructions in the Korean EFL context rarely perform research with a focus on critical thinking. This paper investigates the effects of a critical thinking college writing class on the writing of a class of 15 beginning writers with an intermediate level of English. A translation test consisting of 15 questions, as well as a free writing self-introduction assignment were conducted as a pre-test and a post-test at the beginning and end of the semester, respectively. The accuracy of the translation text was examined, as well as the fluency, complexity and accuracy of the free writing were analyzed qualitatively. Though the grammar didn't improve much compared with a class with a Korean instructor, according to the analysis of accuracy, fluency and complexity of the free writing, the students exhibited increased confidence, creativity and a greater focus on abstract topics in the content and self-expression of their free writing.

[corrective feedback/critical thinking/content improvement]

I. INTRODUCTION

Instructors in the Korean EFL context rarely deal with critical thinking, an important aspect of English writing classes. Instead they mostly focus on grammar, while the translation method is still taught in many English writing courses in Korea (Shim, 2005). Considering various aspects of writing research, most writing in the EFL context focuses on grammar in the belief that EFL students do not have enough control of English

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vocabulary or syntax to write fluently. They often do have plenty to say though they don't know how to say it in English (Hedgcok & Lekowtiz, 1994; Leki & Carson, 1994; Soh, 1999). Even so, Korean university students usually find grammar and vocabulary the most difficult aspects of the writing process (Soh, 1999).

Nevertheless, writing (Bean, 2011) is closely linked with thinking and, in presenting students with significant problems to write in an environment that demands their best writing, instructors can promote students' general cognitive and intellectual growth. Forcing students to struggle with writing, instructors ensure that students struggle with thinking itself. Emphasizing writing in relation to critical thinking, therefore, generally increases the academic rigor of a course. Often the struggle of writing linked as it is to the struggle of thinking and to the growth of a person's intellectual powers awakens students to the real nature of learning (Bean, 2011). Considering that not much research about critical thinking in relation to EFL writing was found, the researchers consider the point of this research to fill the void.

There were two research questions: 1) What were the effects of the critical thinking on sentence writing? 2) What were the effects of the critical thinking on free writing? For the first question, both the pre-test and the post-test were analyzed for errors amongst six grammatical categories as seen in the research of Shin and Seong (2013). For the second question, the students' free writing exercises were analyzed according to the frequency, complexity and accuracy method as seen in Pae (2011).

II. BACKGROUND

1. Process Writing

In order to help the students move away from a grammatical focus while composing, the act of composition was approached as a process that eventually produces a communicative text. The process approach was also taught so that students were able to start, write and finish according to a preset model, mindful of all the steps involved. The process approach to writing emphasizes the idea of writing as problem solving with a focus on thinking in relationship with the compositional process. It involves five main stages known as prewriting, drafting, revising, editing and proofreading.

Several researchers view writing as a cognitive problem-solving process during which cognition and social processes interact (Flower, 2002; Flower & Hayes, 1981; Flower, Long & Higgins, 2002). Therefore, the process-centered aspects of writing, as seen in Tierney and Shanahan (1991), must be explored in addition to the acquisition of English as a foreign language while teaching and learning writing. According to Yang-hee Kim (2010), "The pedagogy of process-oriented writing focuses attention on procedures for

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solving problems, discovering ideas, expressing them in writing and revising emergent texts, a cyclical process. The process approach focuses on how writers generate ideas, record them, and refine in order to form a text." Other research concurs (Ferris & Hedgcock, 2005).

Process writing views writing as a communicative activity, in which the writer's focus is to convey their ideas to their readers clearly and succinctly. The purpose of language is to communicate via the written medium as if they were speaking, only they have more time to develop their ideas and improve their logic. By brainstorming with classmates, students are encouraged to share background knowledge and related experiences (Hyun-Jin Kim, 2000). Vocabulary and language patterns that they may use in a writing piece are activated in a natural way through class discussion. As they write their first draft, their main goal is to express their ideas in communicating their message. In the proofreading stage, they focus on grammar and writing mechanics. They talk, listen, solve problems and create meaning together as they go through each step.

Accordingly, the development of communicative ability is seen as an essential part of writing. Park (2011) viewed writing from the perspective of communicating with readers, and thus students were taught to focus on the impact the writing might have on their target audience. The purpose of pair work, as such, is to change the way students think about writing: from considering it to be a purely individual task to incorporating others to make writing a collaborative process. Nevertheless, students found that discussions before writing that were meant to help them brainstorm were not helpful (Kim & Park, 2011), as they believed writing to be an individual activity and so had trouble trusting their partners.

When considering the help that others can offer student writers, peers and instructors are two sources of feedback. The purpose of peer review is to allow students an opportunity to develop learning autonomy (Yong & Lee, 2008). By allowing them to gain confidence and self-efficacy by evaluating the writing of their peers as opposed to relying on their instructor alone, peer review was found to be effective (Boram Kim, 2009; Yang-hee Kim, 2010; Chin, 2007). It allows them to rely less on their instructor for editorial assistance, and to rely more on each other, and, eventually, themselves. That said, there are two types of feedback. Direct feedback is when the errors themselves are corrected. Indirect feedback is when an error is noted but not corrected. Direct feedback allows the student to know the correct answer, while indirect feedback gives the students an opportunity to fix the error themselves.

With the process approach, teachers focus on what a final piece of writing will look like and measure it against criteria of "vocabulary use, grammatical use, and mechanical considerations such as spelling and punctuation," as well as content and organization (Brown, 1994). However, Reid (2000) indicated a controversial point in that the "process approach neglects to seriously consider variations in writing process due to differences in individuals, writing tasks, and situations." Horowitz (1986) also mentioned that the

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“process approach creates a classroom situation that bears little resemblance to the situations in which students’ writing will eventually be experienced. This means that the evaluation of academic writing in L2 is quite different from that of the actual writing process, putting writing in a vacuum. To make up for these weak points, he insisted that EFL writing place the focus on leading students toward using communication to achieve their groups’ goals and brings them full circle, from process to communication to critical thinking and back.

2. Critical Thinking

The term critical thinking is used to define someone who is actively engaged in the thought process. Not only is this person evaluating, analyzing, and interpreting information, they are also analyzing inferences and assumptions made regarding that information (Walker, 2003). The use of critical thinking skills such as an analysis of inferences, preconceptions and assumptions shows an involvement in the self awareness process. These cognitive skills are employed to form and reform, delete and replace judgments, especially biases like confirmation bias. Reflective thinking, defined by Dewey as the type of thinking that consists of turning a subject over in the mind and giving it serious and consecutive consideration can be used to evaluate the quality of judgments made.

Not all students possess the thinking skills necessary to analyze and synthesize information without practice, especially for Korean students acclimated to the cramming method focused on test performance. The instructor believes that the acquisition of critical thinking skills is crucial for success not only in mastering English as a foreign language but also success in a globalized world. That said, focusing on writing as a process removes the idea of writing being related to social considerations and possibly puts it in a vacuum. As language cannot be learned properly in a vacuum, it is essential that students and instructors remember that the purpose of language, especially writing, is to induce the thinking that is present in the back and forth of deep communication.

In terms of writing as communication, Hyland (2003) views writing from a social orientation perspective. This means that culture and cultural identity in self-expression play a role in second-language learning, as students will first express things about themselves and their culture in languages that are foreign to them. If their writing skills are enhanced with critical thinking skills, then they are able to be more objective about themselves and their environment. People connect socially through writing in a greater depth perhaps than with speaking alone (Hyland, 2003). That said, more research on the cognitive and social dimensions of literary practice has been detailed (Eskey, 1993; Martin, 2002; Nelson & Carson, 1998; Prowse, 2003).

Citing the importance of exploration as part of the learning process, Lin (2007) explains that it is important for Chinese learners to not only challenge what and how

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they've been taught, but also to learn to think critically. While that may not be such an easy task, considering that Korean students learn to memorize in order to perform well on exams, it is an undertaking worth trying. Gonsior (2009) argues that as English instructors are no longer the sole ambassadors of English culture, their role can be modulated to provide an arena for discussion of various topics amongst EFL learners. Even though the critical thinking scores of students showed no significant increases in the research of Liaw (2007), the students had a marked improvement on their post project English proficiency exam, with the students saying that they felt they especially gained confidence and motivation.

The question then is how to develop and improve critical thinking skills in a process writing class using content to create content. An assortment of questioning tactics can be utilized to promote critical thinking skills, such as open ended questions, scaffolding, interpretation and analysis. Classroom discussion and debates about contentious and controversial topics can promote critical thinking skills, but instead of focusing on such current events and controversial issues, this research is different compared with previous studies on the effects of the critical thinking on the writing process in an EFL context because it focuses on the inner worlds of the students, allowing them the responsibility necessary to create autonomy. Critical thinking was taught in an effort to make the students more logical in terms of thinking and using English.

As the philosophical approach to critical thinking focuses on logic (Lewis and Smith, 1993), it can be said that it does not always match reality (Sternberg, 1986). Therefore, the cognitive psychological approach, which isn't as reductionist as philosophers attribute it to be, was used (Bailin, 2002), as critical thinking is more than a sum of its parts (Van Gelder, 2005). Paul (1992) talks about critical thinking being "disciplined, self-directed thinking." Open-mindedness, fair-mindedness, inquisitiveness and flexibility were dispositions seen to be essential to fostering critical thinking (Bailin et al., 1999; Ennis, 1985; Facione, 1990; Halpern, 1998). MePeck (1990) discusses the idea of transferability, or being able to adapt critical thinking skills learned in the classroom to real life issues. That was not only the focus of the class, but why Jung's individuation process was used, as his method has direct applicability to individual students' lives. Kuhn (1999) posits an epistemological framework to which critical thinking corresponds to three levels, the highest of which only a minority of people ever reach. Likewise Nelson (1994) details a scaffolded collaboration program in which critical thinking skills can successfully be taught to students, while others recommend a cooperative approach (Abrami et al., 2008; Bonk & Smith, 1998; Thayer-Bacon, 2000).

3. C. G. Jung's Self-Individuation Process

As the above research helps illustrate, writing and thinking are closely related, which

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is why a focus on critical thinking helps students with their writing, and writing can also help them to think critically. Unfortunately, not everyone uses critical thinking when solving problems. Therefore, in order to think critically, a certain amount of self-awareness and reflective ability is essential to enable a person to analyze, interpret and evaluate any inferences they have themselves made. While the instructor thought critically and analyzed the various ways of teaching critical thinking, C. G. Jung's self-individuation process was picked because it inspires and requires both critical thinking and self-awareness.

Critical thinking is a difficult skill to achieve from scratch, and while it can be taught, it seemed best to allow the students an opportunity to achieve it for themselves using the self-individuation process. The individuation process is similar to the ancient science of alchemy, but not the outer alchemy most people think of that was really a precursor of chemistry (turning metals into gold), but a more obscure inner alchemy. This inner alchemy was purposely obscured through the symbolism of the outer alchemy, with the motto "obscurity through obscurity (Jung, 1968)."

According to Hillman and Shamdasani (2013), Jung offered a language toward the self: "he invented the figure of the shadow… He saw the whole enterprise as about enabling individuals to refind their own language, develop their own cosmologies. And, as he says, he eschewed using concepts within his therapeutic practice." By exploring various world myths and his own unconscious, psychologist C. G. Jung created numerous concepts and language to be used in a psychological setting when dealing with the unconscious. For example, his concept of the collective unconscious as something imbedded in humanity gives all humans the ability to connect in intuitive, imaginative and unconscious ways. That the unconscious realm has such a pull on us was one of the ways that Freud and Jung differed greatly, and one of the reasons for their inevitable split.

The first part of the self-individuation process represents the encounter with the shadow, which represents the double-ego or those unconscious and auxiliary aspects of the self that the person finds reprehensible and unattractive and thus represses. In something like an emulation of Christ, each individual should visit the deep subjective hell within, get the power that it hides, and discover their personal myth to live out their own existence as it meant for them and them alone, understand themselves as humans (Jung, 1967). While integrating the shadow, the subject learns that their auxiliary, "negative" aspects are necessary for them to live a fulfilled and complete life. Instead of trying to suppress this side of themselves, the subject learns to integrate and use those darker aspects in a purposeful and positive way.

Once the subject has integrated their shadow, the next step is dealing with the subject's soul, which is represented in men as a woman (the anima), and represented in woman as a man (animus) (Jung, 1969). They are both powerfully autonomous archetypical complexes which must be dealt with on their own terms. The next step of

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the individuation process represents communion with the collective unconscious, which is the unconscious realm within each human that supersedes individual differences and connects all individuals together. According to Wilber (1995), only by ascending (changing perspective by plunging into the deepest depths within and dealing with and emancipating oneself from the archetypes that plaque and limit them) can one gain the wisdom necessary to descend back into the world with a new and enlightened perspective. Thus the biosphere is fully inhabited through penetrating the noosphere, that abstract world of ideas and numinous unconsciousness, the beyond within.

Though the process detailed above may seem difficult and abstract in the extreme, it is actually quite a concrete, non-dogmatic way for students to apply critical thinking skills and techniques to their own subjective existence. Once students are given the freedom and responsibility to concentrate on their own inner work without answers from a micromanaging instructor, they may be able to successfully develop autonomy and critical thinking skills.

III. METHOD

1. Participants

The participants for the study were 15 students (four males and eleven females) enrolled in an elective English Diary Writing class at E University located near Seoul, in Gyeonggi Province, Korea. One student dropped the class. Although all students were eligible to register for this elective class regardless of major, mostly freshmen participated, with a total of ten freshmen, two sophomores, one junior, and two seniors. The majority of majors were food science related, with a handful in health management, physical therapy, and a few others in medical laboratory science.

The instructor was an American with an MFA in creative writing, a BA in English literature and five years ESL experience in Korea. He finds people and ideas fascinating, especially the various beliefs people keep and the ones that change over time. He is a self-taught alchemist who enjoys engaging students and others about the self-individuation process and inspiring them to attempt it.

The average TOEIC score of E university is between 470-520, according to the mock TOEIC exams conducted multiple times each semester. While neither average nor overall TOEIC scores were collected from the students, their level of English varied, and, according to the analysis of accuracy, fluency and complexity as seen later in the current paper by Pae (2011), the overall level was seen to be mid-intermediate, with five students at a high-intermediate level. None of the students were seen to be at the beginner level in terms of overall English ability. All were beginning writers.

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2. Instruments and Procedure

The instruments for the study were a fifteen sentence translation exercise and a free-writing self-introduction given as both a pre-test and a post-test at the beginning and end of the semester, respectively. To compare this study with that of an English writing class taught by a non-native instructor, as seen in Shin and Seong (2013), the same analysis instruments were used. For the sentence translation test, fifteen sentences comprising of five basic sentence structures such as S+V, S+V+C, S+V+O, S+V+IO+DO, and S+V+O+OC were given (Appendix 1). For the free-writing self-introduction test, a single question was posed: "Write as much as you can about yourself as a self-introduction." The pre-test was given during the first class and the post-test was given during the final class of the semester. All 15 students took the pre-test and post-test, which were then read, analyzed, and evaluated. Fifteen minutes was given for the grammar translation test and twenty for the free writing.

To analyze the grammar translation pre-test and post-test, the error analysis method by Ellis (1994) as quoted in Shin and Seong (2013) was used. Ellis (1994) suggested the following five steps: 1) collection of samples of learner language, 2) identification of errors, 3) description of errors, 4) explanation of errors, and 5) evaluation of errors. The six grammar categories picked were done so as to correlate and compare the current research with that of a grammar class taught by a non-native speaker in the research of Shin and Seong (2013). The six grammatical categories were article/determinative, prepositional, sentence structure, singular/plural, subject-verb, and verb-related errors.

The self-introduction free-writing pre-test and post-test were analyzed according to the frequency, accuracy and complexity method of Pae (2011). By measuring the words per clause and the words per T-unit [a T-unit is seen as a "the shortest grammatically allowable sentences into which (writing can be split) or minimally terminable unit" Hunt (1965)], the fluency of the writing could be determined. Writing accuracy was determined by comparing the total number of T-units and the total number of error-free T-units, while comparing the number of clauses with the number of T-units determined grammatical complexity.

3. Course Description

The objective of the fifteen week, forty-five hour, three credit, "English Diary Writing" course was to focus on improving the student's English writing and editing skills. In addition, students were provided with an opportunity to develop their self-awareness. Each class was separated into three distinct sections as seen in Table 1 below.

In the first section, students were asked to pass in their writing assignments, which the instructor collected and looked over, focusing on correcting content. They focused on a

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grammatical review of the returned homework in groups. If a student made a grammatical mistake, for example: "I gained open mind, own opinion, and wisdom," the instructor would underline the word Open, writing that something was missing before it, and underline the word Own, writing that something was missing before it (indirect feedback). This allowed the students to figure out the correct answer for themselves.

TABLE 1
Class Activities

Task	Instructor	Students
Section 1 (Writing collection & review)	• Introduce the day's topic and explain complex things simply, reiterating that answers are open-ended • Facilitate discussion and debate	• Share questions, concerns, complaints •Review grammar of writing in groups • Students share any breakthroughs
Section 2 (Focus on new theme)	• Pass out prompt handouts, walk around and help • Encourage a comfortable and writing atmosphere	• Fill out the handouts to the best of their ability • Ask informed questions
Section 3 (Expanding on the day's theme by reading and writing)	• Interact with students in groups and individually • Elucidate whatever may remain misunderstood	• Work individually to finish the handouts • Offer honest suggestions

Students were given that day's handout in the second section, which detailed the day's theme, as well as writing prompts that asked them open-ended questions. Previously, students had been in groups of three, but for the second class section they formed pairs. This section was less about feedback and editing than it was about having the students interact with each other and the instructor in order to understand that class's theme.

During the third section, students were separated and instructed to finish the handout individually. The instructor was able to clarify anything the students didn't understand at this time as well, ensuring they'd complete the writing assignments to the best of their ability.

Some concrete examples are as follow. Students were given the topic of addiction, especially as it relates not only to things like drugs and alcohol but to everyday things like sleep or smartphone use or Internet gaming. They thought about what possible addictions they had in their life, why they had such addictions (what made them surf the Internet four hours a day instead of doing the homework they knew they had to do). Then they worked in groups to brainstorm, and wrote individually. Some found that they procrastinated because they were lazy, while others did so because they were afraid of failure, and still others because they were bored.

Another exercise posed the following statement, "The things we hate in others are the

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very things we hate in ourselves," as a writing prompt. It can produce profound effects. Students wrote about the things that they disliked in others and found that they often also disliked these things about themselves. By looking at it objectively, they were able to explore fallacies they held dear and destroy them. Then they were able to explore deeper who they truly are, not just their persona.

The fifteen week schedule was as follows (Table 2). The class process and the teaching method were explained in detail during the first week, during which the grammar and free-writing self-introduction pre-test were also administered. This was followed by an explanation of the self-individuation process. Reasons for the essential importance of this process were also offered in an effort to motivate students to become active participants.

TABLE 2
Class Content Schedule

Week	Content
1	Introduction, Explanation, Pre-test
2	Facts and Opinions, Arguing and Debating
3	Effort and Motivation
4	Hobbies and Passions
5	Perception and Ways of Thinking I (Self Image)
6	Perception and Ways of Thinking II (Self Debate)
7	Perception and Ways of Thinking III (Self Deception)
8	Perception and Ways of Thinking IV (Shadow Self)
9	Review [Talking about Grades and Final Portfolios]
10	Overcoming Phobias and Fears
11	Future Dreams and Past Regrets
12	Virtue and Vice
13	Art and Artist
14	Self in Society
15	Recap [Submitting Portfolios & Final Test]

The second class detailed the foundation of human perception and how difficult it may be to distinguish or differentiate facts from opinions. The idea that perception produces reality was discussed during the third week. Students learned about the power of visualization and the dangers of expectation.

Emotions and feelings of joy were touched upon during the fourth week, especially things that give life its flavor and meaning. In the first unit dealing with perception and ways of thinking during the fifth week, students learned about the three types of self image: 1) how a person sees themselves, 2) how others see them, and 3) how they think others see them. In the second and third class dealing with perception and ways of thinking in the sixth week, students returned to the week's two topic of debate and learned to assume the role of devil's advocate with themselves.

In the fourth and final class dealing with perception and ways of thinking, the concept of the shadow was dealt with in greater detail. The ninth week focused on reviewing

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everything up until that point and also discussing the final portfolios due at the end of the semester. Trauma was dealt with in an open and gentle manner during the tenth week. Various defensive mechanisms as seen as archetypal defenses of the personal spirit with examples given through myths and fairy tales.

The eleventh week focused on the somewhat distracting and illusory world of the past and the future and how they can sometimes get in the way of the ever now. During the twelfth week, students broke off into debate groups, and after arguing pro and con for and against various perspectives, the instructor showed students the relativity of their arguments. In addition, the advantage of how, perhaps, no opinion is the best opinion, or, perhaps, an openness to seeing all sides is best was presented.

The thirteenth class was spent discussing Otto Rank's theory that each individual wishes to be an artist but conforms to society's mold in order to be accepted. In the fourteenth week, both the collective unconscious and being an individual within a society that destroys self-expression were discussed. Finally, portfolios were collected during the final week.

IV. RESULTS AND DISCUSSION

1. Effect of the Critical-thinking Class on Sentence Writing

Table 3 shows both the percentage and mean of the incomplete sentences and correct answers that the students made in the pre and post test. The content of both the pre-test and the post-test were analyzed for errors amongst six grammatical categories. Of the 225 answers of the pre-test and the post-test, there were just 6 incomplete sentences in the pretest (2.6%), compared to none in the post test, for a decrease of 2.6%. In comparison, 56 (25.8%) answers in the pre-test were correct, with 61 (27%) answers being correct in the post-test, showing a 2% increase. It was the case with four students, however, that their pre-test had more correct answers, with 5, 10, 6 and 5, respectively, compared with the number of correct answers in their post-test, with 7, 7, 3, and 3, respectively.

TABLE 3
Percentage and Mean of Incomplete Sentences and Correct Answers

	Incomplete Sentences		Correct Answers	
	Pre-test	Post-test	Pre-test	Post-test
Mean	.4	0	3.7	4
%	2.6%	0%	25.8%	27%
Total	6	0	56	61

*Total answers: 225

Table 4 below details the errors according to category, with a breakdown as to the

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number of errors, percentage and mean sorted by the pre-test and the post-test. Of the 690 total answers of the pre-test and the post-test, respectively, the number of incomplete sentences in the research of Shin and Seong (2013) (from the grammar-focused class with a non-native English speaking instructor of English) was 76 on the pre-test and 49 in the post-test for an improvement of 3.9%. Correct answers in the pre-test amounted to 47 and 187 in the post-test for an improvement of 20.3%. The students in Shin and Seong's (2013) study had an overall rate of improvement of 45.5%, from 1,286 grammatical errors on the pre-test to 701 on the post-test. The current study showed an improvement of just 9% from 341 grammatical errors in the pre-test to 310 in the post-test. While grammar errors did not improve much compared to a class taught by a Korean instructor focusing on grammar as seen in Shin and Seong (2013).

TABLE 4
No. of Grammatical Errors, Frequency, Percentage, and Mean

Sin/Plu	Verb		SVA		Pre		Art/Det		S-S	
	Pr*	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po
Mean	2.9	2.4	2.73	2.73	6.8	6	6.4	6.6	1.4	1.2	2.4	1.6
%	12.9	11.6	12	13.2	29.9	29	28	32.2	6.1	5.8	10.8	8
Total	44	36	41	41	102	90	96	100	21	18	37	25
Rank	3	4	4	3	1	2	2	1	6	6	5	5

*Pr refers to Pre test. Po refers to Post test.

According to Table 4, prepositional and article and determiner errors were the most frequently occurring on the pre-test, with 102 (29%) and 96 (28%) errors, respectively. On the post-test, article errors occurred most frequently, with 100 (32%) errors and prepositional errors were the second most occurring with 90 (29%) errors. Thus while prepositional errors decreased from 102 to 90, a decrease of 12 (11.7%) errors, article errors increased by 4 (4%).

Error distribution in the research of Shin and Seong (2013) was as follows: article and determinative errors at 317 (24.7%) in the pre-test and 171 (24.4%) in the post test. Next were sentence structure errors at 293 (22.8%) in the pre-test and 161 (23%) in the post-test. Third were verb related errors with 242 (18.8%) in the pre-test and 123 (17.5%) in the post-test. Fourth were proposition errors with 115 (16.4%) in the pre-test and 76 (39.8%) in the post-test. Fifth were singular and plural errors at 157 (12.2%) in the pre-test and 97 (13.8%) in the post-test. Finally, subject-verb agreement errors accounted for 87 (6.7%) in the pre-test and 34 (4.9%) in the post-test.

Prepositional errors are the result of the fact that Korean uses postpositional markers that are both seemingly less arbitrary and more efficient than the prepositions and subsequent propositional phrases that English uses, which have a far greater variety than the postpositions of Korean. "3 Post" refers to student 3's post-test, while 10 Post is student 10's post-test. "5 Pre" would refer to student five's pre-test. Some errors that students made in this category are as follows:

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(1) My mom will make bread and cookies *in* next week. (3 Post)
(2) Her father hopes *to* her daughter is being a instructor. (10 Post)

Articles and determinative errors are a common mistake Koreans make mostly because the language is free of articles and rarely quantifies the amount of objects unless they are the topic or focus of the sentence. Therefore students either misuse, omit or abuse articles in English. Thus the difference between "the" thing and "a" thing is not as important in Korean as it is English. Some errors that students made in this category are as follows:

(1) There are *bed and* desk at his room. (1 Post)
(2) I often play *the* soccer with friends after school. (8 Pre)

The third most common error was that of verbs, with 44 (12.9%) errors in the pre-test, and 36 (11.6%) errors in the post-test to be the fourth most common. The resulting decrease was 8 (18%) errors. Verb errors are often the result of students using the wrong verb for each particular situation. While Korean has a lot of specialized nouns and verbs, many Korean verbs also have multiple meanings, while English may have see, watch, look, etc. Some errors that students made in this category are as follows:

(1) *Are you wake* up at 7 everyday? (8 Post)
(2) My little brother *do* part time job and *take* 5,000 won per hour. (9 Post)

Subject-verb agreement was the fourth most common error in the pre-test and third most common in the post-test. Forty one (12%) errors for the pre-test and 41 (13.2%) errors in the post-test occurred for this grammatical category. Subject-verb agreement errors are the result of Korean verbs being conjugated based solely on tense, while verbs in English are conjugated based on tense and subject agreement. Koreans often become confused while conjugating, often settling for the base verb form. Some errors that students made in this category are as follows:

(1) My father *are* reading newspaper in living room. (9 Pre)
(2) As soon as arrive home, we would put a meat in refrigerator (14 Pre)

The fifth most common error on the pre-test and the post-test was singular and plural usage errors. It amounted to 37 (10.8%) errors on the pre-test and 25 (8%) on the post-test. Errors decreased by 12 (32.4%). These errors are the result of a point of efficiency on the part of the Korean language, as Korean doesn't often specify the amount of items unless it is essential. Some errors that students made in this category are as follows:

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(1) There *are bed* and *desk* in his room. (2 Pre)
(2) Doing computer games *for long times* is bad to health. (15 Pre)

Finally, accounting for the least number of errors in both the pre-test and post-test in terms of frequency, sentence structure had 21 (6.1%) errors in the pre-test and 18 (5.8%) in the post-test, thus a decrease of 3 (14.2%) errors. Sentence structure errors are the result of incorrect word order. In Korean, as long as one uses the proper postpositional markers (subject, object, topic), word order is fluid and not as important for understanding overall meaning as it is in English. As it is also common to drop subjects and infer based on context, Korean EFL learners often forget to include a subject. Some errors that students made in this category are as follows:

(1) How long *take* a time from here to school? (2 Pre)
(2) *At minute that* I get *a home, it is good* that I put meat in the refrigerator. (15 Pre)

When compared to the larger group of students tested in the research of Shin and Seong (2013), the current research showed a moderate correlation in terms of the range and frequency of errors. That said, the rate of improvement grammar-wise as a result of the critical thinking class was basically negligible. The reason for this is that the class in the research of Shin and Seong (2013) focused on grammar while the current class focused on critical-thinking. Accordingly, the amount of time focused on feedback and error correction on the sentence-level, as opposed to combating fallacies and errors on the meta, theme-level was negligible.

2. Effect of the Critical-thinking Class on Free Writing

This study discusses how the interaction of writing as process and communicative activity in relationship to critical thinking affects the grammar and themes of students' grammar translation and free writing. The students' free writing exercises were analyzed by the frequency, complexity and accuracy of the writing according to the writing of Pae (2011). A critical thinking class was found to have a greater effect on content when compared to Shin and Seong (2013), yet a very minimal effect on grammar. To answer the second research question, (2) What were the effects of the class on the content of the self-introduction free-writing?, the content of the free writing pre-test and post-test were compared. The content of the pre-test shows the students writing about rather pedestrian and quotidian concerns using foundational grammar patterns to express basic information about themselves such as: name, family, major, and one or more anecdotal stories. While some students were a little more open and forthcoming than others on the pre-test, some were actually somewhat reticent.

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Nevertheless, the content of the post-test was drastically different from the content written about in the pre-test. While most of the post-tests focused perhaps more on negative issues, the very idea that they focused on deeper, more personal issues and finding ways to improve such issues means that the scope of what students wrote and thought about changed during the course of the semester.

1) Comparing Themes in the Free Writing Pre-test and Post-test

The data for free-writing were divided and analyzed according to their school year. 1-M-1 refers to student 1-Male-freshman (school year).The code in Tables 5 through 7 is as follows: (1-M-1: with the first number refers to the student's number in class, the letter M is male and F is female, and the last number refers to the school year. Table 5 below compares the themes of the freshman students.

TABLE 5
Pre and Post Themes (Freshmen)

	Pre Themes	Post Themes
1-M-1	Name, age, major, hobbies, future ambition	Infinity, how he has opened up more, and how it is good to explore
2-M-1	Past ambition, why he picked his major; the things that he enjoys, like soccer and languages	Deeper into his desires and dreams and plans for liberation
3-F-1	Three basic sentences: name, major, house	Learning about herself, sensitivity, friends, travel
4-F-1	Reason for picking major; women in the family, musical hobby	Music, desire to escape stress; desire to have brothers instead of sisters
5-F-1	Facts about herself and future ambitions, all stated plainly	Her timid character, life as a cartoon and how she must take control of her life; about the same amount dedicated to her puppy
6-F-1	Name, major, family, hobbies	More depth about daily routines, studying yoga and desire to study piano, and a little about her family
7-F-1	Her future plans and their relevance to her major; hometown, living with her uncle, and part time job	Talking more about her family and how she doesn't want to go home, but thinks her family would be lonely if she didn't
8-F-1	Part-time job, wanting to learn English, career plans and following in her father's footsteps	Facts about herself, but also more in-depth stuff about her inner nature, mostly weaknesses
9-F-1	Name, major, family, house location and plans	Thinking, anxiety, timidity; sports; involvement with student council and meaningful major work
10-F-1	Name, major, reasons for studying English, dormitory life and friends, studying	Talking about wanting to change her character because she is not satisfied with it; future opportunities to do what she needs to do

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As seen in Table 5, the two males wrote mostly about ambition in the pre-test and about the desire and necessity for getting deeper in the post-test, while the majority of female freshman wrote about their major, hobbies and future goals in the pre-test; however, in the post-test, themes were more varied and included talked about the faults and strong points of self, friends or family, as well as ambitious goals pertaining either to major or career, and getting in touch with their inner being on a deeper level. Table 6 below compares the themes of the sophomores.

As seen in Table 6, there were two sophomores, both of whom were female. Themes in the pre-test were very surface-oriented: various hobbies for one student and six simple sentences for the other. In the post-test, however, the scope was a bit larger yet the focus was somewhat negative, with both students writing about things that they didn't like about themselves or their environment, things that they wanted to change.

Table 5 and 6 follow on the next page.

TABLE 6
Pre and Post Themes (Sophomores)

	Pre Themes	Post Themes
11-F-2	Hobbies: fashion, circuit training, singing. More controlled themes.	Dissatisfaction with major, conservative father, interest in make-up. Current state of bankruptcy.
12-F-2	Six basic sentences: name, major, phone, reasons for being late to morning classes	Future: job, interests, the present being as important as the future; personal weak points

Table 7 below compares the themes of the juniors and seniors. As seen in Table 7, there was only junior, who wrote about his family, thesis group and baseball in the pre-test and all the difficulties he needed to focus on and improve in the post-test.

TABLE 7
Pre and Post Themes (Juniors and Seniors)

	Pre Themes	Post Themes
13-M-3	Family, difficulty with thesis group, and lastly his favorite baseball team	Talking about his difficulties and the need to focus on himself more
14-F-4	Minor facts, her adventurous trip to Europe and how she met her boyfriend there	Having a breakdown or breakthrough about feeling younger than she is and how she must stay that way while also maturing
15-M-4	Reasons for registering for the class	Being overwhelmed by his worries, especially the fact that his girlfriend is his entire world and how jealous he is that she talks to other guys

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Accordingly, of the two seniors, one was female, while the other was male. In the pre-tests, one wrote about his reasons for registering for the class, while the other wrote about her trip to Europe. The focus on things that must be improved in the post-tests, though the scope was opposite: one wrote about things beyond himself, particularly his girlfriend, while the other wrote about things within herself.

The content of the free-writing self-introduction pre-test and post-test were markedly different, as seen in the above Tables (5 – 7). According to the results of Shin and Seong's (2013) research, students continued with pretty much the same topic from the pre-test to post-test added more details, anecdotes and examples, yet also exhibiting a greater mastery of grammar and more confidence in their level of English self-expression. In the current study, however, the post-test showcase a change not only in topics, but the approach that students used altered, as they began posing more difficult questions for themselves.

Mistakes in grammar were similar when compared to the research of Shin and Seong (2013). Nevertheless students probed deeply and produce content on their own, without instructions through self-directed questions. Accordingly, the content of the free-writing pre-test and post-test was focused on each individual, while the post-test perspective was less selfish than that of the pre-test. Students were more open and compassionate in trying to understand themselves; many were still writing when the allotted twenty minutes expired. The majority finished early during the pre-test.

2) Free-writing Fluency, Accuracy, and Complexity

In order to study and compare fluency, accuracy, and complexity, the pre-tests and the post-tests were analyzed according to the method used by Pae (2011). This method used the number of clauses and T-units, along with the number of errors, error-free T-units, and error-free clauses as seen in Table 8. Thus fluency was discovered by comparing the words per clause and the words per t-unit with the total number of words, the word types and the total number of sentences. The total number of errors per T-unit and error-free T-units were compared to find the accuracy of the writing. Finally, complexity was determined by comparing the square route of the words and the words per T-unit with the total number of words, word types and the number of clauses per T-unit. In addition, the number of words and word types were also analyzed. The total number of sentences was calculated using MS Word, while VocabProfile[1] (http://www.lextutor.ca/vp/) was used to calculate the number of word types. Table 10 shows the measures of fluency, accuracy and complexity.

Table 8 below details the tools used to measure fluency, accuracy and complexity.

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TABLE 8
Measures of Fluency, Accuracy, and Complexity

	Ratio measures	Fluency Measures
Fluency	W/C, W/T	Total number of words, word types, sentences, T-unites, and clauses
Accuracy	EFT/T, E/T	Total number of errors and error-free T-units (EFT)
Grammatical complexity	C/T	
Lexical complexity	WT/√2W	

Notes: W/C: number of words per clauses; W/T: number of words per T-units; EFT/T: error-free T-units per T-unit;
E/T: errors per T-unit; C/T: clauses per T-unit, WT/√2W: word types per square root of 2 times total words

Errors were marked according to the same process used for the grammatical translation test—sentence structure, articles and determinative errors, subject-verb agreement, singular plural errors, verb errors, and prepositional errors. Finally, researchers calculated the total amount of clauses and T-units, along with errors, error-free T-units and error-free clauses while comparing the pre-test and the post-test.

Table 9 shows that there was an increase in all variables in regards to writing fluency.

TABLE 9
Fluency of Writing

	No. of words	No. of word types	No. of sentences	No. of T-units	No. of clauses	W/C	W/T
Pre-test	1389	951	144	150	265	5.24	9.26
Post-test	2074	1237	201	210	381	5.44	9.87

According to Table 9, the number of words increased from 1,389 by 685 (49%) words to 2,074. The number of word types increased from 951 by 286 (30%) to 1,237. The number of sentences increased from 144 by 57 (39.5%) to 201. The number of T-units increased from 150 by 60 (40%) to 210, while the number of clauses increased from 265 by 116 (43%) to 381. Accordingly, the words per clause increased by 0.2% and the words per T-unit increased from 9.26 to 9.87 (6%).

While the increase of words per clause and words per T-unit was not statistically significant, the increase of the other variables can be seen as an effect of the writing practice in actualizing the English words and grammar that the students have learned.

Table 10 below shows the accuracy of the pre-test and the post-test.

TABLE 10
Accuracy of Writing

	No. of errors	No. of T-units	No. of EFT	E/T	EFT/T
Pre-test	203	150	62	1.35	0.17
Post-test	326	210	88	1.55	0.26

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According to Table 10, it is interesting to note that while the number of errors per T-unit increased by 1.35 (14%) to 1.55, the number of error free T-units per T-unit increased from 0.17 by 0.09 (52.9%) to 0.26. Thus while the students were attempting more complex sentences and thus making more errors, their command of the English language had increased so that they were also making more grammatically perfect sentences.

Table 11 below shows the level of the writing complexity as separated by pre-test and post-test.

TABLE 11
Complexity of Writing

	No. of clauses	No. of T-units	C/T	No. of word types	No. of words	WT√2W
Pre-test	265	150	1.76	951	1389	18.04
Post-test	381	210	1.81	1237	2074	19.2

According to Table 11, the pre-test had an average 1.76 clauses per T-unit, while the post-test had an average 1.81 clauses per T-unit. This shows a slight increase in the complexity of the writing, with 0.05 (2%). Thus the post-test writing was more lexically complex and had more varied words than the pre-test writing.

In terms of the fluency, the number of words increased by almost half (49%). The increase in word types (30%), sentences (39.5%), T-units (40%) and clauses (43%) shows a substantial overall increase quantity-wise in just a fifteen week semester. This means that students were able to discuss topics in more detail. In terms of accuracy, the number of errors per t-unit increased by 14%, while the number of error free t-units increased by 52.9%. This shows that students were attempting more difficult and complex grammar while also making more accurate sentences overall. Finally, a slight increase (2%) in complexity seems to mean that fifteen weeks is not sufficient for the overall complexity of students' writing to improve. Given a full year of critical thinking English writing classes based on Jung's individuation process, the complexity of the students' writing might show a greater improvement.

V. CONCLUSION

Studying a foreign language isn't just about memorizing vocabulary and mastering grammar patterns, but also about communicating and interacting in the target language. Logic and judgment are related to writing in a foreign language or any language, especially in order to convey ideas. By and by, students need something to focus on that

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is interesting and applies to their everyday lives while also challenging them and allowing them to grow. Therefore the instructor focused on changing the educational paradigm by altering the students' perception. This was done by questioning what learning is, thus moving the class away from having the students parrot answers given by a textbook or instructor. They were instead allowed to share their ideas and interpretations through writing. Though the grammar didn't improve much compared with a class with a Korean instructor, according to the analysis of accuracy, fluency and complexity of the free writing, the students exhibited increased confidence, creativity and a greater focus on abstract topics in the content and self-expression of their free writing.

Content-based classes focus on subject matter, while a class that also incorporates critical thinking techniques will also look at how the students use the target language to express their thoughts. Accordingly, as grammar was not the main focus the class did little to improve their grammar. They did seem to get a new sense of themselves by studying the Jungian concepts of self-individuation, which was seen to be a good introduction to get students thinking critically first about themselves, and then, perhaps, the world. As evidenced in the differences in topics of the free writing self introduction activity, students appeared to gain confidence and self-awareness in expressing their thoughts and feelings about challenging, deeper themes. This class gave students an opportunity to actualize the English they'd learned throughout their educational careers that had remained dormant. Witnessing the students' autonomous transformation was inspiring and provided them with a foundation not only for continued study of English, but continued study of themselves following the lifelong process of individuation.

The pedagogical implications are that when students are given a direction and topics that have personal relevance, there might be more of a sense of intrinsic motivation guiding them than if the topics focused merely on external factors or occurrences. Even though these inner topics may seem impossible for instructors to teach, once the students became accustomed to such deep and inner themes, they themselves dug even further than the instructor inspected of their own accord. They were thus able to apply any new critical thinking or imaginative skills they may have gained to write creatively and concretely about themselves.

The limitations of this study are threefold. First, in dealing with such deep and complex topics, one fifteen-week 45 hour semester class was deemed to be insufficient for students to properly reach even the midway point of the individuation process. Secondly, with only fifteen students in one class with one instructor, it was difficult to insure that the results were objectively reliable. Third, there was no control group with which to verify if students in a class that didn't focus on critical thinking would or would not have improved their critical thinking writing ability. That said, the purpose of this case study was exploratory and meant to gauge if there would be any improvement on

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students' writing as a result of focusing on process and critical thinking instead of grammar. Therefore, generalizations as to the efficacy of the class should be performed only with caution. Nevertheless, subsequent research should focus on implementing the same topics and themes in numerous classes with control groups taught by various instructors over multiple semesters.

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APPENDIX A

Pre/Post Grammar Test

학과 _____ 학년 _____ 성별 _____
Put the following into English.
1. 그의 방에는 침대와 책상이 있다.
2. 내 가방에는 책도 공책도 없습니다.
3. 너는 항상 7 시에 일어나니?
4. 여기서 학교까지는 얼마나 걸릴까요?
5. 너무 더워요. 창문도 열어주시겠습니까?
6. 컴퓨터게임을 오래하는 것은 건강에 좋지 않다.
7. 우리는 토요일에는 5 시에 문을 닫습니다.
8. 나의 아빠는 거실에서 신문을 읽고 있다.
9. 그는 지난 토요일에 5 시간 동안 영어공부를 했다.
10. 나는 종종 방과 후에 친구들과 축구를 한다.
11. 그녀는 책을 읽는 동안에 재미있는 무언가를 배웠다.
12. 내 동생은 아르바이트를 하고 시간당 5,000 원을 받는다.
13. 집에 도착하자마자 고기를 냉장고에 넣는 것이 좋겠다.
14. 다음 주에 엄마가 우리에게 빵과 쿠키를 만들어 줄 것이다.
15. 그녀의 아빠는 그녀가 장래에 선생님이 되기를 원한다.

Examples in: English
Applicable Languages: English
Applicable Levels: Tertiary

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