Just-In-Time Teaching Techniques through Web Technologies for Vocational Students' Reading and Writing Abilities

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Abstract

This research compares the English language achievements of vocational students, their reading and writing abilities, and their attitudes towards learning English taught with just-in-time teaching techniques through web technologies and conventional methods. The experimental and control groups were formed, a randomized true control group pre-test-post-test design was used, and the data were analyzed by t-tests for dependent and independent samples. The study's results showed significant differences in English writing ability and attitudes toward learning English between both groups at a .01 confidence level, and in reading ability at a .05 confidence level.

Keywords: just-in-time teaching technique (JiTT), English reading and writing abilities, phases of just-in-time teaching, attitudes towards learning English, vocational students

1. Introduction

1.1 Statement of the Problem

English is important in the lives of Thai people, as people all around the world communicate in it. It is used in searching for data, surfing the internet, and watching TV, among other activities. If one can understand English, both spoken and written, it is easier to obtain a job or to study and work abroad. With this in mind, English is utilized to communicate in order to acquire more information, to converse, and for many different purposes. In Thailand, Thai people do not use English daily; English is considered as a necessary foreign language that is reserved for educational purposes, careers, and communication with people from other countries, including those of ASEAN. However, nowadays, English is becoming increasingly important in a variety of Thai contexts. For one, English is a compulsory subject in school and in higher education (Deerajviset, 2015, pp. 48-49). According to a report by the National Institute of Education Testing Service (NIETS), the Ministry of Education (2013) reported that the average English test scores of Thai students on the V-NET (a vocational education test taken by vocational certificate students) were below the standard level at approximately 32.70, 38.10, and 42.48 out of 100, in 2012, 2013, and 2014, respectively. This shows that Thai vocational students were well below the standard despite spending so much time studying English in primary and secondary school (V-NET Report, 2012-14).

A number of Thai educators have identified two major factors that cause ineffective learning of English at Thai vocational schools. Firstly, most Thai vocational students attempt to learn English, but they do not use it frequently in daily life because of their worries about grammar. In addition, they have very little time to practice English outside of class. Another issue is that they lack motivation to learn English, a serious obstacle in their English learning development. With this in mind, learning English is usually strictly through rote memorization of new words, sentences, and grammatical structures. The second factor is that Thai vocational English teachers also have poor quality English skills, both spoken and written. Most Thai vocational English teachers speak predominantly Thai during class and use the grammar translation method along with other teacher-centered techniques. In addition, they have heavy teaching loads, inadequately equipped classrooms, and a lack of educational technology (Office of the Education Council, Ministry of Education, 2008; Noom-Ura, 2013, pp. 138-139; Rattanavich, 2013, p. 1; Deerajviset, 2015, p. 49; Promnont, 2015, pp. 1-2).

In 2014, the Ministry of Education announced policies to reform teaching and learning vocational English at the

vocational certificate education level, adopting the international standard of the common European framework of reference for languages (CEFR) and vocational English in ESL competencies as the main benchmarks for managing teaching and learning of the vocational English language. The reformation includes teaching vocational English two days per week for beginning vocational students, designing the conversation course with native speakers, establishing an English-only zone, English literacy day, and English contests. It also consists of using information computer technology (ICT) media for education as a tool to enhance the teaching and learning management skills as well as the knowledge of teachers (Ministry of Education, 2014).

Just-in-time teaching (JiTT) is a teaching and learning strategy comprised of two elements: classroom activities that promote active learning and World Wide Web resources that are employed to enhance the classroom component. Many industries make use of the just-in-time method; it combines high-speed communication with a rapid distribution system to improve efficiency and flexibility. The usage of JiTT is analogous in many ways.

Similarly, high-speed communication on the web is combined with the ability to rapidly adjust content; this makes classroom activities more efficient and more closely attuned to students' needs. The essential element is feedback between the web-based and classroom activities. The JiTT system has been built around Web-based preparatory assignments that are due a few hours before class. The students complete these assignments individually, at their own pace, and submit then them electronically. In turn, the classroom lessons are adjusted and organized in response to their "just-in-time" submissions. Thus, a feedback loop between the classroom and the web is established. Each lecture is preceded and informed by an assignment on the web. This cyclical activity occurs several times each week to encourage students to stay current and to do so by studying in several sessions that are short enough to avoid fatigue (Novak et al., 1999).

JiTT can be employed as an alternative teaching technique to improve vocational English performance, especially reading and writing. It is also an excellent use of technology in the classroom and enhances the learning of multiple skills. Students can become literate in media programs and technology applications. JiTT web technology is an effective means in the classroom and may provide students with more opportunities to be active learners. JiTT also emphasizes a positive attitude and helps students develop their own identities in beneficial ways because it promotes a learner's understanding of oneself with one's peers through peer activities and group work while allowing for opportunities for each student to learn as a unique individual. The students are trained in surfing the web to seek information needed as interactive skills, being attentive to other individual's unique interests, caring about others, and having a favorable attitude (Burton, 1997; Hamel et al., 2014; Higdon & Topaz, 2009; Novak et al., 1999).

1.2 Research Questions

1.2.1 Are there significant differences in reading and writing between the experimental and control groups after being taught using JiTT through web technologies and conventional teaching techniques?

1.2.2 Are there significant differences in attitudes toward English learning between the experimental and control groups after being taught using JiTT through web technologies and conventional teaching techniques?

1.3 Objectives of the Study

1.3.1 To compare vocational students' reading and writing abilities between the experimental and control groups after being taught using JiTT through web technologies and conventional teaching techniques.

1.3.2 To compare vocational students' attitudes toward English learning between the experimental and control groups after being taught using JiTT through web technologies and conventional teaching techniques.

1.4 Hypotheses of the Study

1.4.1 The vocational students' reading and writing abilities, when taught using JiTT through web technologies, are higher than the vocational students taught with conventional teaching techniques.

1.4.2 The vocational students taught using JiTT through web technologies and conventional teaching techniques are different with respect to attitudes toward English learning.

2. Literature Review

2.1 Relationship between Reading and Writing

Reading involves the reader, the text, and the interaction between the reader and the text (Rumelhart, 1977, pp. 492-493). In a general sense, reading is what happens when people look at text and assign meaning to the written symbols comprising that text. The text and the reader are the two physical entities that are necessary for the reading process to take place. It is the interaction between the text and the reader that constitutes actual reading

and the meaning that the reader interprets from the text may not be exactly the same as the meaning the writer of the text wished to convey. Likewise, the meaning that one reader takes away from the text may be different from other readers reading the same text. These variations occur because of influences from family, community, and cultural environments, and because of individual differences in motivation, aptitude, and other personal characteristics. Readers use various resources to varying degrees when they read. Thus, reading comprehension differs from one reader to another (Aebersold & Field, 1997, pp. 492-493). Reading is an important part of the four language skills (listening, speaking reading and writing) that are necessary for learning English as a foreign or second language (Rattanavich, 1987; Aegpongpaow, 2008, p.256).

Writing is a critical language skill for communication as is explained in the Standards for Foreign Language Teaching in the Thai Basic Curriculum (Ministry of Education, 2008). Writing is interwoven with reading and should be taught as a process. During the process of writing, students can exercise their skills. Throughout, writing teachers help shape students' ideas and the meaning they would like to record until they are satisfied with the content and form of the message they want to express.

2.2 Just-in-Time Teaching Technique through Web Technologies

The JiTT is used for both reading and writing English skills. Teachers design their course to also provide experience in teamwork and opportunities to practice written and oral communication. The goal is to assist students' advancement and learn effectively rather than targeting the average. The JiTT strategy provides appropriate levels of support and feedback. JiTT through web technologies supplies remediation and encouragement to the weaker students along with enrichment for the stronger students.

JiTT promotes activity in students and increases learning by intentionally linking out-of-class and in-class activities. Initially, students answer a small set of web-based questions on upcoming course material outside of class and submit their responses online before class begins. Then, the teacher reviews the students' JiTT submissions and verifies their answers and ideas.

The JiTT through web technologies' questions require students to "do something" to get them prepared for the next class: read a textbook or article, complete a simulation or experiment, or watch a video, and often involve problem-solving, critical thinking, and analytical reasoning that encourage higher-order thinking skills (Novak et al., 1999). The questions refer to material or concepts that have not yet been covered in the course, necessitating students to search for information and apply concepts in other ways, except in a textbook.

Success with JiTT means developing effective JiTT through web technologies exercises in small clusters of questions that address key course learning outcomes, typical student misconceptions, conceptual bottlenecks, discipline-based critical/analytical thinking skills, or metacognitive skills (Novak et al., 1999). Thoughtful and intentional design of JiTT through web technologies exercises greatly boosts the learning potential of this teaching technique. In practice, JiTT through web technologies exercises can be a combination of multiple choice questions, cloze tests, and free writing, but are most effective when they require students to comprehend the assigned teaching material. To accomplish this, it is best if at least a number of the questions are open-ended. A key benefit of JiTT through web technologies is that it helps make students thinking visible, something that is more difficult to do with multiple choice questions (Novak et al., 1999).

2.3 Attitudes of Students towards Learning with Just-in-Time Teaching Techniques

Attitudes have been considered a central concept of social psychology. In fact, early writers defined social psychology as the scientific study of attitudes (Schwarz & Bohner, 2001, pp. 1-2). Allport (1935, p. 180 cited in Schwarz & Bohner, 2001) described an attitude as "a mental and neural state of readiness, organized through experience, exerting a directive and dynamic influence upon the individual's response to all objects and situations which it is related". A decade later, Krech and Crutchfield (1948, p. 152 cited in Schwarz & Bohner, 2001) wrote an " attitude can be defined as an enduring organization of motivational, emotional, perceptual, and cognitive processes with respect to some aspect of the individual's world". Identifying students' learning styles helps educators understand how people perceive and process information differently. Attitudes of students towards learning with JiTT through web technologies are important in terms of reading and writing abilities in English. Attitudes towards a teaching technique, both with respect to the teacher and students, can strengthen the learning processes. In this study, students' attitudes towards learning English were evaluated. Various positive statements were made about JiTT being used to develop reading and writing abilities in English. The vocational students' attitudes towards this teaching technique, as well those of teachers, demonstrate that the use of JiTT techniques through web technologies was welcomed by both groups. Integrating JiTT techniques with web technology is critical as there is an apparent relationship between attitudes and the techniques.

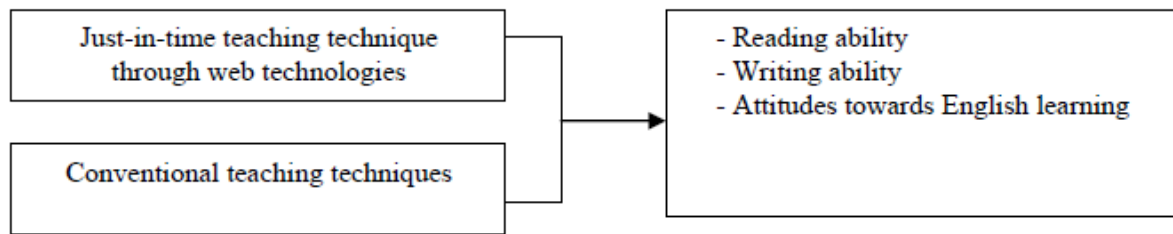*2.4 Conceptual Framework of the Study*

Figure 1. Conceptual framework of this study

3. Methodology

3.1 Research Design

A randomized true control group-pre-test-post-test design was utilized in the study. The experimental group was taught by using the JiTT through web technologies and the control group was taught through conventional teaching techniques, both over ten weeks with twenty teaching hours, including pre-test and post-test sessions.

Table 1. Research design

Group	Pretest	Variables	Posttest
RE	T_1	X	T_2
RC	T_1	~	T_2

RE = Randomized experimental group. RC = Randomized control group. X = JiTT through web technologies.

~ = Conventional teaching techniques. T_1 = Pre-test. T_2 = Post-test.

3.2 Population and Sample

There were 40 participants in this study, all year 2 students at Santirat Vocational College, Bangkok, who were 15- and 16-years-old at the time the research was conducted. The samples of this study were from two classes with 20 students in each in the second semester of the 2014 academic year enrolled in the elective course, "Reading for Printed Media". They were selected using cluster random sampling, and the sampling unit was divided into two groups. The experimental group was taught using JiTT through web technologies, whereas the control group was taught through conventional teaching techniques.

3.3 Research Instruments

Two kinds of instruments, tests and questionnaires, were employed in the work presented here. The tests included one multiple choice and cloze test reading (with a reliability of 0.81, calculated by Pearson's correlation coefficient) and a writing test (with a reliability of 0.83, calculated by the Cronbach alpha coefficient), as well as a five-choice Likert scale questionnaire on attitudes towards English learning after experience with JiTT through web technologies (with a reliability of 0.99, calculated by the Cronbach alpha coefficient).

3.4 Treatment of the Study

3.4.1 Phases of JiTT for the Experimental Group

Assignment on the web: The Interactive Lecture

1) Phase 1: Warm up Exercise: Motivation

a) The teacher lets students in each group study the text and read the content of the story through an online discussion board and uses web-based tools to gather student responses to questions on reading assignments.

b) The teacher then asks the students questions.

2) Phase 2: Classroom Setting: Real-World Connection (The Collaborative Recitation: Lecture).

a) Students have categories to choose from the online discussion board. For example, students pick a type of restaurant and type of food and locate websites of restaurants with menus.

b) Students answer questions about types of food on the website.

c) The teacher then checks the students' answers by linking to helpful online tasks and subsequently joins in while each group discusses its answers.

d) The teacher gives the students feedback and advice for the next assignment on an interactive web page.

e) The teacher supplies an outline to help students understand how to read the menu.

f) The teacher allows the students fifteen minutes to identify different kinds of foods and drinks and to write a paragraph about their favorite choices.

3) Phase 3: Traditional Assignments: Critical thinking (Lab Preparation, Lab, and Homework)

a) The teacher lets the students make interactive design tools (e.g. a brochure about food preferences).

b) The students find the main idea of a paragraph and insert other ideas within that paragraph that support the words identified regarding eating habits.

c) The teacher uses the effective web technologies available.

4) Phase 4: Estimation

a) The students present their own stories about different cultures and about their various choices of foods and eating habits.

b) The teacher asks about the differences between Western-style breakfasts and Thai-style breakfasts.

5) Phase 5: Define Problems

a) The teacher provides the students with new vocabulary and the main ideas and lets them fill in the blanks with supporting information from the paragraphs.

b) Students state their ideas and respond with complete sentence structure in an online learning environment through presentation.

c) The teacher shows students how to outline main ideas and supporting details and makes a paragraph of the topic by using the information that they discussed in a group.

d) Students write a paragraph in an English composition style and search the web for interactive web-based language regarding the topic.

6) Phase 6: Teamwork

a) The teacher reviews the exercises by joining a discussion in each group and gives students feedback about the exercise.

b) After completing the discussion, the teacher allows each group to go on to the next step.

7) Phase 7: Communication

a) The teacher lets students survey the text organization.

b) The teacher asks the students to discuss in a group their eating out habits and where they used to go on an online practice page, through an electronic mailing list, and with online tasks.

c) The teacher assigns the students practice writing exercises and makes their "JiTT responses" classroom activities by reading passage in a worksheet and permits them to send online practice pages with Gmail completely and neatly.

d) The teacher checks the JiTT responses "Classroom Activities" reading passages by joining an online discussion area.

e) The students are able to answer by linking the online discussion with Gmail.

f) The teacher checks the answers.

8) Phase 8: Time management

a) The teacher explains a cultural page of text being read and the text to be written.

b) The teacher gives each group a story to practice and asks the students questions about the story.

c) Each group is allowed to search the web about people's eating habits and has to reference the URL. The students can provide their own suggestions and comments. Next, they write the conclusion and summarize their ideas.

9) Phase 9: Recitation: Dealing with New Vocabularies

a) Students discover new vocabulary in their learning activities (ex. searching the web).

b) Students are allowed to discuss the meaning of the vocabulary items and write them down into a book. The teacher supplies more information to students about their favorite menu lists. The students are then given the chance to share opinions.

c) The teacher verifies the students' writing plans by joining a discussion and provides advices to them.

d) The ready group goes to the next step.

10) Phase 10: Interactive Lecture

a) Students design their online tasks and apply technology to develop higher order skills and creativity.

b) Students integrate new conceptual and technological tools into their online tasks for creating a restaurant brochure.

c) The teacher checks the students' use of technology resources in terms of their work assignment.

3.4.2 Phases of the Conventional Teaching Techniques for the Control Group

1) Phase 1: Warm Up

a) The teacher permits students in each group to study the text and read content of the story by using menu lists to gather student responses to questions on reading assignments.

b) The teacher then asks the students questions.

2) Phase 2: Presentation

a) The teacher supplies the categories guide worksheet to all students. They let the students choose a type of restaurant and food and answer questions.

b) The teacher checks the answers by tasks and joining a discussion with each group, providing advice to students.

c) The ready interactive group goes to the next step.

d) The teacher checks the students' pronunciation and describes the meaning of vocabulary about food and drink from the menu.

e) The teacher gives feedback and advises next steps for the paragraph about eating habits.

f) The teacher provides the outlined reading material for the students on food and drink from the menu.

g) The students are given just 15 minutes to identify several different foods and drinks by writing a paragraph about eating habits.

3) Phase 3: Information

a) The teacher asks students about different cultures having breakfast in terms of western style and Thai style.

b) The students are allowed to present their own stories about their different choices in foods and eating habits.

c) The teacher lets students write a paragraph on the topic by using the information.

d) The students are permitted to discuss in groups.

e) The teacher verifies the exercises by joining discussions in each group and providing advice to students.

f) The teacher has the ready interactive group go to the next step.

4) Phase 4: Application

a) The teacher assigns the students work to practice writing and create their conceptual framework (the fun bit: Jacket Potatoes) completely and neatly.

b) The teacher checks the conceptual framework by joining classroom discussion with each group, and advises students.

c) The teacher verifies the answers.

5) Phase 5: Process

a) The teacher provides each group with a story to practice making instructions, and may ask the students their experiences by proposing subsequent questions.

b) The students are allowed to perform the activity about "friend's eating habits" and references on the menu lists. The student can provide their own suggestion and comments, write the conclusion and summarize their ideas.

c) The students discover new vocabulary in their learning activities, such as: cereal, porridge, pancakes, omelets, toast, butter, doughnut, yoghurt, croissant, waffles, etc

d) The students are permitted to discuss the meaning of the vocabulary and write the words down into a book.

e) The teacher lets each group create short sentences with present tense verbs and past tense verbs on the board present them.

f) The teacher checks the students' writing plans by joining a discussion and giving advice.

g) The ready groups are allowed to go to the next step.

6) Phase 6: Optional Activities

a) The teacher lets each group complete their writing plan and share their writing text with friends.

b) The students are allowed to present their story in class. The teacher may ask another group questions about the story.

c) The students are allowed to evaluate which story is the most fun and provide a reason.

7) Phase 7: Interactive Lecture: Resources for Materials and Activities in English Language Teaching

a) The teacher requests students make a menu list on paper and decorate their work.

3.5 Data Analysis

All hypotheses were tested using a SPSS computer program as follows:

The scores that were compared were the vocational students' reading and writing abilities and attitudes towards English learning taught using JiTT through web technologies and conventional teaching techniques with a *t*-test for dependent and independent samples and *t*-differences. Finally, line graphs were used for summary of the results of the data analyses.

4. Results of the Study

The results of the study correspond to the two questions as follows:

Research question 1: Are there significant differences in reading and writing between the experimental and control groups after being taught using JiTT web technologies and conventional teaching techniques?

Table 2. Summary of the comparison between the experimental and control groups of students' reading and writing abilities - *t*-test for dependent samples and *t*-test for independent samples

Variables		Within-Groups Pre-Post Experiment						Between-Groups Pre-Post Experiment					
		$\overline{X}_1$	S_1	t_1	$\overline{X}_2$	S_2	t_1	MD_1	S_{MD1}	MD_2	S_{MD2}	t_2	p-value
Reading	Pre	8.80	2.11	19.4**	7.80	2.31	14.1**	24.95	3.37	23.05	4.11	1.597*	.119
	Post	16.1	1.63		15.2	2.43							
Writing	Pre	11.1	2.70	7.29**	9.65	2.39	5.08**	26.10	4.37	22.40	4.85	2.836**	.007
	Post	14.9	2.24		12.7	2.34							

* p –value < .05, ** p –value < .01, (n=20).

$\overline{X}_1$= Average Scores of Experimental Group, $\overline{X}_2$ = Average Scores of Control Group, S_1 = Standard Deviation of Experimental Group, S_2 = Standard Deviation of Control Group, MD_1 = Average Differences Scores of Experimental Group, MD_2 = Average Differences Scores of Control Group, S_{MD1} = Standard Deviation of Different Scores in the Experimental Group, S_{MD2} = Standard Deviation of Different Scores in the Control Group, t_1 = t-test for dependent samples, t_2 = t-test for independent samples, * = .05 Level of Significance, ** = .01 Level of Significance.

The data presented in Table 2 indicates that there was a significant difference in writing ability at the .01 level between the experimental and control groups ($t_2 = 2.836**$, p-value = .007$_)$, but reading ability was significantly different at the .05 level ($t_2 = 1.597*$, p-value = .119). Thus, the comparison of the vocational students pre-test and post-test scores show that vocational students were significantly different with respect to reading and writing abilities at the .01 level in both groups. The experimental group registered significantly higher in reading and writing abilities after being taught through JiTT web technologies at the .01 level ($t_1 = 19.4**$ in reading, 7.29$**$ in writing). The control group scored significantly higher in reading and writing abilities after being taught with conventional teaching techniques at the .01 level ($t_1 = 14.1**$ in reading, 5.08$**$ in writing). In addition, the experimental group registered higher scores than the control group in reading and writing abilities ($\overline{X}_1 = 8.80_{\text{(Pre-test)}}$, $16.1_{\text{(Post-test)}}$ in reading, $\overline{X}_1 = 11.1$ $_{\text{(Pre-test)}}$, 14.9 $_{\text{(Post-test)}}$ in writing), ($\overline{X}_2 = 7.80_{\text{(Pre-test)}}$, $15.2_{\text{(Post-test)}}$ in reading, $\overline{X}_2 = 9.65$ $_{\text{(Pre-test)}}$, 12.7 $_{\text{(Post-test)}}$ in writing).
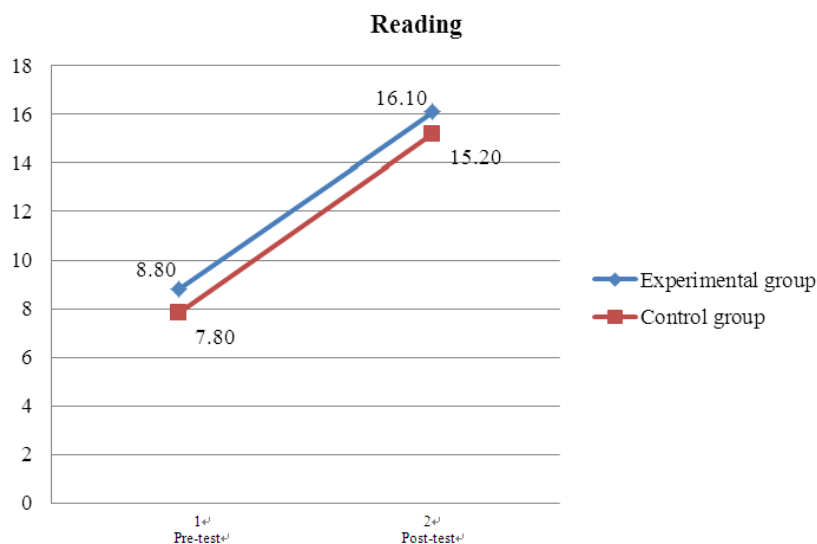

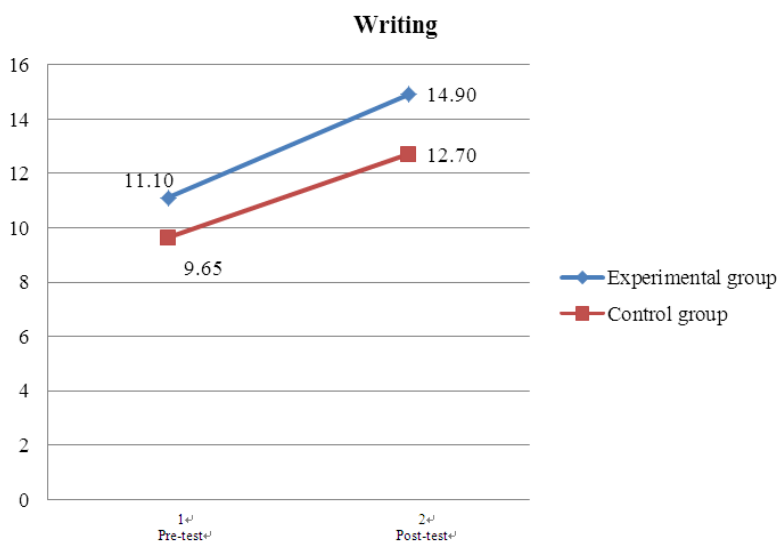Figure 2. Graphical comparison of the vocational students' abilities in reading

Figure 3. Graphical comparison of vocational students' abilities in writing

Research question 2: Are there significant differences in attitudes towards English learning between the experimental and control groups after being taught through JiTT web technologies and conventional teaching techniques?

Table 3. Summary of the comparison between the experimental and control group of students' attitudes toward English learning - *t*-test for dependent samples and *t*-test for independent samples

Various	Within-Groups Pre-Post Experiment						Between-Groups Pre-Post Experiment					
	$\overline{X_1}$	S_1	t_1	$\overline{X_2}$	S_2	t_1	MD_1	S_{MD1}	MD_2	S_{MD2}	t_2	p-value
Attitude in learning English	Pre 3.67	.29	2.76**	3.68	.12	2.66**	0.24	-0.09	0.1	-0.02	2.45**	.019
	Post 3.91	.38		3.58	.14							

* * p –value < .01, (n=20).

$\overline{X_1}$ = Average Scores of Experimental Group, $\overline{X_2}$ = Average Scores of Control Group, S_1 = Standard Deviation of Experimental Group, S_2 = Standard Deviation of Control Group, MD_1 = Average Differences Scores of Experimental Group, MD_2 = Average Differences Scores of Control Group, S_{MD1} = Standard Deviation of Different Scores in the Experimental Group, S_{MD2} = Standard Deviation of Different Scores in the Control Group, t_1 = t-test for dependent samples, t_2 = t-test for independent samples , * = .05 Level of Significance, ** = .01 Level of Significance.

The data presented in Table 3 suggests that there was a significant difference in attitudes towards English learning at the .01 confidence level between the experimental and control groups (t_2= 2.45**, p-value = .019), Thus, the comparison of the vocational students pre-test and post-test demonstrates that the vocational students had significant differences in attitudes towards English learning at the .01 level in both groups. The experimental group scored significantly higher in attitudes toward English learning after being taught through JiTT web technologies at the .01 level (t_1= 2.76**), and the control group registered significantly higher significantly in attitudes toward English learning after being taught with conventional teaching techniques at .01 level (t_1= 2.66**).
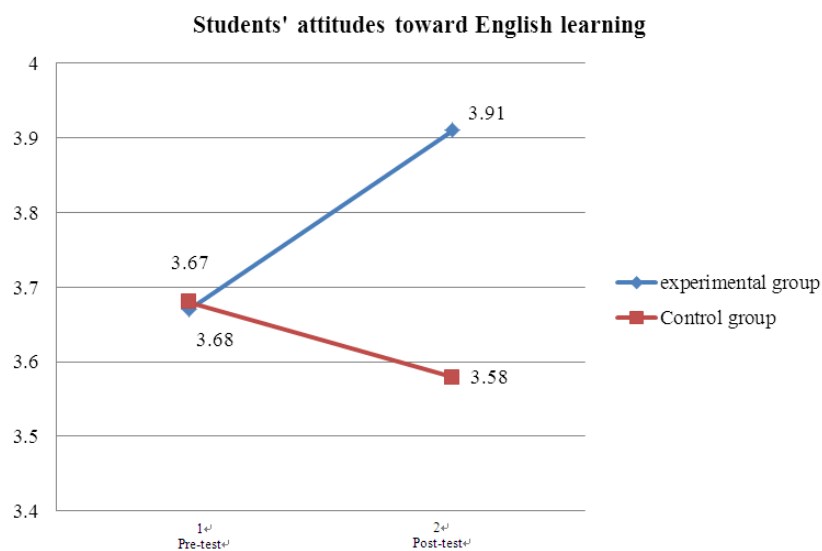

Figure 4. Graphical comparison of vocational students' attitudes toward English learning

5. Discussion of Findings

The results of this study reveal that JiTT techniques through web technologies may influence a better development in reading and writing abilities and attitudes toward English learning than conventional techniques. Although the control group students also showed significantly higher scores in reading and writing abilities as well as attitudes toward English learning, the experimental group students were more enthusiastic in learning activities and had more opportunities to learn new vocabulary, idioms, expressions, and text structures. The web technologies provided training that could improve vocational students' knowledge and skills, including promoting their reading abilities, such as interpreting and summarizing and discerning the main ideas of a story.

They also gained real experience in writing effectively through active learning based on meaningful input. They could study various texts from daily life along with different texts with varying objectives. JiTT through web technologies enables students to figure out effective ways to use computers and the internet in an introductory English course that promotes active learning and exposure to world wide web resources that they are able to employ to seek any knowledge they may be interested in.

In addition, the learning process with JiTT through web technologies focuses on student experience, providing more opportunities to take risks when using language by themselves and among friends under the teacher's supervision and guidance. The study of Baird (2007) (Laurel & Stephanie, 2014) supports the results of this study such that JiTT through web technologies helped students studying English to identify areas of difficulty and to communicate their needs early on and clearly; it also promoted inquiry, self-confidence, and engaging in unique language learning experiences. It not only facilitates the learning of material in advanced foreign language courses, but it can also help create more opportunities for oral and written language production (Baird, 2006, pp. 514-522; Laurel & Stephanie, 2014, pp. 63-64). All of these studies have concluded that JiTT through web technologies may have a place at the beginner or intermediate level of language instruction, and encourages vocational teachers to devise lesson plans that incorporate JiTT through web technologies pedagogy as appropriate.

Moreover, the results of the study have shown that JiTT through web technologies supports writing abilities through comparing abilities in writing, how students learned to manage time and how they figured situations out with other students, solved problems, and linked out-of-class and in-class activities. However, reading is a complex process that involves a student's capacity to acquire meaning from the activities. Students should have ample time to develop their own reading processes. JiTT through web technologies is interesting in regards to the statistical results – the interaction among three variables when learning English. The students appeared to exert a direct and dynamic influence on each other's behaviors. The students may become excellent readers and writers, and then choose to read and write English in their own way, at which point they can better make use of their time to conduct their assigned activities in the classroom. JiTT through web technologies can also facilitate students downloading free educational resources and participate in collaborative learning communities outside the classroom.

6. Conclusion and Recommendations

Regarding these research results, JiTT through web technologies is an effective enough means for use in teaching vocational students. The JiTT through web technologies process allows students to interact, experience, and compose materials in a variety of ways. Students are engaged in learning with JiTT through web technologies because they can enjoy experiential learning through web technology. They may formulate new ideas, evaluate them, recognize problems, raise questions, and learn new vocabularies. They can also consider the purpose of writing their texts. Students with positive attitudes toward this method are more likely to learn than students who only experience conventional teaching techniques.

Although the results of this study are broadly positive, there should be a way to figure out how to emphasize helping students learn in other subject areas. Materials should be designed especially to assist students in learning English for understanding and to practice other language activities. As a teacher teaching a foreign language, he or she should willingly explore teaching materials, audio-visual aids, and equipment to develop students to independently search and study more according to their interests and attitudes. Although this study was conducted to improve reading and writing skills, it could be extended to support other language skills. The JiTT through web technologies can be a useful tool to connect students with educational resources and facilitate participation in collaborative learning with communities outside the classroom via web technology.

Acknowledgements

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