Effectiveness of Academic English Instruction on EFL Academic Reading Comprehension and Self-efficacy

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Effectiveness of Academic English Instruction on EFL Academic Reading Comprehension and Self-efficacy

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Abstract

This article aims to report the results of experiments investigating the effectiveness of academic English instruction on EFL learners' academic reading performance and self-efficacy (Bandura, 2006). From a literature review (Yoshimura, 2024), it was ascertained that academic English is difficult because of its lexical complexity, which may mainly result from the usage of affixes (e.g., Gillett, 2021), and lexical density, which may result from the usage of nominalization as a grammatical metaphor (e.g., Halliday, 2004). Therefore, the present study examined the effectiveness of academic English instruction methods (e.g., affixes and nominalization exercises) on academic text reading and self-efficacy through experiments. The results show that the chosen academic English instruction methods promote learners' reading performance and self-efficacy. It is proposed that academic English instruction be given to EFL learners not only to improve their academic reading performance but also to enhance their self-efficacy, which predicts students' learning and performance in academic reading.

Keywords: academic English, EFL reading, self-efficacy, affixes, nominalization, grammatical metaphor

1. Introduction

The current research is conducted to investigate the effectiveness of academic English instruction on English academic text reading comprehension and academic English reading self-efficacy. Academic texts are difficult to comprehend because of their technicality, density, complexity, abstraction, and impersonal tone. Yoshimura (2024) analyzed these characteristics and identified affixes of Latin or Geek origin (e.g., Gillett, 2021) and nominalization as a grammatical metaphor (e.g., Halliday, 2004) as the leading linguistic causes. Then, concrete instruction methods for teaching the concepts, usage, and functions they serve were sought by a web search and the following five instruction methods were identified: a) teaching affixes, b) teaching nominalization procedure, c) teaching de-nominalization procedure, d) teaching Theme-Rheme structures using nominalization, and e) explaining zigzag movements in English academic texts (Refer to Yoshimura, 2024). Therefore, this research attempts to investigate the effectiveness of these academic English instruction methods on English academic text reading comprehension and self-efficacy for reading English academic texts. The reason why not only academic reading performance but also academic self-efficacy is investigated is because the importance of self-efficacy has been acknowledged recently and because self-efficacy beliefs are considered significant predictors of students' future learning (Zimmerman, 2000, p. 82).

Previous empirical research on affixes or morphemes has been conducted extensively and shown some positive effects of affix instruction on word identification and reading performance. Because more than half of English words are morphologically complex (Nagy & Anderson, 1984) and such words increase as students read texts in advanced courses (Nagy & Townsend, 2012), it is expected that students will be helped by learning some typical English affixes which consist mainly of Greek or Latin morphemes. For example, White, Sowell, and Yanagihara (1989) advocated teaching elementary school students the concepts, examples, and meanings of prefixes and how to identify the roots by removing their suffixes. One study that implemented the approach

advocated by White et al. (1989) using third-grade students produced positive effects on vocabulary learning. After 7-8 weeks of instruction with (the experimental group) and without (the control group) the above instruction, a prefix meaning knowledge test, a root identification test, two transfer tests (applying the knowledge of prefix to unfamiliar words and defining unfamiliar words with prefixes in context), the experimental group outperformed the control group in all the tests. Kieffer and Lesaux (2007) examined how 4th- and 5th- graders' understanding of morphology was related to reading comprehension as a part of their studies. In the study, 111 students (87 language minority and 24 native English-speaking students) were asked to identify a root from a complex word for a morphology test and given standardized tests for assessing their reading comprehension with a closed test and a multiple-choice test. The results show that understanding of morphology was related to reading comprehension in both 4th- and 5th- graders and the relation became more significant in the upper grade. In addition, the same relationship was found in both English native and nonnative students. Kieffer and Box (2013) investigated the direct and indirect effects of derivational morphological awareness on reading comprehension, using 137 6th graders (82 language minority & 55 English native students). Multiple-group path analysis showed that morphological awareness made a small but significant direct contribution to reading comprehension and that it also had small but significant indirect effects through academic vocabulary and word reading fluency. When the two groups of native and non-native English speakers were compared, the English native group outperformed only in the direct effects of academic vocabulary on reading comprehension.

Regarding empirical research on nominalization or grammatical metaphor, research findings are mixed. Theoretically, it can be assumed that nominalization in a text interferes with reading comprehension because it needs to be unpacked to access the meaning, which consumes more processing capacity. Wolfer's (2016) eye-tracking research supported this assumption by demonstrating that reading nominalizations took longer than other nouns and that texts with denominalizations were read faster. On the other hand, some empirical research suggested no or little effect of nominalization on reading compre-

hension or recall. Isakson and Spyridakis' (1995) study using L1 engineering students indicated that reading comprehension and recall were not affected by nominalization or denominalization. Spyridakis and Isakson's (1998) study suggested that L1 students were helped by denominalization in focusing on more important information, while L2 students recalled important idea units in both nominalized and denominalized versions. However, Li's 2011 research on the effectiveness of grammatical metaphor instruction on reading comprehension suggested positive effects of grammatical metaphor instruction on reading performance. Li (2011) investigated the effects of two months' instruction of grammatical metaphors on 2nd year EFL medical college students' reading comprehension. She compared two groups, 103 students in each group, with (the experimental group) and without (the control group) instruction. In the experimental group, the concept of grammatical metaphor was introduced and students practiced how to unpack grammatical metaphor examples and then they were asked to create their own examples, while the control group took normal classes and did not go through these explanations and practices. As the pre- and post- tests, students in both groups took reading comprehension tests. The results were as follows: The means for grammatical metaphor questions were 6.39 for the experimental group and 5.45 for the control group. The means for ordinary reading comprehension questions were 5.50 for the experimental group and 3.96 for the control group. The means for unpacking grammatical metaphor questions were 2.49 for the experimental group and 1.82 for the control group, respectively. Thus, this research suggested some positive effects of teaching grammatical metaphor concepts and giving exercises about them on not only grammatical metaphor questions but also general comprehension questions in reading tests.

In sum, empirical research on affix or morphology instruction has generally shown its direct and indirect effectiveness on reading comprehension. Regarding nominalization or grammatical metaphor, though research on the effects of nominalization on reading performance gave mixed results, Li's 2011 study on the effectiveness of grammatical metaphor instruction on reading performance showed positive effects, which need to be explored further.

2. The Current Study

The current study investigates the effectiveness of chosen academic English instruction methods on EFL reading comprehension and perceived English academic reading self-efficacy.

Two experiments were conducted to investigate the effectiveness of the chosen academic English instruction methods on English academic reading comprehension and self-efficacy by using Japanese undergraduate students in the English department at a private university. For many Japanese undergraduate students, the concepts of affixes, nominalization, and grammatical metaphor were new, though they had learned some vocabulary with affixes and encountered some texts with nominalizations. Lexical complexity may be caused by affix or morpheme addition and reading comprehension difficulty may be caused by nominalization or other kinds of grammatical metaphor. Therefore, it could be assumed that students would benefit from learning these important concepts and their important functions in texts. Learning from academic English instruction was measured by quizzes. The effectiveness of the instruction methods on EFL reading comprehension and self-efficacy was investigated in Experiment 1 (Refer to Figure 1 for the research design).

In the following year, Experiment 2 was conducted to verify the compatibility of the pre- and post- reading tests which were used in Experiment 1, and also to create the control group to compare the reading comprehension test scores with those of Experiment 1. In addition, in Experiment 1, the total scores and scores of the same items in a self-efficacy questionnaire were compared between the pre- and post- surveys.

2.1. Research questions

In order to investigate the effectiveness of the chosen academic English instruction methods on Japanese university students' English academic reading and self-efficacy, the following two research questions were posed:

1) How do the chosen academic English instruction methods affect Japanese university students' English academic text reading comprehension?

2) How do the chosen academic English instruction methods affect Japanese university students' self-efficacy for English academic text reading?

2.2. Design

As Figure 1 illustrates, the design of Experiment 1 was one group pre-test/post-test design.

2.3. Participants

A total of sixty-two third-year undergraduate students in the English department at a private university participated in experiment 1. They were all native speakers of Japanese who studied English as a foreign language (EFL) at a Japanese university. Their approximate English proficiency was at the A2-B1 level in CEFRL (Common European Framework of Reference for Language), which was inferred from their placement test scores using TOEIC®Bridge listening and reading tests (ETS, n.d.). Though eighty-two students took this course, four students did not consent for their data to be used in this research, and sixteen students failed to take some of the pre-reading test, post-reading test, pre-survey, or post-survey. Therefore, data from the remaining sixty-two students were used in this study.

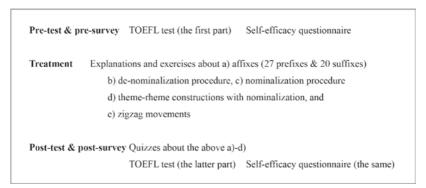For Experiment 2, data from a total of seventy-one students were used

Pre-test & pre-survey   TOEFL test (the first part)   Self-efficacy questionnaire

Treatment   Explanations and exercises about a) affixes (27 prefixes & 20 suffixes)
b) de-nominalization procedure, c) nominalization procedure
d) theme-rheme constructions with nominalization, and
e) zigzag movements

Post-test & post-survey Quizzes about the above a)-d)
TOEFL test (the latter part)   Self-efficacy questionnaire (the same)

Figure 1.   The design of Experiment 1.

after excluding five sets of data from students who had not consented for their data to be used in this study, and seven sets of data from students who had failed to take either the pre- or post-test. They were another group of third-year undergraduate students from the same course offered one year later from Experiment 1.

2.4. Materials
2.4.1. Teaching materials

Teaching materials consist of a) a list of prefixes and suffixes and some exercises about them, b) an explanation of a denominalization procedure and some examples and exercises about it, c) an explanation of nominalization procedure and some examples and exercises about it, d) an explanation of Theme-Rheme construction with nominalization and some exercises about it, and e) an explanation about zigzag movements from history texts introduced by de Oliveira (2010, p. 198) (Refer to 2.4.5. Procedure). The researcher created the materials by adopting examples and exercises from the chosen websites, i.e., Cameron (2011), Cooper (2010), Gillett (2021), and Hitchcock (2010). Refer to Yoshimura (2024) for the teaching materials and how they were created.

2.4.2. Quizzes

Quizzes consist of a) prefix and suffix questions asking students to choose a correct meaning from four choices (20 points), b) nominalization questions asking students to fill in some blanks of paraphrased sentences with nominalization (10 points), c) denominalization questions asking students to fill in some blanks of paraphrased sentences with the de-nominalized forms (10 points), d) questions about Theme-Rheme constructions with nominalization, asking students to nominalize a clause/sentence and use it in the following clause/sentence (5 points). The researcher created the quizzes by adopting examples and exercises from the chosen websites. Refer to Appendix A for the example questions.

The zigzag movement was not tested by quizzes but included in the texts of pre- and post- reading tests. The following are some examples of zigzag movement in the reading tests:

An example from the pre-test: <u>Water absorption is greatly reduced</u>…. The gradual drying of the soil caused by <u>its weakened ability to absorb water</u> results in the further loss of vegetation…

An example from the post-test: The cultivation of crops has expanded into gradually drier regions as <u>population concentration has grown</u>……The increased pressures of <u>expanding populations</u> have led to the removal of woody plants…

Figure 2. Some examples of zigzag movements in pre- and post- tests.

2.4.3. Reading comprehension tests as pre- and post-tests

For pre-and post-tests, a reading text "desert formation" from TOEFL test examples (ETS, 2007, p. 48) was used because the texts of TOEFL exams are from academic textbooks in which academic English is used. The text was divided into two parts and modified so that the two parts would be as compatible as possible. The first and the latter parts of the same text were used to minimize the effects of variables of reading text, such as content familiarity, readability, text structure, and language level and complexity. The pre-test text has four paragraphs and 273 words and the post-test text has four paragraphs and 260 words, respectively. Difficult words were either paraphrased with easier words, or the meanings were given in the participants' native language.

The researcher created the questions about the text, and another professor who teaches English to Japanese students verified it. The questions were in a multiple-choice type with four choices. Each test had ten questions, including four tapping participants' higher-level processing[1] and six tapping their lower-level processing[2]. Higher-level processing questions included a

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1 According to Grabe (2014), higher-level processing involves "(a) form main idea meanings, (b) recognize related and thematic information, (c) build a text model of comprehension (an author-driven summary understanding), and (d) use inferencing, background knowledge, strategic processing, and context constraints to create a situation model of reading (a preferred personal interpretation)" (p. 9).

2 Lower-level processing includes "fast automatic word recognition skills, automatic lexico-syntax processing (automatically recognizing word parts and morphological

	Pre-test	Post-test
Higher-level processing		
Q about the thesis	Q10	Q10
Q about the information relations	Q4	Q9
inference Q	Q1	Q8
Information transfer Q	Q9	Q6
Lower-level processing		
index Q	Q2	Q2
Compound word Q	Q7	Q4
Unpack nominalization Q x4	Q3, Q5, Q6, Q8	Q1, Q3, Q5, Q7
*The numbers indicate the question numbers in pre- and post- tests.		

Figure 3. Characteristics of different questions used in pre- and post- tests.

question about the thesis of the text, a question about information relation, an inference question, and an information transfer question. Among the lower-level processing, one question was an index question, another was a compound word question, and four questions were about nominalization unpacking. Refer to Appendix B for question examples.

Thus, efforts were made to make the texts and questions in pre- and post-reading tests as compatible as possible. Figure 3 shows the kinds of questions in the two tests.

2.4.4. Self-efficacy questionnaire

In order to measure the effectiveness of academic English instruction, a self-efficacy questionnaire was used. Self-efficacy is defined as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (Bundura, 1994, p. 2). Self-efficacy beliefs influence people's thinking, motivation, and behavior and

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information and automatically parsing the immediate clause for syntactic information), and semantic processing of the immediate clause into relevant meaning units (or propositions)" (Grabe, 2014, p. 9).

are considered effective predictors of students' learning.

Bandura (2006) provided a guideline for creating valid self-efficacy scales. Since self-efficacy beliefs are not a global trait, scales to measure them should be tailored to a particular domain of functioning the researcher is interested in (pp. 307–308), and assess factors that decide the quality of functioning in the domain (p. 311). The self-efficacy scales should be phrased "in terms of *can do* rather than *will do*" (p. 308). The response scale should be on a 100-point scale, ranging in 10-unit intervals from 0 (cannot do at all);   through 50 (moderately certain can do), to 100 (Highly certain can do) (p. 312). Individuals should be asked to judge their "operative capabilities as of now" rather than "their potential capabilities" or "their expected future capabilities" (p. 312).

By implementing Bandura's (1994, 2006) suggestions elicited from the literature review and referring to "Children's self-efficacy scale"(Bandura, 2006, pp. 326–327), which was provided as an example in Bandura's (2006) guide, the researcher created a scale to measure Japanese university students' EFL academic reading self-efficacy (Refer to Appendix C). In implementing the scale, the point and interval units were reduced from a 100-point scale in 10-unit intervals to a 5-point scale in a 1-unit interval. The scale had 14 question items in 4 categories: self-efficacy for academic reading tasks (N=3), self-regulatory efficacy (N=3), self-efficacy for discourse-level reading strategies (N=4), and self-efficacy for sentence-level reading strategies (N=4)(Refer to Appendix C). Not only academic reading tasks but also various strategies used in the domain of academic reading were included in the scale, which is because academic English is complex and challenging and requires the use of various strategies. In addition, self-regulatory efficacy was included to measure "whether one has the efficacy to get oneself to do them regularly in the face of different types of dissuading conditions"(Bandura, 2006, p. 311). In this study, dissuading conditions such as "even if it has difficult words, grammatical items, or complex structures"(Q4), "even if the text is long" (Q5), and "even if the content is abstract and academic"(Q6) were included in the scale. Though it takes some time for learning academic English to influence students' EFL academic reading performance, students' reading performance may eventually

improve if their EFL academic reading self-efficacy scores are high, which is because self-efficacy exerts some influence directly or indirectly on students' future learning.

In the current study, the same self-efficacy questionnaire was given before and after learning about academic English in Experiment 1 to investigate changes in participants' English academic reading self-efficacy scores.

2.4.5. Procedure

The lectures about features of academic English were offered and the experiment investigating the effectiveness of the chosen instruction methods was conducted in the Applied Linguistics course the researcher taught in the first semester of 2020. All the quizzes, the questionnaire, and the reading tests were given on the Manaba system, a cloud-based learning management system. The pre-test (a TOEFL reading test) and pre-survey (a self-efficacy questionnaire) were given one week before the lectures and exercises on academic English features (Refer to 2.4.3. Reading comprehension tests as pre- and post- tests). The lectures were on the importance of learning academic English, the differences between spoken and written English, and the major characteristics of academic English, which were followed by explanations and exercises about affixes, nominalization, and grammatical metaphors (Refer to 2.4.1. Teaching materials, and Yoshimura, 2024). After the lectures and exercises, students' learning was measured by quizzes about affixes, nominalization/de-nominalization paraphrasing, and Theme-Rheme constructions with nominalization (Refer to 2.4.2. Quizzes). Then, the post-test (a TOEFL reading test) and post-survey (the same self-efficacy questionnaire) were given. Later, the researcher asked for students' permission to use the data, as explained in the participants' section (Refer to 2.3. Participants).

The collected data were analyzed as follows: First, student numbers and names were removed and new IDs were given to all the data. Second, quizzes were graded by two graduate students in the English department who had learned the grading criteria. After the first grading, the criteria were discussed between the two graders and readjusted, and then, the second grading was conducted. The inter-rater reliability for the second grading was very high

(r=.99). The score for each answer was calculated by averaging the scores two graders had given. Regarding the pre- and post- tests, the total numbers of correct answers for the pre- and post- reading tests were calculated for each individual, and the changes were analyzed by using Wilcoxon signed-rank tests because this test does not assume a normal distribution of the data. In addition, the same kinds of questions were matched and the changes were analyzed by using Wilcoxon signed-rank tests for the same reason as above. The scores of the pre-and post- self-efficacy questionnaire were also totaled for each participant and the changes were analyzed by using Wilcoxon signed-rank tests. Changes in the same self-efficacy items were also examined by the Wilcoxon signed-rank tests. Though the medians are preferable for reporting non-parametric test results, the means, not the medians, are reported in this research. This is because the medians may not be sensitive enough to capture slight changes in the data.

In the first semester of 2021, the same TOEFL tests were given to another group of third-year undergraduate students who took the same course and the data sets from seventy-one students were used for this study (Experiment 2). Since this group got the lecture on another topic, i.e., writing skill development instead of academic English, between pre- and post-reading tests, it serves as the control group to compare changes in reading performance.

3. Results

3.1. Quizzes about Academic English

The average affixes score was 15.97 out of 20 points (SD=4.42) and the average of the combined scores of nominalization/de-nominalization paraphrasing and Theme-Rheme constructions with nominalization was 13.88 out of 25 (SD=4.72). The quiz results revealed that nominalization questions were rather difficult for this group of Japanese university students, while affix questions were not.

3.2. Changes in English Academic Reading Performance

In order to detect some changes in English academic reading performance, the total scores and the scores for individual items were compared between pre- and post- tests in Experiment 1, as seen in Table 1 (Refer to figure 3 for what question investigates what kind of cognitive trait). Wilcoxon signed-rank test was used for the analysis. The mean of the total score in the pre-test was 4.50 (SD=1.93), while that of the post-test was 4.95 (SD=1.97). Thus, the academic text reading scores improved, though they failed to show statistical significance ($z=1.26$, $p>.05$, $r=.16$). Especially the average scores for the thesis ($z=2.19$, $p<.05$, $r=.28$) and for nominalization unpacking ($z=2.93$, $p<.01$, $r=.37$) improved significantly. In contrast, the average score of the inference question declined significantly ($z=-4.23$, $p<.01$, $r=.54$).

Table 2 shows the academic reading performance of the 2021 experiment (Experiment 2) with the participants who did not receive academic English instruction between pre- and post- tests. Wilcoxon signed-rank test was also used. The mean of the total score in the pre-test was 5.99 (SD=2.24) and that

Table 1   *Changes in academic reading performance in Experiment 1*

	Pre-test Mean (SD)	Post-test Mean (SD)	Change Mean (SD)
Higher level processing			
Q about the thesis	.56 (.50)	.76 (.43)	.19(.67)*
Q about the info relations	.16 (.37)	.21 (.41)	.05 (.58)
inference Q	.73 (.45)	.32 (.47)	−.40 (.64)**
Info transfer Q	.31 (.46)	.24 (.43)	−.06 (.62)
Lower level processing			
index Q	.75 (.43)	.74 (.44)	.02 (.67)
Compound word Q	.52 (.50)	.60 (.49)	.08 (.66)
Unpack nominalization Q (x4)	1.47 (1.07)	2.08 (1.28)	,61 (1.63)**
Total			
Reading scores (out of 10)	4.50 (1.93)	4.95 (1.97)	.45 (2.58)

*indicates $p<.05$ & ** indicates $p<.01$

Table 2   *Changes in academic reading performance in Experiment 2*

	Pre-test Mean (SD)	Post-test Mean (SD)	Change Mean (SD)
Higher level processing			
Q about the thesis	.73 (.45)	.79 (.41)	.06 (.53)
Q about the info relations	.38 (.49)	.37 (.49)	−.01 (.73)
inference Q	.94 (.23)	.30 (.46)	−.65 (.54)**
Info transfer Q	.38 (.49)	.18 (.39)	−.20 (.62)**
Lower level processing			
index Q	.80 (.40)	.75 (.44)	−.06 (.61)
Compound word Q	.56 (.50)	.59 (.50)	.03 (.63)
Unpack nominalization Q (x4)	2.17 (1.23)	2.46 (1.21)	.30 (1.41)
Total			
Reading scores (out of 10)	5.99 (2.24)	5.44 (1.90)	−.55 (2.25)

*indicates $p<.05$ & ** indicates $p<.01$

of the post-test was 5.44 (SD=1.90), showing a slight decline in the reading score ($z=-1.82$, $p>.05$, $r=.22$). Significant declines were also observed in information transfer ($z=-2.56$, $p<.05$, $r=.30$) and inference scores ($z=-6.51$, $p<.01$, $r=.30$).

When the changes in the total scores from the pre-test to the post-test were compared between the 2020 (Experiment 1) and the 2021 (Experiment 2) groups, the means were .45 (SD=2.58) and −.55 (SD=2.25), respectively. When these changes were analyzed using the Mann-Whitney U test, another non-parametric test, the increase in the 2020 group ($Mdn=1$) was greater than that of the 2021 group ($Mdn=0$), and the difference was statistically significant ($U=1656.00$, $p<.05$, $r=.21$), showing the effectiveness of the chosen academic English instruction methods on academic reading performance.

3.3.   Changes in Self-efficacy for English Academic Reading

The pre- and post- survey results in Experiment 1 were compared to examine changes in perceived self-efficacy (Refer to Appendix C for the self-

Table 3 *Changes in academic reading self-efficacy in Experiment 1.*

	Pre-survey Mean (SD)	Post-survey Mean (SD)	Change Mean (SD)
Self-efficacy for academic reading tasks			
1. Academic reading in classes	2.84 (.81)	3.29 (.66)	.45 (.64)**
2. Academic reading tests	2.15 (.83)	2.29 (.82)	.15 (.70)
3. Newspaper reading	2.71 (.96)	2.79 (.89)	.08 (.82)
Self-regulatory efficacy			
4. Persistence for difficult language	3.77 (.86)	3.84 (.81)	.06 (.77)
5. Persistence for lengthy texts	3.45 (.95)	3.45 (.94)	.00 (1.09)
6. Persistence for technical content	3.58 (.82)	3.55 (.92)	−.03 (.90)
Self-efficacy for discourse-level reading strategies			
7. Choose strategy dep. on the purpose	2.82 (.93)	3.11 (.83)	.29 (.91)*
8. Identify the theme/main ideas	2.94 (.72)	3.10(.92)	.16 (.83)
9. Develop situational representation	3.00 (.81)	2.98 (.86)	−.02 (.69)
10. Identify relations between ideas	2.77 (.91)	2.95 (.86)	.18 (.95)
Self-efficacy for sentence-level reading strategies			
11. Identify chunks in a sentence	4.02 (.78)	3.81 (.83)	−.21 (.81)*
12. Analyze a sentence	2.97 (.89)	3.16(.83)	.19 (.83)
13. Identify derivatives	3.00 (1.09)	3.15 (.99)	.15 (1.05)
14. Identify affixes	2.77 (.88)	3.13 (.76)	.35 (.91)**
Total average	3.04 (.49)	3.20 (.53)	.16 (.39)**

*indicates $p < .05$ & ** indicates $p < .01$

efficacy scale). The total average for the pre-survey was 3.04 (SD=.49) and the post-survey was 3.20 (SD=.53) and the Wilcoxon signed-rank test showed statistical significance ($z=2.99$, $p<01$, $r=.38$). Individual items which show an increase with statistical significance were self-efficacy for "reading academic texts given in classes" (from 2.84 to 3.29, $z=4.53$, $p<.01$, $r=.57$), "adapting reading strategies according to the purpose" (from 2.82 to 3.11, $z=2.37$, $p<.05$, $r=.30$), and "analyzing a word by breaking it down into different parts such as prefixes and suffixes" (from 2.77 to 3.13, $z=2.82$, $p<.01$, $r=.36$), while self-efficacy for "identifying chunks in a sentence" showed a decrease (from 4.02 to 3.81, $z=-1.98$, $p<.05$, $r=.25$). Thus, three items of the students' self-efficacy

scores improved and one item decreased after the academic English instruction.

4. Discussion and Conclusion

This research was conducted to investigate the effectiveness of the chosen academic English instruction methods, and then, based on the research findings, to assert the importance of providing academic English instruction to EFL learners such as Japanese university students.

Regarding the purpose of investigating the effectiveness of the chosen instruction methods, two experiments were conducted. There were two research questions: 1) what effects do the chosen academic English instruction methods have on Japanese university students' English academic text reading comprehension? and 2) what effects do the chosen academic English instruction methods have on Japanese university students' English academic reading self-efficacy?

Regarding the first research question, the results from Experiment 1 show some positive effects: the average of the total reading scores and three kinds of questions on the TOEFL reading test improved from the pre-test to the post-test, though the average inference score declined (Refer to Table 1). The comparison of the changes from pre-test to post-test in TOEFL reading scores between Experiment 1 and Experiment 2 further supports the effectiveness of the chosen instructions (Refer to Tables 1 & 2). Though the quiz scores were not necessarily high, students' learning about academic English may have helped them perform better on academic text reading in Experiment 1 (Refer to Table 1). Regarding the decline in inference question scores, it may have been caused by the very nature of the inference question items, i.e., the inference question in the post-test may be more difficult than that in the pre-test, because the scores of the inference questions in both Experiment 1 conducted in 2020 and Experiment 2 conducted in 2021 decreased (Refer to Tables 1 & 2).

Concerning the second question, improvement can be observed in overall average self-efficacy scores and in some individual items including self-efficacy

for "reading academic texts in class," for "adapting reading strategies according to the purposes," and for "analyzing words by breaking them down into their parts," while self-efficacy scores in "chunking" decreased for some reason (Refer to Table 3).

Some limitations must be noted in interpreting the results. First, the texts of the pre- and post- reading tests were rather short and the number of reading comprehension questions for each text may not have been sufficient. In addition, because the reading comprehension questions were in a multiple-choice type, the scores for individual items were either 1 or 0, and the total of the nominalization unpacking questions were from 0 to 4 in a 1-unit interval. Further research using longer texts and more question items should be conducted in the future. Secondly, the participants' English proficiency in the current research was not very high, i.e., A2-B1 level in CEFRL, which may have affected their learning of nominalization, academic reading performance, and the scores of self-efficacy for academic reading. Additional research should be conducted by using participants with higher English proficiency. Thirdly, it is difficult to identify whether and to what degree affix instruction and nominalization instruction respectively contributed to the overall improvement of reading performance and self-efficacy. In previous research, the effects of nominalization and those of affixes are investigated separately (e.g., Kieffer & Lesaux, 2007, for the effectiveness of affix instruction; Li, 2011, for the effectiveness of nominalization instruction). The overall positive results from this research are in line with these previous studies. However, the ultimate goal of the current study was to claim the importance of learning academic English for EFL learners, effects of instruction about nominalization and affixes were investigated together as major causes of difficulty in reading texts with academic English. Further research is needed to examine the effects of nominalization instruction on EFL academic text reading, because the influence of nominalization instruction so far has given mixed results while the positive influence of affixes instruction has already been shown.

Despite these limitations, the findings from the current research are significant in that they reveal positive effects of academic English instruction on

academic reading and self-efficacy and in that they can be used as data to support the claim that academic English be taught explicitly to students in EFL contexts.

Acknowledgments

References

Bandura, A. (1994). Self-efficacy. In V. S. Ramachandran (Ed.), *Encyclopedia of human behavior* (Vol. 4), (pp. 71-81). New York: Academic Press.

Bandura, A. (2006). Guide for constructing self-efficacy scales. In T. Urdan & F. Pajares (Eds.), *Self-efficacy beliefs of adolescents* (pp. 307-337). Charlotte, NC: Information Age Publishing.

Cameron, J. S. (2011). *Comprehend to comprehension: Teaching nominalization to secondary ELD teachers*. M. A. thesis, University of California, Davis. ProQuest LLC.

Cooper, J. (2010). Nominalization. E-EAP Project. Queen Mary, University of London. Retrieved from http://aeo.sllf.qmul.ac.uk/Files/Nominalization/Nom%20LOC.html

de Oliveira, L. (2010). Nouns in history: Packaging information, expanding explanations, and structuring reasoning. *The History Teacher, 43*(2), 191-203.

ETS. (2007). The official guide to the new TOEFL®iBT. New York: McGraw-Hill.

ETS. (n.d.). TOEIC bridge ® listening & reading tests.

Gillett, A. (2021). Using English for academic purposes for students in higher education. Retrieved from http://www.uefap.com/writing/writfram.htm

Grabe, W., (2014). Key issues in L2 reading development. *Proceedings of the 4th CELC Symposium for English Language Teachers: Selected Papers*, 8-18.

Halliday, M. A. K. (2004). *The language of science*. Edited by J.J. Webster, New York: Continuum.

Hitchcock, R. (2010). Week 6 Improving your academic style. Grammar and academic style for EAP (English for Academic Purpose). Retrieved from http://humbox.ac.

uk/1526/

Isakson, C. S. & Spyridakis, J. H. (1995). Nominalization: Effect on recall and comprehension. *IEEE International Professional Communication Conference. IPCC 95 Proceedings. Smooth Sailing to the Future, 203-206.* Retrieved from https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=554908

Kieffer, M. J., & Box, C. D. (2013). Derivational morphological awareness, academic vocabulary, and reading comprehension in linguistically diverse sixth graders. *Learning and Individual Differences, 24,* 168-175.

Kieffer, M. J., & Lesaux, N. K. (2007). Breaking down words to build meaning: Morphology, vocabulary, and reading comprehension in the urban classroom. *The Reading Teacher, 61*(2), 134-144.

Li, Y. (2011). Cognition of grammatical metaphor and reading comprehension. *2011 Seventh International Conference on Semantics, Knowledge and Grids*, 169-171.

Nagy, W. E, & Anderson, R. C. (1984). How many words are there in printed school English? *Reading Research Quarterly, 19*(3), 304-330.

Nagy, W.E., & Townsend, D. (2012). Words as tools: Learning academic vocabulary as language acquisition. *Reading Research Quarterly, 47*, 91-108.

Spyridakis, J. H., & Isakson, C. S. (1998). Nominalizations vs. denominalizations: Do they influence what readers recall? *Journal of Technical Writing and Communication 28*(2), 163-188.

White, T. G., Sowell, J., & Yanagihara, A. (1989). Teaching elementary students to use word-part clues. *The Reading Teacher, 42*(4), 302-308.

Wolfer, S. (2016). The impact of nominalizations on the reading process: A case-study using the Freiburg Legalese reading corpus., In S. Hansen-Schirra & S. Grucza (Eds.), *Eye tracking and Applied Linguistics* (pp. 163-186). Berlin: Language Science Press.

Yoshimura, F. (2024). Searching for promising academic English instruction methods. *Journal of Institute for Research in English Language and Literature, 48,* in press.

Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology, 25*, 82-91.

Appendix A
Some questions for affixes and nominalization quizzes

Some affix question examples (N=20):

dissimilar: a. 似ている   b. 似ていない   c. 同様の   d. 異化する

symbolize: a. 象徴   b. 象徴する   c. 象徴的な   d. 象徴の

unemployment: a. 雇用   b. 雇用する   c. 失業   d. 失業する

A denominalization question example (N=10):

If you use this material, you can solve the problem.

=The _____ of this material will lead to the _____ of the problem.

A nominalization question example (N=10):

The committee will announce the results in September.

=The committee's _____ of the results will be _____ in September.
(Hitchcock, 2010)

A Theme-Rheme questions example (N=5):

Vendors sell new products at Christmas. The _____ of the products increased economic earning this quarter. (Cameron, 2011)

Appendix B
Some questions from pre- and post- reading tests

Questions to tap higher-level processing

A question about the thesis of the text

Which of the sentences below best summarizes the content of the text?

  (a) The main cause of desertification is natural processes.

  (b) The main cause of desertification is human activities.

  (c) The main cause of desertification is overcultivation.

  (d) The main cause of desertification is firewood gathering.

A question about information relations

"Increased environmental pressure" in paragraph 1 is paraphrased in which of the following EXCEPT

    (a) "increasing pressures to provide them with food and fuel" in paragraph 1

    (b) "these pressures" in paragraph 1

    (c) "The increased pressures of expanding populations" in paragraph 4

    (d) "The increasing use of dried animal waste in paragraph" 4

An inference question

It can be inferred from the 1st paragraph that

    (a) desertification is accelerating

    (b) desertification is slowing down

    (c) desertification is now leveling off

    (d) desertification has come to an end

An information transfer question

In paragraph 3, what may be followed by what? "A → B" means "A is followed by B."

    (a) Crops are raised → The natural vegetation is removed → The crops fail to grow → Plant cover is lost. → The land is eroded by wind and water

    (b) Crops are raised → The crops fail to grow → The natural vegetation is removed → Plant cover is lost. → The land is eroded by wind and water

    (c) The natural vegetation is removed → Crops are raised → The crops fail to grow → Plant cover is lost. → The land is eroded by wind and water

    (d) The natural vegetation is removed → Plant cover is lost. →The land is eroded by wind and water → Crops are raised → The crops fail to grow.

Questions that tap lower-level processing
An index question

In paragraph 1, "this process" indicates

    (a) occupation   (b) desertification

    (c) estimation   (d) accomplishment

A compound word question

The word "weakened" in "its weakened ability to absorb water" in paragraph 3 is closest in meaning to

(a) weak   (b) less weak

(c) made weaker   (d) made less weaker

A question that requires unpacking nominalization

Which of the sentences below best expresses "the reduction of vegetation results in the loss of the soil's ability to absorb a large amount of water" in paragraph 3?

(a) If vegetation is reduced, the soil loses the ability and absorbs much water.

(b) If vegetation is reduced, the soil cannot absorb much water.

(c) If the soil cannot absorb much water, vegetation is reduced.

(d) If the soil loses the ability and absorb much water, the vegetation is reduced.

Appendix C
English Academic Reading Self-efficacy Questions

The following lists different academic reading tasks or situations. Rate how confident you are that you can do them **as of now.** Rate your degree of confidence on a 5-point scale, from 1 (cannot do at all) to 5 (highly certain can do).

Self-efficacy for academic reading tasks

1.   I can understand English texts in textbooks or materials given in a class in the English department on my own.

2.   I can score well in the reading section in the STEP test (pre-1st level) or TOEFL test.

3.   I can understand social issues in English newspapers or English online news.

Self-regulatory efficacy

4.　I can make efforts and try to understand an English text by using dictionaries or analyzing it even if it has difficult words, grammatical items, or complex structures.

5.　I can make efforts and try to understand an English text by dividing the process into small steps even if the text is long.

6.　I can make efforts and try to understand an English text even if the content is abstract and academic.

Self-efficacy for discourse-level reading strategies

7.　I can read and understand an English text (i.e., skim through a newspaper, enjoy a novel, or scrutinize argumentation) by choosing effective strategies depending on the purpose and the genre.

8.　I can identify the theme and gist of an English text.

9.　I can understand what an English text specifically indicates, even if the content is abstract, by de-nominalizing the text.

10.　I can understand the logical relations between pieces of information.

Self-efficacy for sentence-level reading strategies

11.　I can identify the chunks in an English sentence.

12.　 I can understand an English sentence even if it is complex.

13.　I can understand the relations between a word and the derived word, i.e., 'darkness' is the nominalized form of the adjective 'dark'; 'invitation' can be de-nominalized into the verb form 'invite.'

14.　I can understand the meaning of the word by breaking it down into affixes, when I encounter an unfamiliar word.

*The self-efficacy questionnaire was given to students in Japanese.