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The Problem-Solution Pattern in NNS Argumentation

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Problem-Solution is a well-known English rhetorical pattern, often used in technical academic writing (Flowerdew, 2003), but it seems not to have been taught in the writing of English essays, at least in Japan. In contrast, the text pattern often used in the class is Introduction-Body-Conclusion to prepare for TOEFL/IELTS writing, along with the teaching of the paragraph structure, comprised of a topic sentence, supporting details, and concluding sentences.

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The Problem-Solution Pattern in NNS Argumentation

Tahara Nobuko

I. Introduction

The present study investigates the use of Problem-Solution in student essays to identify whether or not, or to what extent, this text pattern is a source of perceived difference in NNS student essays, in comparison with NS student essays. The study is a follow-up to Tahara (2017), which compared argumentation essays written by NNS students with those by NS students, conducted from the perspective of the use of metadiscursive nouns. They are general and unspecific meaning nouns that can serve as markers of the discourse in some ways by referring to a textual segment in the texts where the nouns occur. Of 33 selected metadiscursive nouns examined in Tahara (2017), this paper reexamines the use of a noun *problem* in relation to the Problem-Solution pattern. The focus of the noun for the investigation of the use of Problem-Solution is because in the 2017 study (Tahara), *problem* very often occurred in combination with a Response/Solution-indicating vocabulary in both corpora, as in '*problem is solved'; 'consider the problem'; or 'problem should be dealt with'* (underlined are vocabulary signaling Response/Solution).

Problem-Solution is a well-known English rhetorical pattern, often used in technical academic writing (Flowerdew, 2003), but it seems not to have been taught in the writing of English essays, at least in Japan. In contrast, the text pattern often used in the class is Introduction-Body-Conclusion to prepare for TOEFL/IELTS writing, along with the teaching of the paragraph structure, comprised of a topic sentence, supporting details, and concluding sentences. The use of Problem-Solution in student essays is not so much investigated either in the research literature. However, the findings from a small number of studies suggest a need to draw more attention to this rhetorical pattern: Flowerdew (2003), who analyzed the Problem and the Solution elements of Problem-Solution in the technical essays by L1 Cantonese students and professional writers, reports a difference in Problem-Solution accounted for by the preferred type of signaling vocabulary. Also, Galán and Peréz (2004) report an improvement in the quality of L2 essays, after testing some approaches to teach the Problem-Solution pattern on Spanish students.

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I will show that the JICLE students mostly did not use the Problem-Solution pattern, which is represented by Situation - Problem – Response/solution – Evaluation (Hoey, 2001), while the US students used it in a similar way to the model sequence. I will also discuss pedagogical implications of the findings. The study provides teachers with ideas about what aspects should be focused on in the teaching of the Problem-Solution pattern in EFL classes.

II. Methodology

The research question of the present study is:

How do L1 Japanese students use Problem-Solution in the writing of English argumentation essays, as compared with L1 English students?

a) *Text data*

In the present study, the text data for NNS students argumentation essays are the Japanese subcorpus of the International Corpus of Learner English (JICLE), and those for NS students' essays are the US subcorpus of the Louvain Corpus of Native English (US). NS student essays, rather than ones professionally written, are used as a reference corpus. This is because if not necessarily correct and a model for instructional application (Granger, 1998; Leech, 1998; Adel, 2004, 2006), student essays are a specific genre of text (Lorenz, 1999), and NS essays are similar to NNS essays in several factors, such as text length, purposes of writing, and writers' age and writing proficiency levels (Gilquin, Granger & Paquot, 2007).

The JICLE and the US essays comprise 366 and 176 essays, and word tokens, recounted according to AntConc (Laurence, 2012), are 202,099 and 150,530, respectively. Some topics are common in the two corpora (e.g., capital punishment, nuclear energy), but many others are corpus-specific; for example, JICLE wrote on maintaining a maiden name after marriage and employment systems, whereas US wrote on euthanasia and abortion.

b) *Theoretical base*

The concepts of metadiscursive nouns and text patterns used in analyzing the JICLE and the US in the present study share the idea that lexical vocabulary can work as cohesive devices, and it is traced back to Vocabulary 3 (Winter, 1977), which is comprised of

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nouns, verbs, and adjectives. Vocabulary 3 is considered to form clause relations by connecting two segments, such as *result* being able to signal a cause-consequence relationship (Coulthard, Moon, Johnson, Caldas-Coulthard & Holland, 2000). By extension, lexical items can signal functional segments of larger discourses such as Problem-Solution, Argument-Counterargument, and General-Specific (Coulthard, et al., 2000). In case of metadiscursive nouns, as a type of lexical items, they can serve as text-organizing devices. Being abstract nouns with unspecific meanings, they recover their full meanings in reference to the text, and can form a cohesive flow of information by guiding readers through the text (Jian & Hyland, 2017).

Metadiscursive nouns are proposed under varied names (*general nouns* in Halliday & Hasan, 1976; *enumeration* in Tadros, 1994; *anaphoric nouns* in Francis, 1986; *carrier nouns* in Ivanič, 1991; *shell nouns* in Schmid, 2000) that emphasize one or two aspects of the roles of the nouns. In analyzing the text data, the present study uses the shell noun (Schmid, 2000) conceptual framework, which explains metadiscursive roles of nouns in relation to several syntactic patterns (host syntactic patterns), as follows (N=metadiscursive noun):

- N-be-CL (*problem is that/to*-clause): Lexicalization is in the complement clause
- N:CL (*problem that…*): Lexicalization is in the clause adjacent to the noun
- th-be-N (*This is a problem*): Lexicalization is in the preceding segment
- th-N (*the problem*): Lexicalization is in the preceding segment.

c) Procedures

The investigation of Problem-Solution is conducted by analyzing the use of *problem* with the AntConc (Laurence, 2012) text analysis tool, as explained below:

1. Firstly, count the frequency of metadiscursively functioning *problem* in each of the corpora. Criteria for identifying *problem* metadiscursive nouns are the following:

a. Lexicalization is in a segment larger than a clause, including nominalization, which can be converted to a clause. Lexicalization in an *of*-phrase is not considered a metadiscursive occurrence; and

b. Intended meaning of *problem* is expressed in the referent, even if it is not conveyed in a formally correct way.

2. Next, identify host syntactic patterns for *problem,* using concordance lines that AntConc can provide.
3. Using the text view function of AntConc, analyze lexicalization of *problem* in terms of length of the referent, clarity of the meaning, and use of signaling vocabulary for each of the syntactic patterns.
4. Identify the rhetorical sequence that precedes, or succeeds, the Problem segment, in reference to the model sequence pattern: Situation – Problem – Response/solution – (Result) – Evaluation – (Conclusion) (Hoey, 1983, 2001, 2006; Jordan, 1984; Winter, 1986). The identification of each of the functional segments is conducted by finding the signaling vocabulary.

III. Frequencies of Metadiscursive *Problem*

This section reports frequencies of metadiscursively functioning *problem.* Frequencies are counted to a base figure of 'per 100,000 words', and the frequency difference in the two corpora is evaluated with the log-likelihood test, where the critical value for G2 is set at 3.84 with a 0.05 significance level for rejecting the null hypothesis. Within the corpus size of 202,099 and 150,530, in JICLE and US, respectively, metadiscursive *problem* occurred with no significant frequency differences at the normalized ratio of 43 and 33, which is the log-likelihood score of 2.29. (It is expressed as N=43:33, LL 2.29, from now on.)

In terms of the host syntactic patterns, *problem* occurred the most frequently in *th-N* (N=22:17, LL 1.53), followed by *N-be-CL* (N=10:12, LL 0.34) in both corpora. For these syntactic types, there is no significant frequency difference between the two corpora. However, a third syntactic type *th-be-N* (N=8:3, LL 4.61) occurred significantly more in JICLE than in US. Finally, *N:CL* virtually did not occur in either corpus, as shown below in Table 1:

Table 1: Frequencies of *problem* in Schmid (2000) syntactic patterns

	JP	US	LL scores
N-be-CL/CL-be-N	10 (20)	12 (18)	0.34
N:CL	1 (2)	0	2.23
th-N	22 (47)	17 (26)	1.53
th-be-N	8 (17)	3 (5)	4.61
Sum	43 (86)	33 (49)	2.29

(Figures are normalized; Figures in ( ) are raw frequencies)

For each of the host syntactic patterns, other than for *N:CL*, the form of lexicalization of *problem* and occurrence of the Problem-Solution sequence are examined in the following sections.

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IV. Lexicalization of *Problem* and Problem-Solution

The analysis in this section shows how different, or similar, the Problem-Solution pattern that occurred in the JICLE and the US essays was. At the same time, the analysis reveals roles of *problem* as an 'implicit' causation device, which were used differently in the two corpora.

a) Problem for N-be-CL

For *N-be-CL, problem* occurred in similar frequencies in JICLE and US (N=10:12, LL 0.34). Lexicalization was also similar in the two corpora, with the CL most often occurring as a *that*-clause, or a *wh*-clause to a much lesser extent. The similarity may be because the lexicalization of N in *N-be-CL* is a grammatical requirement, and the JICLE students used the pattern properly. However, a difference was observed in terms of to what extent the content in the CL was explained in the succeeding segment. In US, the CL tended to be followed by a segment that provides further information about the meaning of *problem*, as exemplified in Ex. 1 (underlined is the referent):

Ex. 1.

> … The main *problem* was that it seemed to be made in haste. The judges decided the fate of this innocent four-year-old boy in a matter of four hours…. (US)

The problem content expressed in the CL (underlined) is added information in the succeeding sentence.

In contrast, in JICLE, the content of the CL was mostly not explained in the succeeding segment, and the discourse immediately shifted to a next functional segment. In the following a), the problem content of the CL (underlined) is directly followed by a new Problem segment, in b) by the next topic, and in c), by a Response segment:

a. … the first *problem* is to select which name to let them use. Second, if children's names are different from their parents', … (JICLE)

b. The *problem* was that the faster and more reliable the computers became, the more speed people demanded. Then came the DSL connection. DSL is a digital based line that can… (JICLE)

c. I think *a big problem* is how to offer readers the opportunity to find books they want to read. Publishers, wholesalers, and bookstores must make more efforts to play better intermediary roles between readers and books. (JICLE)

Thus for *N-be-CL,* although there was no particular difference in the lexicalization in the CL, how the problem content in the CL was further explained in the succeeding segment differed between JICLE and US.

b) Problem for th-be-N

Problem for *th-be-N* (e.g., *this is a problem*) was a pattern strongly preferred by JICLE more than in US (N=8:3, LL score 4.61). The noun was similarly lexicalized in the immediately preceding short segment in both corpora. However, a clear difference was observed in the presence, or non-presence, of a Reason segment that succeeded *this is a problem*. In US, the Problem element was almost always followed by a Reason element as in [Problem – (*this is a problem*) – Reason – Response], as shown below in Ex. 2:

Ex. 2.

> If a student has the desire to pray at any moment during the school day he or she should not encounter any determent. Only when students (or faculty) *force* any students to join in the prayer does it become a *problem.* The act of trying to force an unwilling person to digest the religious philosophy of another may lead to an uncomfortable educational setting that would hinder learning and social growth.// Prayer in public schools may *continue* to *gain* more popularity in the United States. (US)

The *problem* content (underlined, and signaled by *force*) is shifted by *problem* (in *'it becomes a problem'*), to a Reason segment that explains why the referred content is a problem. The shift to the Reason segment in Ex. 2 occurs without a 'marker of reason' (e.g., *since, because*), but sometimes there was such a marker, and *th-be-N* (e.g., *this is a problem*) in US almost always moved the discourse from the Problem to a Reason segment.

In contrast, in JICLE, no Reason segment followed the Problem segment. Instead, the Problem segment was often immediately shifted to a Response in the sequence of [Problem – (*this is a problem*) – Response], as can be seen in Ex. 3:

Ex. 3.

> <text initial> In Japanese class, teachers take *too much* time to teach English grammar. I think that it is *too enough.* However, students aim an entrance examination of Japanese university. It is *a big problem.* In order to *increase* the number of children who can speak English well, the government has to *change* the educational system. … (JICLE)

The content of *the problem* (underlined), which is that too much time is spent on teaching grammar, may not be easily perceived as a problem without a cultural knowledge about Japanese English education. Besides, the referent, stating it is for the entrance examination, supports grammar teaching, and this further confuses the reader as to whether the referent expresses a problem or not. Without clearly explaining the content of *problem* the discourse is immediately and suddenly shifted to a Response (signaled by *increase, change*).

Functionally, *problem* is an 'implicit' causation device; *problem* itself does not signal causal meanings but can serve as a causation device by referring to the preceding segment and directing it to the succeeding

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discourse (Xuelan & Kennedy, 1992: 66). The analysis reveals that the JICLE students used *problem* significantly more than the US students did for *th-be-N* (N=8:3, LL score 4.61), but most of the *problem*s in JICLE were not functioning as a causation device. Accordingly, why the referent is considered a problem was often not included in the JICLE writing (see Tahara, 2020, for more details).

c) Problem for th-N

Problem for both *th-be-N* and *th-N* functions anaphorically. However, unlike for *th-be-N,* where the referent was almost always short and placed immediately before *problem,* the referent for *th-N* was often long and followed by a segment before *the problem.* Thus, *problem* for *th-be-N* often occurred in the sequence of [Problem – (Segment) – *the problem*] in both corpora.

i. *Features in JICLE*

In [Problem – (Segment) – *the problem*], lexicalized patterns of *problem* in JICLE exhibited some corpus-specific vagueness. The rhetorical sequence was also corpus-specific: Problem-Solution was often not intended, and if the pattern occurred, it mostly existed only in appearance, as explained below:

JICLE feature 1

A featured lexicalization pattern in JICLE, expressed in a longer referent for *th-N,* was that the meaning of *the problem* was bi-directional, as shown in Ex. 4, below:

Ex. 4.

> Also, there is another very big and important *problem.* It is "*gakubatsu.*" I think that the groups of like this exist everywhere: in the company, government and even in the sports field. Of course, it is good that people have a friendship for those who graduated same school. But I feel it *excessive.* For example in a company, when two men who are same capacity and career may be able to career up. But one of them graduated famous university same as his boss. Being able to career up is only one. Then, the boss will select a man of graduating same school. I do believe that something like this *can happen.* Also *this problem* may make other *new problem*…. (JICLE)

The problem is the practice of *gakubatsu*, academic cliques, in Japanese companies, and its reference seems the long preceding segment *(*underlined*)*. Although a problem content is indicated by *excessive,* it does not provide sufficient information as to what exactly is considered a problem. Also, the referent is evaluated positively in the Evaluation segment that follows; stating *can happen.* This inconsistency in the writer's evaluation makes the discourse bi-directional and confuses the reader. Then, *this problem* summarizes the vague problem content and shifts the discourse to a new Problem segment, but hastily and suddenly. This function of *problem* can be termed 'superficial generalization' (Hinkel, 2001). It refers to a role that summarizes vague content with a general meaning noun. Hinkel (2001) states that superficial generalization was often observed in NNS essays, but rarely found in NS essays.

The excerpt in Ex. 4, above, has a sequence of [weak Problem – positive Evaluation –new Problem (*this problem*)], indicating there is no intended Problem-Solution pattern. Instead, the text appears to be constructed by relying on the segment initial sentence '*there is another very big and important problem*'. It is a 'frame marker' that labels the text stage and announces a discourse goal (Hyland, 2004). Then, *this problem* serves to terminate the discourse by superficially generalizing the vague content of the preceding segment.

JICLE feature 2

The JICLE students tended to explain the meaning of *the problem* in a narrative, where a series of events is described sequentially. In the narrative discourse, delineation of functional segments was difficult, and discourse marking roles of *problem* seemed weak, as shown in Ex. 5:

Ex. 5.

> For example I visited China last month. The *accident* happened. The bath in my room was *broken.* Water could not take out. So I tried to ask how to fix the bath on the phone. I stayed in the hotel which is managed by Japanese company. Therefore I thought the staff in the hotel can speak Japanese. On the phone I asked the man by Japanese. However he couldn't understand what I said. He said to me "I can't speak Japanese at all. Please say in English or Chinese" As I couldn't speak Chinese, I told him *the problem* in my bathroom by English. Because I used English, we could communicate with each other. So the bathroom would be fixed…. (JICLE)

In this text, the meaning of *the problem* may be that water did not come out in the bathroom, expressed in a short segment (underlined). However, alternatively, the whole segment preceding *the problem* may be the referent. In either of the cases, *the problem,* used in the sentence '*I told him the problem',* which describes one of the events, seems not to be working as an explicit discourse shifting device. With a blurred segment shift, there seems no intended Problem-Solution pattern or existence of the pattern in the excerpt.

JICLE feature 3

Sometimes, the Problem-Solution text pattern occurred in JICLE. Still, the pattern was irregular, and one common type of irregularity was exhibited in the shift to the Conclusion segment, as shown in Ex. 6:

Ex. 6.

> The other day, I read about different ideas of meeting one's e-mail friend in a reader's column of a newspaper. I was *shocked* that the majority of contributions of the column said they could meet their mail friend. Of course most of the contributions contained additional advices such as "You

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should talk with your mail friend before you meet him directly." or "It is better to meet in company with other friends." and so on. In spite of the *incident* which happened only days before, many people think they could meet their e-mail friends. They are too *less sensitive* to danger. This *lack* of a sense of impending crisis could let still more crimes happen.// Here, *let's think* about what we should do to *prevent* troublesome e-mails and disgusting incidents. In the first place, we should *change* our e-mail address of cellular phones from "phone number + ƒ¿" to what you newly think of. This is *easy* and *effective* way. I used to be annoyed by e-mail address. Then I was relieved from annoying e-mails. Thinking of the unpleasantness of annoying e-mails, it is not trouble to tell our friends of the new address.// Traders concerned should *explain* their customers about problems of e-mail and *suggest* that customers change their e-mail address. Also the government should *do something* with *this problem,* as long as we take pride in being advanced in portable electric products and its' network. One-way e-mails of invitation or advertisement somehow should be *regulated.* However, the most important thing is our own *consciousness* of the problem. // (JICLE)

The extract seems to have the sequence of [Problem - Evaluation – Response (*this problem*) – Conclusion]. Firstly, the meaning of *this problem* is to meet one's email friend, expressed in the distant referent (underlined). However, the content is barely perceivable as a problem and only helped by evaluative vocabulary *shocked, less sensitive*, and *lack* in the succeeding Evaluation segment. Then, the discourse is shifted to a Response, explicitly with the use of the frame marker, '*let's think about….'* The Response that follows is a long segment, although not comprised of a description on a focused aspect, but of several responses, with each of them not connected or explained in detail. Then, the whole discourse is summarized in the Conclusion. Characteristic about the Conclusion is that the statement, '*the most important thing is our own consciousness of the problem'*, is a superficial, uncontested comment, not drawn from the preceding argument. Shown below is a schematic chart of Ex. 6:

Problem: *incident*

Evaluation: *shocked, lack, less sensitive*

← Frame marker to Response (*Let's think about what to do*…)

Response:

(we): *prevent, change* ← positive Evaluation: *effective, easy*

(traders): *explain, suggest*

(government): *do something, regulate*; [*this problem*]

Conclusion: *important is consciousness*

As shown in Ex. 6, in JICLE, the Problem-Solution pattern was sometimes used, but the Conclusion was often a generalized comment. It may be a strategy to converge several elements, which were not explained or connected with each other so much, into a concluding remark.

JICLE feature 4

Sometimes, the Problem-Solution sequence in JICLE seems to have existed, but only in appearance, as illustrated in Ex. 7:

Ex. 7.

… Today, I assume that almost all the people look upon animals as *less important* than human beings. I strongly *disagree* with this idea that most people have. I *propose* that we have to *cherish* animals as well as our family or friends. I think that people who kill or animals are *inferior* because animals cannot speak a word and they are nonresistance. They are weaker than us. I also think that the punishment of cruelty to animals should be more and more *strict.* For example, a person who abused or killed a great number of animals have to *serve* a sentence of a life imprisonment or something like that. People, as a whole, do not have a keen awareness of *this problem.* // (JICLE)

The meaning of *this problem* (underlined) (signaled only by *less important*) is not clear, but helped by *disagree* in the Evaluation segment that follows. The Evaluation is shifted to Response, which is signaled by *cherish,* but more explicitly by a frame marker that states '*I propose…*' The discourse then moves to another Evaluation (signaled by *inferior*) and to Response (signaled by *punishment, be strict, serve, life imprisonment*). Thus, the discourse seems to consist of [Problem – Evaluation – Response – Evaluation – Response], and the chart below shows the sequence:

Referent/Problem situation: *less important*

Evaluation (to Situation): *disagree*

← Frame marker (*I propose…*)

Response (to Problem): *cherish*

Evaluation (to Problem): *people… are inferior*

Response (to Problem): *punishment, be strict, serve, life imprisonment*

Evaluation (to Problem) [*this problem*]: *not have … awareness*

At first glance, the sequence is similar to the model English Problem-Solution pattern. However, these elements do not form a linear sequence, but most of the latter elements refer back to the initial Problem, resembling the hierarchical 'topical network' of Japanese texts. In the topical network, 'the main discourse topic operates as a pivotal point of reference, providing the starting point for related topics' (Maynard, 1998: 39). Also, the Conclusion, '*People, as a whole, do not have a keen awareness of this problem*', is a superficial generalized comment, as also found in Ex. 6. Concerning a generalized conclusion, a similar finding is in Ushie, Nagatomo, Schaefer and Nishio (1997), pointing to '[s]uccessive occurrences of general

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statements without support and… an unsubstantiated general statement… in the conclusion' (p.149) in L2 expository writing by L1 Japanese students.

Summary

In JICLE the meaning of *problem* for *th-N* was sometimes bi-directional, and sometimes expressed in the narrative discourse, and these features contributed to the vagueness of the meaning of *problem.*

Concerning the use of the Problem-Solution sequence, the pattern often seems not to have been intended in JICLE, or if intended, the sequence was irregular, as exhibited in the shift to the Conclusion. Also the Problem-Solution sequence on appearance had a structure similar to the hierarchical 'topical network' often found in Japanese texts (Maynard, 1998).

ii. *Features in US*

In the US corpus, the meaning of *problem* in the referent was clearer, and the Problem segment occurred in a sequence that was similar to the Problem-Solution model pattern (e.g., Problem – Response/solution – Evaluation – Conclusion). This can be seen with Ex. 8, shown below:

Ex. 8.

<text initial> A basic right of a human being living in a democratic society is that they are entitled to life. Food and shelter are fundamental needs a person must have in order to survive. A percentage of the population of the citizens of America *lack* these necessities. *Homelessness* has become an intense *problem* in the United States that must be solved. There is an *agreement* between all opposing viewpoints in government that something must be done that (sic) to *combat* homelessness. The necessary *method* to be used to understand homelessness is under careful *scrutiny*. Advocates for people without homes tend to get so wrapped up in the size of the homeless population that they *ignore* the fact that it is not right that this *discrepancy* exists. What is true is that in the United States it is continually growing, and *action* must be taken immediately to *alleviate the problem*…. (US)

The problem refers to a homeless situation that represents people's lack of basic necessities in the US *(*underlined*)*. The reference is followed by a Response (e.g., signaled by *agreement, combat, method, scrutiny*). It is then followed by a Problem segment (signaled by *discrepancy, ignore*) and a Response segment (signaled by *alleviate*). It is rather clear that the content of each of the functional segment is responding to immediately preceding segment, and forms a linear sequence of [Situation – Problem (in Situation) – Response (to Problem) – Problem (to Response) – Response (to Problem)] as shown below:

Situation: food and shelter are the basic rights of human beings

Problem (to Situation): *lack, homelessness*

Response (to Problem): *agreement, combat, method, scrutiny*

Problem (to Response): *ignore, discrepancy, growing*

Response (to Problem) [*the problem*]: *action, alleviate*

The regular Problem-Solution pattern in US was observed even when causal relations were embedded in the discourse, as in [Problem – (Reason) – Response – Problem – (Reason) – Response], as shown below in Ex. 9:

Ex.9:

// Students come to school with the hope of furthering their education so that they may one day practice a career in the field of their major. Students can read and study textbook theories and examples, but it helps them to have access to guides. These guides are their professors. They pay not only for books every semester, but for tuition. Tuition money is supposed to pay for the professors to teach the students. Students who pay for their tuition expect professors to teach them in return. When professors *can't speak* English, they *can't communicate* with English speaking students; therefore they *cannot teach* them. Students *need* someone to guide them through wordy material in a book. Students *need* someone to lead labs and give them hands on experience. When the student is paying for his needs, for what reason should he not have them fulfilled? When a person buys an item from a store, he pays and receives the item he paid for. When students pay tuition, they should also receive what they're paying for-a teacher who can teach them. Sometimes a teacher's assistant can *substitute* for a professor, and this is what should happen if a professor can't speak a language well enough to teach. This is one *solution*, but we are confronted with another problem. Even though teaching aides can help, students *don't benefit* from them as much as they do a professor. A professor has a Ph.D. and is a trained expert. Students need to be taught by professors when they are taking advanced courses that apply to their major field of study. A professor is an asset to upper class students finishing courses for their degrees.// The Board of Trustees at USC should closely *examine this problem.* The university requires that teacher's assistants speak English well before they can teach… (US)

The extract starts with a Situation stating that students learn expert knowledge from professors. The first Problem segment (e.g., *professors can't speak English*) is given a Reason why the referred content is a problem (underlined*)*. Then the Problem is followed by a Response (signaled by *substitute, solution*). This Problem – Reason – Response sequence is repeated, as shown below:

Situation: Students learn expert knowledge from professors

Problem: (to Situation): *can't speak, can't communicate, cannot teach, need*

- Reason

Response: (to Problem): *substitute, solution*

Problem: (to Response): *not benefit*

- Reason

Response: (to the immediately preceding Problem) [*this problem*]: *examine*

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To summarize, this section has shown that Problem-Solution in US occurred in a similar sequence to the model English rhetorical pattern, even when causal relations were embedded. It has also shown that the lexicalized content of *problem* tended to be easily perceivable as a problem due to sufficient information with the use of signaling vocabulary.

d) Summary

The comparison between the JICLE and the US essays revealed differences in the use of *problem* as a marker of the discourse and also in its relations to the Problems-Solution pattern, as follows:

a. The meaning of *problem* expressed in the referent in JICLE and US was vague versus sufficient, respectively. Vagueness in JICLE included bi-directional and narrative discourse, as exhibited for *th-N*. Referring to insufficient and vague information, *problem* in anaphoric functions in JICLE often shifted the discourse abruptly, serving as a device of superficial generalization (Hinkel, 2001).

b. Concerning the use of the Problem-Solution pattern, in US, it occurred in a sequence that is similar to the model sequence (e.g., Problem – Response – Evaluation – Conclusion). However, in JICLE, Problem-Solution often seems not to have been intended. Also, if Problem-Solution occurred, the pattern was irregular and often only in appearance. For example, the Conclusion segment was formed with little meaning connection to the preceding segment. Also, the functional elements of Problem-Solution, seemingly arranged in a linear sequence, actually did not form a successive meaning connection. Instead, the meaning expressed in each of the succeeding functional segments referred back to the topic expressed in the initial segment (see Ex. 6 & Ex.7).

c. Additionally, it has emerged that, in JICLE, *problem* was little used as a causation device that can form a cause-result clause relation. As a result, the JICLE students did not include a Reason segment in their writing. Cause-result is an important rhetorical pattern and will need to be addressed in the teaching of argumentation essays.

V. Pedagogical Implications

One argument about L2 writing is that NNS students do not need to be taught 'correct' or 'acceptable' style of essays, as there are many Englishes, and English by non-native speakers is as legitimate as English by native speakers (e.g., Kachru, 1985; Jenkins, 2007; Mauranen, 2010; Seidlhofer, 2011). However, some of the JICLE features that were not exhibited in the US essays (e.g., an abrupt shift of discourse, superficial conclusion, very little use of causal relations) were confusing to the readers, and could hinder understanding by the reader. Such features would need to be addressed in the teaching of the EFL writing, so that NNS students can write argumentation essays that are acceptable internationally.

Concerning these JICLE features, the previous studies suggest an influence of the writer's L1 culture and writing conventions. For example, bi-directional argumentation may reflect an L1 social value where outright contradiction to other people's opinion is not appreciated (Oi & Kamimura, 1997; Oi, 1986; Natsukari, 2012), and the hierarchical 'topical network' in JICLE is similar to a typical L1 Japanese writing style (Maynard, 1998). Also, preference for frame markers a is similar to L1 Japanese writing style; Saijo (1999 in Maynard, 2005) reports that the readers of Japanese texts written without using frame markers had a hard time to understand the messages in the texts, indicating importance of frame markers in constructing Japanese texts. About a generalized conclusion in L2 essays by Japanese students, this feature was found common in Japanese editorials written by professional writers in the study of Ushie et al. (1997). A possible transfer of L1 language use to the JICLE essays suggests that without some explicit instruction, pervasive L1 features may remain in L2 writing.

A question is how rhetorical patterns can be taught. Is it effective to provide students with ready-made template of Problem-Solution in argumentation essays as Hoey (2001) suggested, or do such patterns not need to be emphasized in teaching? To this question, a study by Galán and Peréz (2004) with L1 Spanish students indicates the benefit of teaching signaling vocabulary, rather than a ready-made template, stating that providing the students with vocabulary triggered the Problem-Solution pattern. Such vocabulary-centered teaching may be an approach to be tested. It might work well with Japanese students, as the JICLE students used much fewer signaling nouns, in comparison with the US students.

VI. Future Research

The present study examined the Problem-Solution pattern in NNS argumentation essays, using NS essays as a reference corpus, focusing on *problem* as a metadiscursive noun. The methodology that uses *problem* has proved effective to explain how the Problem-Solution pattern occurred in English essays, and thus, can be valuable tool for a further investigation of this textual pattern in students' argumentation essays. The Problem-Solution pattern is an essential consideration in the teaching of argumentation essays, and this line of inquiry should be pursued further. Also, the methodology which utilizes the conceptual framework of metadiscursive nouns seems to have a potential to examine other types of text patterns, as well as clause relational patterns, and should be explored more for the study of the discourse.

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