A Study Investigating the Relationship between L2 Writing and Critical Thinking Skills

Keigo Niji[1], Fumiaki Nishihara[2], Kyoko Oi[3]

[1]Graduate School of Education, Chiba University, [2]The Japan Institute for Educational Measurement,

[3]Seisen University

(keigo.niji.0925@gmail.com)

Abstract

This research was conducted with a hypothesis that teaching L2 English writing will promote the critical thinking ability of Japanese senior high school students. Eighty-two 2nd-year senior high school students participated in this study. Three sets of evaluation instruments were administered to the participants as a pre-test and a post-test. One was a logical/critical thinking skills test (provided by the Japan Institute of Lifelong Learning), another was a questionnaire on students' attitude toward writing in view of critical thinking and the third was students' written products. Three writing lessons were given to senior high school students as the intervention. The students learned the organization of an English paragraph / English essay, hierarchical structure of ideas in a paragraph/essay, and some writing strategies. As a result, the scores of the critical thinking skills exams and students' self-evaluation scores on the questionnaire increased after the lessons. In addition, the students wrote with better paragraph structures in the post-test writing on the topic that was the same as the pre-test. We concluded that the writing lessons helped the students to form some elementary critical thinking skills in their L2 and that they became better writers of English composition.

Keywords

L2 English writing, critical thinking skills

1 Introduction

This paper investigates the possible relationship between writing and critical thinking skills, which include finding logical fallacies and understanding the structure of a paragraph written by others. Some researchers claim that writing activities such as writing argumentative essays involve thinking critically and logically (e.g. Wade, 1995; Bean, 2001 among others). In Japan, how to foster students' thinking ability is of vital concern in education. The current *Course of Study* (the Curriculum Guidelines issued by the Japanese Ministry of Education, Culture, Sports, Science and Technology in 2008-2009) for Japanese schools emphasizes that students' thinking abilities, judgment and expressive abilities must be fostered across all subjects including foreign languages (i.e. English)[1].

This research was conducted with a hypothesis that teaching L2 English writing will promote some aspects of the critical thinking abilities of Japanese senior high school students.

1.1 Review of Literature

1.1.1 Critical Thinking Skills

Critical thinking skills have been valued and named as one of the most important skills in the 21st century (e.g. Kusumi, 2011, 2015; and among others). Klefstad (2015) explains that "these skills [the 21st century skills] capitalize on children's natural way of thinking and include creativity, critical thinking, problem solving, decision-making, and learning" (p. 147). This shows that it is important for every child to acquire critical thinking skills. Ennis (1991), who is one of the pioneers in this line of research, states, "[I]n the past decade explicit official interest in critical thinking instruction has increased manifold" (p. 5). Accordingly,

[1] The Central Council for Education of Japan (*Chūō Kyōiku Shingikai*) submitted a report on the new *Course of Study* to the Minister of Education, Culture, Sports, Science and Technology in December 2016. The report (Central Council for Education, 2016) also emphasizes the importance of fostering students' thinking ability.

many scholars define “critical thinking skills” in their own ways. For example, de Zafra (1957, p. 453) defines it as follows:

> It [critical thinking] is the recognition of cause and effect; it is creative; it is problem solving; it is the questioning of the traditional and its modification for improvement. Critical thinking can improve the analysis of a problem into its component parts, and it can involve the arrival at generalizations and theories from an understanding of the interrelationships among minutiae. Critical thinking is the making of choices.

Suzuki (2006, p.4) also defines critical thinking skills as the ability to think skeptically, and to think in a logical and cautious way from several points of view.

In addition, Cottrell (2005, p.4) exhibits a variety of critical thinking skills. Among them, we find the following properties important and relevant to our research:

- being able to read between the lines, seeing behind surfaces, and identifying false or unfair assumptions;
- recognizing techniques used to make certain positions more appealing than others, such as false logic and persuasive devices;
- reflecting on issues in a structured way, bringing logic and insight to bear;
- drawing conclusions about whether arguments are valid and justifiable, based on good evidence and sensible assumptions;
- presenting a point of view in a structured, clear, well-reasoned way that convinces others.

As we have presented in this section there are a variety of definitions of critical thinking skills, these properties given Cottrell (2005) form the foundation of our research.

1.1.2 Critical Thinking Skills in Writing

As much as we know that critical thinking skills are the important skills for all children to acquire, it is not natural to have the faculty of critical thinking by birth. Blue (2010, pp. 19-20) found that “we human beings are not naturally capable of thinking logically; the capacity for mental skills would not function without careful nurturing”. Goodwin (2014) also states that “critical thinking doesn’t come easily for anyone”(p. 78). Therefore, we need to investigate a way to foster this ability.

There are some researchers who maintain that writing is the best way to gain an understanding of critical thinking skills, and writing activities such as writing argumentative essays, in particular, involve thinking critically and logically. Oi (2006, p. 103) implies from her research that there is a close relationship between “writing” and “thinking”. Bean (2001, pp. 19-20) believes that the writing process itself provides one of the best ways to help students learn the active, dialogic thinking skills valued in academic life. Shrum and Glisan (1994), emphasizing the power of writing, advocate as follows (cited in Scott, 1996, p. 155):

> Language is a tool for building and shaping thoughts rather than simply a means for conveying them. The writing process can help push students to the next developmental level. When students must organize and express their thoughts in the target language, they are developing critical-thinking skills such as analyzing, synthesizing and decision-making.

Wade (1995, p. 24) also concludes that “writing is an essential ingredient in critical-thinking instruction. Writing tends to promote greater self-reflection and the taking of broader perspectives than does oral expression”.

Therefore, we have formed a hypothesis that there is a connection between writing activities and developing critical thinking skills. Although there are some literature that found the effectiveness of writing activities in English as a first language (Hillocks, 2010; Quitadamo and Kurtz, 2007; Klefstad, 2015), there are very few studies that actually investigate the relationship between fostering critical thinking skills and writing in English as a foreign language. Therefore, it is of interest to conduct research on this aspect; namely whether critical thinking skills could possibly be developed through engaging in writing activities in English classes in EFL (English as a foreign language) contexts.

1.2 Research Questions

In the present study, we will examine whether or not Japanese high school students could acquire critical thinking skills and at the same time their written products would improve on the basis of the following three research questions:

1) Do the critical thinking skills of Japanese high school students improve after they take some English writing instruction?
2) Does the self-evaluation of Japanese high school students regarding critical thinking skills change after they take some English writing instructions?
3) Do the English essays of Japanese high school students improve after they receive some English writing instructions?

2 Method

2.1 Participants

Eighty-two 2nd-year public senior high school students (11th grade students) in Chiba, Japan participated in this study. Though they started studying English five years before, most of them had very limited experience in studying formal English writing before they took part in this research. The participants' level of English is considered to be a B1 in CEFR, which is relatively higher than the ordinary Japanese high school students

2.2 Procedures

Three types of data were collected from students before and after writing lessons as a pre-test and a post-test. One was the result of a critical thinking skills exam (a provisional version of the exam provided by the Japan Institute of Lifelong Learning [JILL]), another was the responses to a questionnaire on students' beliefs/attitudes toward argumentative essay writing from the perspective of critical thinking, which was adapted from Stella Cottrell (2005)'s self-evaluation sheet on critical thinking, and the third was students' written products.

Regarding the first set of the test, we made two versions of the critical thinking skills exam based on the exam provided by JILL and other literature. We made these tests in such a way as the constructs of the two versions of the tests were the same. They were developed so that we could assess the critical thinking abilities of high school students in L2, i.e. in English. The exams include questions that ask the test takers to answer why a particular utterance is illogical in the flow of a conversation, or ones that ask test takers to choose irrelevant sentences in paragraphs (see Appendix A). We randomly assigned students to two groups. In order to obtain a counter-balance, two exams were distributed equally to the two groups in both the pre and post-tests.

As for the second set of the data, for a questionnaire on students' beliefs/attitudes toward argumentative essay writing from the perspective of critical thinking, we picked questions from Cottrell (2005)'s self-evaluation sheet on critical thinking. We chose the ones relevant to argumentative essay writing, which amounted to 20 questions.

Regarding the third data, the students were asked to write on the following topic: "Some people say that you should have one best friend rather than many friends. Are you for or against this idea?" They wrote their ideas on this topic in class for 20 minutes without using dictionaries.

To sum up, as Table 1 shows, the critical thinking skills exam corresponds to Research Question 1, and the questionnaire asking the students' self-evaluation on their attitudes/ beliefs on writing argumentative essays corresponds to Research Question 2. The same questions were used in the pre-test and the post-test, so that we could compare the scores to see if there were any changes in students' self-evaluation on their attitudes/beliefs on argumentative essay writing. The final set of the data were the students' writing products taken at both pre-test and the post-test to testify Research Question 3.

Table 1: Design of the tests and research questions

	Test material	Relevant research question
1)	Critical thinking skills exam	RQ1: Do the critical thinking skills of Japanese high school students improve after they take some English writing instruction?
2)	Questionnaire on students' beliefs	RQ2: Does the self-evaluation of Japanese high school students regarding critical thinking skills change after they take some English writing instruction?
3)	Written products	RQ3: Do the English essays of Japanese high school students improve after they receive some English writing instruction?

2.3 Writing lessons as an intervention

Three writing lessons which focused on the logical structure of English paragraphs were given to the

students as the intervention (Table 2). The lesson contents are shown in Table 2. Namely, in the first lesson the students learned about the organization of an English paragraph/essay, and in the second lesson they learned about hierarchical structure of ideas in a paragraph or an essay and some writing strategies including idea generation, and in the last lesson they experienced peer review. Throughout the lesson, the students used the materials and worksheets that we had developed.

Table 2: Writing lessons given to the students

	Contents
Lesson 1	Structure of a paragraph/essay, how to classify, cohesion
Lesson 2	Hierarchical structure of ideas, how to generate ideas
Lesson 3	Peer feedback rewriting

As we emphasized the structure of paragraphs/essays, hierarchical structure of ideas, and paragraph cohesion in the lessons, we focused on these items in our analysis of the students' written products. That is to say, we considered that a good paragraph should manifest good paragraph structure with ideas arranged hierarchically in a good format and should entail proper discourse markers. These properties will become key points in our analysis of the students' written products.

3. Results and Discussion

In this section, we report the results of the pre-test and the post-test, and discuss the changes in students' critical thinking.

As for critical thinking skills exam and writing products, 20 out of 82 participants did not take part in either the pre-test or the post-test, and we excluded the data from these participants. Consequently, we obtained the data from 62 students who participated in both the pre-test and post-test, and analyzed them.

Also, 19 out of 82 participants did not answer the questionnaire either in the pre-test or the post-test. Therefore, we analyzed the data from 63 students who responded to both questionnaires.

3.1 Critical thinking skills exam

The test scores of the critical thinking skills exam are shown in Figure 1. We considered the number of the correct answers in the critical thinking skills exam by a participant as his or her test score, and the full score of critical thinking skills exams was 19. The mean score (with standard deviation in parentheses) was 13.71 (3.12) for the pre-test and 14.74 (3.21) for the post-test. The mean increase of the score from the pre-test to the post-test was 1.03, and its standard deviation was 3.83. A paired samples *t*-test confirmed that there was a statistically significant difference between the pre and post-test, $t(62) = 2.123$, $p = .0378$, Cohen's $d = 0.270$, 95% CI [0.06, 2.00].

It must be noted that there might not be a substantial difference even if there was a statistically significant difference. Although we lack definite information on the characteristics of the exam score, the increase of score in this study seems to be small. However, it is noteworthy that the students' score improved even though they received instructions on writing alone. Namely, there is a possibility that students enhanced their critical thinking skills without explicit instruction in critical thinking. At least, our result is consistent with the possibility that the writing lesson affected students' critical thinking skills.

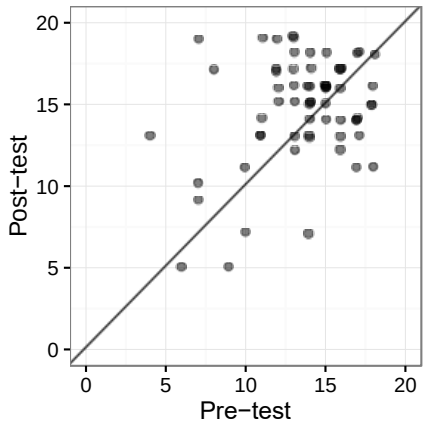

Figure 1: Result of the critical thinking skills exam. Each point corresponds to one participant. The points above the diagonal line show the increase of test score after the writing lessons.

3.2 Questionnaire on students' attitude toward writing from the perspective of critical thinking

Of the 39 questions in the questionnaire, we analyzed 20 questions that focus on students' attitudes toward writing from the perspective of critical thinking. Students responded to these questions on a 6-point Likert scale (6 = Strongly agree to 1 = Strongly disagree).

Though students' answers to the questionnaire remained almost unchanged after the writing lessons, there were some questions in which the scores increased from the pre-test to the post-test. (For more details, see Appendix B.) We ran paired samples Wilcoxon signed rank tests, and found the differences between the pre and post-tests were insignificant for almost all questions, with the exceptions for Question 22 ('Did you recognize the structure and write based on it?') Question 34 ('Did you decide what and how you were going to write before writing?'). The former's median of the post-test (Med_{post} = 3) was significantly lower than that of the pre-test (Med_{pre} = 4), V = 470, p = 0.002, adjusted p (using Bonferroni method) = 0.048. The latter's median of the post-test (Med_{post} = 3) was also significantly lower than that of the pre-test (Med_{pre} = 4), V = 745.5, p = 0.001, adjusted p (using Bonferroni method) = 0.014.

We can recognize from the results of the questionnaire that students' attitudes toward writing in view of critical thinking have remained almost constant in spite of the writing lessons we had provided. It should be noted, however, that due to limited data, the question of how writing lessons affect students' attitudes is still unsettled.

3.3 Students' written products

We analyzed students' written products and found that the number of essays that embody a good structure increased in the post-test compared with the pre-test. We defined "an essay that has a good structure" as the one that should manifest good paragraph structure with ideas arranged hierarchically in a good format and should entail proper discourse markers. As shown in Table 2, many students improved their paragraph structure. The percentage of essays that had exhibited good paragraph structure was 29% for the pre-test and 92% for the post-test.

Table 2: Change in paragraph structure of students' essay

		Post-test		
		Good	Not good	Total
Pre-test	Good	18	0	18
	Not good	39	5	44
	Total	57	5	62

A McNemar's test ensured that there were statistically significant differences between the pre and post-tests, $\chi^2(1) = 37.026$, p = .000. The result suggests that the participants learned to make well-structured English essays.

3.4. Relationship between writing products and critical thinking exams

It may be worth mentioning the relationship between students' writing products and their scores in critical thinking exams. Students can be categorized into following three groups based on their paragraph structure in the pre-test and the post-test (N.B. No student deteriorated his or her paragraph structure):

Group A: both pre-test essay and post-test essay had a good structure;
Group B: though the pre-test essay did not have a good structure, the post-test one had a good structure;
Group C: neither pre-test essay nor post-test essay had a good structure.

As indicated in Table 3, the first two groups increased their scores in the critical thinking skills exam. On the other hand, the last group did not increase their scores.

Table 3: Change in paragraph structure of students' essay

Paragraph structure in essay		*Number of Students*	*Mean score of critical thinking skills exam (with standard deviation in parentheses)*		
Pre-test	*Post-test*		*Pre-test*	*Post-test*	*Increase*

Group A	Good	Good	18	13.61 (3.60)	14.83 (3.82)	1.22 (3.67)
Group B	Not good	Good	39	13.77 (2.93)	14.90 (3.01)	1.13 (3.91)
Group C	Not good	Not good	5	13.60 (3.36)	13.20 (2.49)	-0.40(4.28)

Though we do not have enough data to make an argument, it seems that those who did not grasp the concept of paragraph structure tended to fail to improve their critical thinking skills. Perhaps the last group lacked motivation in class. Insufficient motivation might affect their performance in essay and in critical thinking separately. Or, as we are inclined to suggest, efforts in essay writing affected students' critical thinking skills. We may need a better study design and more data to confirm this.

4. Conclusion

We conducted this study to investigate the relationship between writing lessons and critical thinking skills. After experiencing three lessons on how to write a good-structured paragraph/essay, the students' scores on the critical thinking skills exam increased with a significant difference. In addition, the students wrote with better paragraph structures in the post-test writing on the topic that was the same as the pre-test. Those who improved their essays scored high were the ones who also increased their self-evaluation scores on the questionnaire on their beliefs/attitude toward argumentative essay writing from the perspective of critical thinking. Thus, we can conclude that the writing lessons helped the students to form some elementary critical thinking skills in their L2 and that the students became better writers of English composition.

Finally, we need to mention the limitations of the study. Most of them could be attributed to the study design. First of all, we could not have a control group where the participants were not given English writing lessons. If the participants had been divided into two groups (the experimental group and the control group), we could have compared the two groups and clarified the impact of English writing instruction. It should also be noted, however, that having a control group is difficult for practical and ethical reasons. It would be difficult to obtain cooperation from high schools if some students did not have a chance to receive formal English writing lessons. In addition, our participants are biased in the sense that they belonged to the same high school. If more high school students from different schools had participated, different results would have been achieved.

Furthermore, we lack definite information on the critical thinking skills exam and we cannot evaluate the significance of the score in the exam properly without further investigation. Also, it is not clear how the critical thinking skills change when the participants have more lessons. We believe that further studies need to be carried out in order to settle these matters.

Despite these shortcomings, we can conclude that writing lessons on how to construct a good paragraph/essays contributed to fostering some critical thinking skills of Japanese high school students to some degree.

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References

Bean, J. (2001). *Engaging ideas*. San Francisco: John Wiley & Sons.

Blue, T. (2010). *Why students should have to learn how to write discursive essays*. Retrieved from http://teacherblue.homestead.com/discursive.html

Cottrell, S. (2005). *Critical thinking skills.* New York: Palgrave Macmillan.

Central Council for Education. (2016). *Yōchien, shōgakkō, chūgakkō, kōtōgakkō oyobi tokubetsu shien gakkō no gakushū shidō yōryō tō no kaizen oyobi hitsuyō na hōsaku ni tsuite* [On improvement and necessary measures for the Course of Study of kindergarten, elementary school, junior high school, senior high school and special support education school]. Retrieved from http://www.mext.go.jp/b_menu/shingi/chukyo/chukyo0/toushin/1380731.htm

de Zafra, C. (1957). Teaching for critical thinking. *The Clearing House 31*(8), 453-456. doi: 10.1080/00098655.1957.11475621

Ennis, R. (1991). Critical thinking: A streamlined conception. *Teaching Philosophy, 14*(1), 5-24. doi: 10.5840/teachphil19911412

Goodwin, B. (2014). Teach critical thinking to teach writing. *Educational Leadership, 71*(7), 78-80.

Hillocks, G. (2010). Teaching argument for critical thinking and writing: An introduction. *English Journal 99*(6), 24-32.

Klefstad, J. (2015). Environments that foster inquiry and critical thinking in young children: Supporting

children's natural curiosity. *Childhood Education 91*(2), 147-149. doi: 10.1080/00094056.2015.1018795

Kusumi, T. (2011). Hihanteki shikō towa [What is critical thinking?]. In T. Kusumi, M. Koyasu, & Y. Michita (Eds.), *Hihanteki no shikōryoku o hagukumu: Gakushiryoku to shakaijin kisoryoku no kiban keisei* [Developing critical thinking in higher education] (pp.2-24). Tokyo: Yūhikaku.

Kusumi, T. (2015). Hajimeni [Introduction]. In T. Kusumi & Y. Michita. (Eds.), *Wādo mappu hihanteki shikō: 21seiki o ikinuku riterashī no kiban* [Word map critical thinking: Foundation of the literacy for living in the 21st century] (pp. i-vi). Tokyo: Shin'yōsya.

Ministry of Education, Culture, Sports, Science and Technology. (2008). *Chugakkō gakushū shidō yōryō* [The course of study for junior high schools]. Tokyo: Ministry of Education, Culture, Sports, Science and Technology.

Ministry of Education, Culture, Sports, Science and Technology. (2009). *Kōtōgakkō gakushū shidō yōryō* [The course of study for senior high schools]. Tokyo: Ministry of Education, Culture, Sports, Science and Technology.

Oi, K. (2006). *Kuritikaru ni essē o kaku* [How to write an essay critically]. In T. Suzuki, K. Oi, & F. Takemae (Eds.), *Kuritikaru shinkingu to kyōiku* [Critical thinking and education] (pp.100-136). Kyoto, Japan: Sekaishisōsha.

Suzuki, T. (2006). *Kuritikaru shinkingu no rekishi* [History of critical thinking]. In T. Suzuki, K. Oi, & F. Takemae (Eds). *Kuritikaru shinkingu to kyōiku* [Critical thinking and education] (pp.4-21). Kyoto, Japan: Sekaishisōsha.

Quitadamo, I., & Kurtz, M. (2007). Learning to improve: Using writing to increase critical thinking performance in general education biology. *CBE-Life Science Education, 6*(2), 140-154.

Scott, V. M. (1986). *Rethinking Foreign Language Writing*. Boston, MA: Heinle & Heinle.

Wade, C. (1995). Using writing to develop and assess critical thinking. *Teaching of Psychology*, *22*(1), 24-28. doi: 10.1207/s15328023top2201_8

Appendix A. A sample material of critical thinking skills exam.

Q. Choose the response that best fits in the parenthesis.

Meg: The young man I met yesterday said he works at a bank near Central Station. My sister also works at a bank near Central Station. So, they must work at the same bank.

Jim: That may not be true. ( ), so you can't say that they work at the same bank.

a. There are many banks near Central Station
b. Many people work at a bank near Central Station
c. You told me your sister works at a very small bank
d. Not many young men work at the bank your sister works in

Appendix B. Questionnaire used in the study and its result.

Question		*Test*	*Answer (Number of students)*							*Median*	*Mean*[2]
			6	5	4	3	2	1	NA		
Q14	Do you like writing an essay?	Pre	11	15	18	10	7	2	0	4	4.11
		Post	7	17	20	8	10	1	0	4	4.00
Q16	Are you good at writing an essay?	Pre	11	19	20	11	2	0	0	4	4.41
		Post	6	24	19	9	4	1	0	4	4.25
Q17	Do you think that learning how to write an essay is useful?	Pre	0	1	12	8	25	17	0	2	2.29
		Post	2	2	15	11	19	13	1	2	2.68

[2] Strictly speaking, the data from questions based on Likert scale is ordinal, and the concept of arithmetic mean cannot be applied to ordinal data. We calculated means simply for convenience.

Q21	Can you read what the writer implies?	Pre	4	6	15	23	13	2	0	3	3.35
		Post	4	4	13	26	11	3	2	3	3.26
Q22	Are you aware of a model of an essay so that you can construct an essay using the model?	Pre	4	13	20	20	6	0	0	4	3.83
		Post	5	6	11	28	10	1	2	3	3.43
Q23	Can you present your own arguments clearly?	Pre	2	3	15	22	18	3	0	3	3.05
		Post	4	5	8	25	13	6	2	3	3.08
Q24	Are you aware of the “line of reasoning” when you write an essay?	Pre	3	11	16	26	7	0	0	3	3.63
		Post	5	7	24	17	7	1	2	4	3.72

Question		*Test*	*Answer (Number of students)*							*Median*	*Mean*
			6	5	4	3	2	1	NA		
Q25	Do you find it easy to separate key points from other materials?	Pre	4	9	26	18	6	0	0	4	3.79
		Post	5	6	19	18	12	1	2	3	3.52
Q26	Can you recognize whether the writer uses misleading information or distortion to persuade the reader?	Pre	4	8	22	20	6	3	0	4	3.60
		Post	6	5	16	23	9	2	2	3	3.51
Q27	Can you easily show the reasons that support your opinion in an argument?	Pre	4	9	22	18	7	3	0	4	3.62
		Post	5	7	21	16	9	2	3	4	3.62
Q28	Are you aware of how your current beliefs might prejudice fair consideration of an issue?	Pre	4	5	16	20	13	5	0	3	3.24
		Post	5	3	14	26	6	7	2	3	3.25
Q29	Do you know the structure of an argument?	Pre	4	8	19	23	8	1	0	3	3.59
		Post	4	3	16	23	9	5	3	3	3.25
Q30	Can you consider and evaluate different points of view fairly?	Pre	2	3	12	23	20	3	0	3	2.97
		Post	4	2	12	23	15	5	2	3	3.05
Q31	Can you point out the parts which are illogical in an argument?	Pre	2	7	20	21	9	3	1	3	3.40
		Post	5	6	17	22	9	1	3	3	3.55
Q33	Did you decide your opinion before writing?	Pre	0	2	6	14	24	15	2	2	2.28
		Post	3	5	8	11	21	10	5	2	2.76
Q34	Did you decide what and how you were going to write before writing an essay?	Pre	4	11	17	18	10	1	2	4	3.64
		Post	3	5	7	23	15	5	5	3	3.02
Q35	Did you try to make your essay clear for readers when you were writing an essay?	Pre	5	10	18	20	5	2	3	4	3.73
		Post	4	5	23	20	4	2	5	4	3.64
Q36	Did you use concrete examples or concrete explanations when you were writing an essay?	Pre	3	2	8	17	23	8	2	2	2.70
		Post	3	2	8	20	22	3	5	3	2.88
Q37	Did you try to write your essay logically?	Pre	4	12	20	15	7	3	2	4	3.70
		Post	3	6	12	23	11	3	5	3	3.28
Q38	Did you try to make the flow of the content clear when you were writing?	Pre	6	10	17	22	5	1	2	4	3.79
		Post	3	6	20	20	8	1	5	3.5	3.53