広島大学大学院教育学研究科紀要　第二部　第53号　2004　187－194

# The Acquisition of English Function-chains: With a Focus on Japanese Junior High School Students

Yoko Fujiwara

(Received on September 30,2004)

**Abstract**

This study investigates junior high school (JHS) students' process of development in acquiring English function-chains [1] (the addressee's response to the speaker's utterance). Although numerous attempts have been made by researchers to investigate the comparative distribution of certain functions in English textbooks, little is known about the learners' process of development in acquiring the function-chains. This study attempts to shed light on that developmental process by focusing on how well JHS students recognize the appropriateness [2] of function-chains used in spoken English. A two-way layout analysis of variance (ANOVA) was conducted to examine the interaction of two variables (1.the students' level of proficiency in grammar and 2. the types of function-chains) and the main effect of each variable. As a result, it was found that the type of function-chain used does have some effect on students' recognition of appropriateness; and further, that students with greater grammatical proficiency did better than less-skilled students in that particular area.

Key words : function-chains, appropriateness, second language acquisition (SLA)

## 1.Background

The field of investigation known as interlanguage pragmatics has been essentially modeled on cross-cultural pragmatics. Topics investigated in these studies include the discussion how native speakers (NSs) and non-native speakers (NNSs) differ in their use of pragmatic knowledge in production and comprehension. Thus the research has been essentially comparative and focuses on NNS's use of pragmatic knowledge rather than pragmatic development.

But recently there have been a number of attempts to move interlanguage pragmatics more closer to the main stream of the SLA field by focusing on how second language (L2) related speech act knowledge is acquired. Kasper and Schmidt (1996), Bardovi-Harlig (1999), Rose (2000), and others take an acquisitional stance on pragmatic studies. They point out that very little work in the acquisition of pragmatics has been done, and none of the published literature includes beginning language learners. A study which involves beginning-level learners would likely uncover the early developmental patterns in interlanguage pragmatic knowledge.

As for factors in determining L2 pragmatic competence, Bardovi-Harlig (2001) proposed availability of input, influence of instruction, proficiency, length of exposure, and transfer. Among these, the influence of the level of L2 proficiency on pragmatic competence and performance has not been well researched (Kasper & Schmidt, 1996). Therefore Bardovi-Harlig (2001) argued that we go still further in studying the acquisition of L2 pragmatic competence by investigating the relation of the development of the grammatical and pragmatic system.

Also, there have been many studies that have examined learner's interlanguage for particular speech acts, with

---

本論文は，課程博士候補論文を構成する論文の一部として以下の審査委員により審査を受けた。
審査委員：中尾佳行（主任指導教員），三浦省五，森　敏昭，迫田久美子，深澤清治

focus on requests, apologies, compliment responses and so on, but relative comparison among those types of speech acts is another area requiring more research.

## 2. Purpose

This study attempts to provide a quantitative analysis on how the level of proficiency in grammar and function-chains have an effect on the ability of students to recognize the appropriateness of function-chains. The following research questions are the foci of this paper.

(1) Do the students with greater grammatical proficiency achieve higher levels of recognition of appropriateness?

(2) Does the students' ability to recognize the appropriateness of the function-chains vary according to the type of function-chain involved?

## 3. Method

### 3.1 Participants and Determination of Their Grammatical Proficiency Levels

The participants in the study were 150 third year JHS students in Hiroshima Prefecture in Japan. Sixty grammar questions from a past Test of Practical English [3] were selected, with 20 questions being taken from the 4th, 3rd, and pre-2nd grade tests respectively. The students took the test and were divided into two groups according to the median score of 40 points (60 points maximum). The mean of the skilled group (76 students) was 45.80 and the standard deviation (*SD*) was 4.915. The mean of the less-skilled group (74 students) was 29.86 and the *SD* was 6.411. There was a significant difference between the two groups ($t$ (148)=−17.114, $p$<.001). The Cronbach's Alpha (reliability rating) of this grammar test was 0.9034.

### 3.2 Materials

To research the Japanese students' responses to authentic English material, 15 test items were developed. Five of these items were based on examples of function-chains taken from an American English textbook, Ginn (1996), where each function-chain dealt with a certain type of question/statement followed by a response. The remaining 10 test items were developed based on the same pattern as shown in Ginn. Then the test's 15 function-chain patterns were classified into five different types, based on categories used in van Ek and Trim (1990). But whereas the categories of function-chains come from van Ek and Trim, it was found convenient for the purpose of this study to give clear names to each of the categories. So, as shown below in Table 1, each type of function-chain is followed by an assigned name which is underlined.

**Table 1. Function-chains in this Communication Test in English**

1. Speaker A: requesting assistance → Speaker B: offering assistance
   Assistance Function-chain (Test items ①,⑥,⑪)
2. Speaker A: inquiring about likes and dislikes → Speaker B: expressing liking
   Expressing Liking Function-chain (Test items ②,⑦,⑫)
3. Speaker A: inquiring about agreement and disagreement → Speaker B: confident assertion
   Assertion Function-chain (Test items ③,⑧,⑬)
4. Speaker A: expressing dissatisfaction → Speaker B: giving reassurance
   Reassurance Function-chain (Test items ④,⑨,⑭)
5. Speaker A: reporting → Speaker B: expressing interest
   Expressing Interest Function-chain (Test items ⑤,⑩,⑮)

(15 items in total, i.e., 5 types of function-chains × 3 social relationships.)

As can be noted above three test items were prepared for each type of function-chains, with each of the three representing a distinct kind of social relationship — low status to high status, high status to low status, and an equal relationship. This was done in order to assure that each type of function-chain be represented by a variety of social settings.

### 3.3 Procedure

For each test item the setting, the social relationship of Speakers A and B, and the function-chain type were provided (originally they were written in Japanese for the JHS students). Also, three possible responses were given for each test item. The students were given instructions in Japanese to rank the responses by order of how appropriately they express the meaning in the function-chain. For example, the question below is an Assertion Function-chain, in which the students had to rank the responses from the most to least appropriate in expressing confident assertion. Similarly, in a Reassurance Function-chain test item they had to rank the responses from the most to least appropriate in giving reassurance, and so on with the other function-chains.

**Table 2. An Example of the Assertion Function-chain Test Items**

Rank the responses from 1 to 3.
Setting: Classroom. A teacher is introducing a dialogue to kindergarten students using a puppet.
Social relationship: Puppet → Teacher
Function-chain: inquiring about agreement and disagreement → confident assertion

| | | |
|---|---|---|
| A (Puppet): | Do you think the children have favorite kinds of days? | kind 種類 |
| B (Teacher): | a. I guess so. ( ) | |
| | b. I'm sure they do. ( ) | |
| | c. I think they do. ( ) | |

It could be noted that while the five test items taken from Ginn (1996) each had originally only one response for each function-chain, two more responses were added for each to allow the students' ranking of responses.

A professor, two associate professors, two adjunct professors, and an assistant language teacher (ALT), all native speakers from the United States, verified that the test items in each function-chain were classified correctly as regarding the type of function-chain involved. They were also in perfect agreement as to the correct answers.

Also, to reduce the difficulties that could be caused by unfamiliar vocabulary and linguistic structure, translations were given for the words or phrases which the students may not have learned yet.

### 3.4 Scoring

Scores were calculated according to a 2-point system, where 2 points were given when all three responses were correctly ranked, 1 point when the most appropriate response was correctly identified but the other two were in the incorrect order, and no points when the most appropriate response was not correctly identified. As mentioned, each function-chain included three test items, therefore the maximum score for each function-chain was 6 points (2 points multiplied by 3 test items).

### 3.5 Data Analysis

In order to analyze the obtained data, a two-way layout ANOVA was conducted, where the independent variables were (1) level of proficiency in grammar (between-subjects, 2 levels: a less-skilled group and a skilled group) and (2) function-chains (within-subject, 5 levels: Assistance, Liking, Assertion, Reassurance, Interest). The dependent variable was the students' scores in this communication test. The interaction of the two independent variables and the main effect of each independent variable were examined. All the analyses were performed with ANOVA 4 (ver. 1. 11$\beta$).

# 4. Results and Discussion

### 4.1 The Main Effect of Each Independent Variable and the Interaction of the Two Independent Variables

As Table 3 indicates, (1) the difference between the less-skilled group and the skilled group was statistically significant, with the skilled group's score being higher than the less-skilled group's ($F$ (1,148)=15.280, $p$< .001). (2) There was a significant difference in difficulty between the function-chains as regards the students' ability to recognize appropriateness ($F$ (4,592)=147.510, $p$< .001). (3) The interaction between the proficiency level and the function-chains was significant ($F$ (4,592)=2.980, $p$< .05).

**Table 3. Table of Analysis of Variance<unweighted-mean solution>**

| *source* | *SS* | *df* | *MS* | *F* | *p* | |
|---|---|---|---|---|---|---|
| (1) A: Proficiency level | 32.1548876 | 1 | 32.1548876 | 15.280 | 0.0001**** | ⇒ § 3.1 Table 3 |
| error | 311.4571124 | 148 | 2.1044399 | | | |
| (2) B: Function-chain | 856.8373542 | 4 | 214.2093385 | 147.510 | 0.0000**** | ⇒ § 3.2 Figure 1 |
| (3) AB | 17.3120209 | 4 | 4.3280052 | 2.980 | 0.0187* | ⇒ § 3.3 Figure 2 |
| error | 859.6826458 | 592 | 1.4521666 | | | |

+$p$<.10, *$p$<.05, **$p$<.01, ***$p$<.005, ****$p$<.001

As for the significant factors, a post hoc analysis (Ryan's method) was computed to study the differences between the mean scores (the significance level was $p$= 0.050000).

### 4.2 Multiple Comparisons of the Function-chains

The mean scores for the five kinds of function-chains − Assistance, Liking, Assertion, Reassurance, and Interest − were 2.300, 5.011, 3.054, 2.364, and 2.118 respectively (See Figure 1).

Significant differences in difficulty were found between the following pairs at the .05 level (pair Liking−Interest: $t$ (592)=20.787, $p$< .05; pair Liking−Assistance: $t$ (592)=19.483, $p$< .05; pair Assertion−Interest: $t$ (592)=6.721, $p$< .05; pair Liking−Reassurance: $t$ (592)=19.019, $p$< .05; pair Assertion−Assistance: $t$ (592)=5.418, $p$< .05; pair Assertion−Reassurance: $t$ (592)=4.954, $p$< .05; pair Liking−Assertion: $t$ (592)=14.065, $p$< .05). There was no significant difference between the pairs Reassurance−Interest, Reassurance−Assistance, and Assistance−Interest at the .05 level. Thus the order of difficulty of the function-chains for the JHS students was shown to be as follows ($MSe$=1.452167, $p$< .05):

easy ← Liking > Assertion > Reassurance ≒ Assistance ≒ Interest → difficult

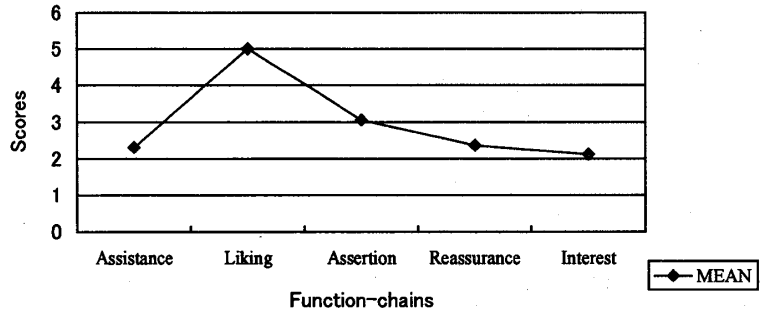


**Figure 1. Mean Scores for the Function-chains**

### 4.3 Simple Main Effect of Interaction between Proficiency Level and Function-chain

As is clear from Table 4, (1) For the Assertion Function-chain, the difference between the less-skilled group and the skilled group was statistically significant, with the skilled group's score being higher than the less-skilled group's ($F$ (1,740)=22.378, $p$< .001). (2) As regards the recognition of appropriateness, a significant difference can be noted depending on the type of function-chains in the less-skilled group ($F$ (4,592)=70.001, $p$< .001). (3) There was also a

significant difference between the function-chains in the skilled group ($F$ (4,592)=80.490, $p$< .001).

**Table 4. Simple Main Effect of Interaction between Proficiency Level and Function-chain**

| | *effect* | *SS* | *df* | *MS* | *F* | *p* |
|---|---|---|---|---|---|---|
| | Proficiency level (Assistance) | 0.1290896 | 1 | 0.1290896 | 0.082 | 0.7753 |
| | Proficiency level (Liking) | 5.9904030 | 1 | 5.9904030 | 3.785 | 0.0521+ |
| (1) | Proficiency level (Assertion) | 35.4162589 | 1 | 35.4162589 | 22.378 | 0.0000**** |
| | Proficiency level (Reassurance) | 5.3276434 | 1 | 5.3276434 | 3.366 | 0.0669+ |
| | Proficiency level (Interest) | 2.6035135 | 1 | 2.6035135 | 1.645 | 0.2000 |
| | error | | 740 | 1.5826213 | | |
| (2) | Function-chain (less-skilled) | 406.6095856 | 4 | 101.6523964 | 70.001 | 0.0000**** |
| (3) | Function-chain (skilled) | 467.5397895 | 4 | 116.8849474 | 80.490 | 0.0000**** |
| | error | | 592 | 1.4521666 | | |

+$p$<.10, *$p$<.05, **$p$<.01, ***$p$<.005, ****$p$<.001

Thus multiple comparisons between the function-chains for each proficiency level were conducted.

### 4.3.1 Multiple Comparisons of the Function-chains for the Less-skilled Group

The mean scores for Assistance, Liking, Assertion, Reassurance, and Interest in the less-skilled group were 2.270, 4.811, 2.568, 2.176, and 1.986 respectively. Significant differences were found between the following pairs at the .05 level (pair Liking－Interest: $t$ (592)=14.256, $p$< .05; pair Liking－Reassurance: $t$ (592)=13.301, $p$< .05; pair Assertion －Interest: $t$ (592)=2.933, $p$< .05; pair Liking－Assistance: $t$ (592)=12.824, $p$< .05; pair Liking－Assertion: $t$ (592)=11.323, $p$< .05). There was no significant difference between the pairs Assertion－Reassurance, Assistance－Interest, Assertion－Assistance, Assistance－Reassurance, and Reassurance－Interest at the .05 level. Thus the order of difficulty of the function-chains for the less-skilled group was shown to be as follows ($MSe$=1.452167, $p$< .05):

easy ← Liking >Assertion ≒ Assistance ≒ Reassurance ≒ Interest → difficult

### 4.3.2 Multiple Comparisons of the Function-chains for the Skilled Group

The mean scores for Assistance, Liking, Assertion, Reassurance, and Interest in the skilled group were 2.329, 5.211, 3.539, 2.553, and 2.250 respectively. Significant differences were found between the following pairs at the .05 level (pair Liking－Interest: $t$ (592)=15.144, $p$< .05; pair Liking－Assistance: $t$ (592)=14.741, $p$< .05; pair Assertion －Interest: $t$ (592)=6.596, $p$< .05; pair Liking－Reassurance: $t$ (592)=13.596, $p$< .05; pair Assertion－Assistance: $t$ (592)=6.192, $p$< .05; pair Assertion－Reassurance: $t$ (592)=5.048, $p$< .05; pair Liking－Assertion: $t$ (592)=8.548, $p$< .05). There was no significant difference between the pairs Reassurance－Interest, Reassurance－Assistance, and Assistance－Interest at the .05 level. Thus the order of difficulty of the function-chains for the skilled group was shown to be as follows ($MSe$=1.452167, $p$< .05):

easy ← Liking > Assertion > Reassurance ≒ Assistance ≒ Interest → difficult

For the less-skilled group, the Expressing Liking Function-chain was found to be relatively easy, but the other four function-chains were at the same level of difficulty. The skilled group however, while finding the Expressing Liking Function-chain to be the easiest, also found the Assertion function-chain to be comparatively easier than the other three function-chains (which were again at the same level of difficulty). It may be possible to infer that as students' grammar skills increase a difficulty scale of function-chains gradually emerges － from a starting point where the function-chains are very similar in their level of difficulty, to a stage where the function-chains gain distinctive levels of difficulty. That is, in the case of this study the Expressing Liking Function-chain is shown to be the easiest for all students participating, followed by the Assertion Function-chain, in the case of those students with greater grammatical proficiency. Potentially then, as students' grammar skills increase beyond the level measured in this study, remaining function-chains may also divide into different levels of difficulty.

Figure 2 shows the interaction between proficiency level and function-chains.

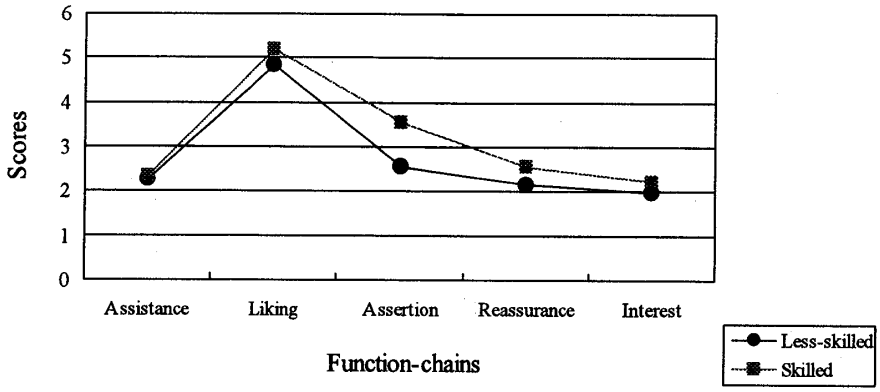


**Figure 2. Interaction between Proficiency Level and Function-chains**

## 5. Conclusion

The main findings of this research can be summarized in the following two points: (1) Students with greater grammatical proficiency were found to have achieved higher levels of recognition of appropriateness in function-chains than the less-skilled students. (2) The type of function-chain involved does have some effect on students' ability to recognize appropriateness. For the students there was a significant difference in difficulty depending on the type of function-chain involved, making possible the construction of a scale identifying those relative levels of difficulty. As the JHS students' proficiency level increased, that differentiation of level of difficulty became more pronounced.

From this point we might go on to even more detailed qualitative data analysis to clarify the reason for the order of difficulty. Furthermore, the results obtained in this research were based on written material where prosodic features, that is, the relative loudness or duration of syllables, changes in the pitch of a speaker's voice and the choice of pitch level, were not considered. However, it seems possible that these factors may have an effect on the perception of appropriateness in the function-chains. Therefore, further research based on oral discourse is highly recommendable.

As for the pedagogical implication, this study provides information that may be useful for future program design — what sort of function-chains should be taught first, and how they should be sequenced and organized. The updated Course of Study, which came into effect from 2002, introduced the concept of language-use situations and functions of language, and stated that students should be able to express themselves in a way appropriate to the specific situation and condition. Certainly the recognition of the appropriateness of function-chains on the part of students is an important part of fulfilling those stated objectives. Therefore, it is to be hoped that the results of this study will contribute in a positive way to program design, making it easier for students to develop their practical communicative competence.

## Acknowledgements

The author would like to thank Dr. Toshiaki Ozasa and Dr. Seiji Fukazawa (Hiroshima University), Professor Marilyn Higgins, Associate Professor Robert Schalkoff, Associate Professor Amy Wilson, Adjunct Professor Alan Christ, and Adjunct Professor Steve Gardener (Yamaguchi Prefectural University), and finally Mr. Joseph Snell, Mr. Chris Kilby and Mr. James Humphreys (ALTs working in the Yamaguchi City public school system), for making invaluable suggestions.

## Notes

1 McCarthy (1991) uses the term function-chain activities to refer to the way of getting learners to play out a sequence of events calculated to generate the desired functions.

2 Appropriateness is the extent to which a use of language matches the linguistic and sociolinguistic expectations

and practices of native speakers of the language (Richards & Schmidt, 2002). Additionally, in this study, appropriateness encompasses the linguistic realizations which express the strongest meaning of the function in question.

3 The Test of Practical English was prepared by The Society for Testing English Proficiency, INC., and authorized by the Japanese Ministry of Education, Culture, Sports, Science and Technology in the years 2000-2002.

## References


Bardovi-Harlig, K. (1999). Exploring the interlanguage of interlangauge pragmatics: A research agenda for acquisitional pragmatics. *Language Learning, 49*, 677-713.

Bardovi-Harlig, K. (2001). Evaluating the empirical evidence. In K. Rose & G. Kasper (Eds.), *Pragmatics in language teaching* (pp.13-32). Cambridge: Cambridge University Press.

Brown, J.D. (2001). *Using surveys in language programs*. Cambridge: Cambridge University Press.

Doughty, C. J., & Long, M. H. (Eds.) . (2003). *The handbook of second language acquisition*. Malden, MA: Blackwell.

Fujiwara, Y. (2000). Analysis of junior high school students' performance in function-chain recognition using factor analysis and Hayashi's quantification model III. *ARELE, 11*, 71-80.

Ginn, S. B. (1996). *World of language teacher edition K*. Needham Heights, MA: Silver Burdett Ginn.

Kasper, G., & Schmidt, R. (1996). Developmental issues in interlanguage pragmatics. *Studies in Second Language Acquisition, 18*, 149-169.

Lazaraton, A. (2002). Quantitative and qualitative approaches to discourse analysis. *Annual Review of Applied Linguistics, 22*, 32-51.

McCarthy, M. (1991). *Discourse analysis for language teachers*. Cambridge: Cambridge University Press.

Richards, J. C., & Schmidt, R. (Eds.) . (2002). *Dictionary of language teaching & applied linguistics (third edition)*. London: Longman.

Rose, K. R. (2000). An exploratory cross-sectional study of interlanguage pragmatic development. *Studies in Second Language Acquisition, 22*, 27-67.

Van Ek, J. A., & Trim, J. L. M. (著) 米山朝二・松沢伸二(訳). (1998).『新しい英語教育への指針－中級学習者レベル＜指導要領＞Threshold Level 1990』東京：大修館書店.

Widdowson, H. G. (1996). Comment: Authenticity and autonomy in ELT. *ELT Journal, 50*, 67-68.

文部省. (1998).『中学校学習指導要領』東京：大蔵省印刷局.


(主任指導教員　中尾佳行)

## Appendix

Examples from the communication test (one example from each of the five function-chains)

1. Assistance Function-chain

| | | |
|---|---|---|
| A (Boss/Supervisor): | Will you pick me up at three o'clock at the train station? | |
| B (Office worker): | a. OK. But let me check my schedule first. | ( ) |
| | b. Sure. I'll see you at three. | ( ) |
| | c. Yes, I should be there by three. | ( ) |

Will you ...?
…してくれませんか
pick...up
…を車に乗せる
schedule　予定

2. Expressing Liking Function-chain

| | | |
|---|---|---|
| A (Staff): | Do you like pizza? | |
| B (Staff): | a. Cheese pizza is delicious. | ( ) |
| | b. I eat pizza sometimes. | ( ) |
| | c. Pizza is my favorite Italian food. | ( ) |

pizza　ピザパイ
cheese　チーズ
delicious　おいしい
Italian　イタリアの

3. Assertion Function-chain

| | | |
|---|---|---|
| A (Puppet): | Do you think the children have favorite kinds of days? | |
| B (Teacher): | a. I guess so. | ( ) |
| | b. I'm sure they do. | ( ) |
| | c. I think they do. | ( ) |

kind　種類

4. Reassurance Function-chain

| | | |
|---|---|---|
| A (Parent): | Oh, no. We are far from home and I am almost out of gasoline. | |
| B (Teenage son): | a. Don't worry. There is a gas station just ahead. | ( ) |
| | b. Let's keep going. | ( ) |
| | c. Let's try to find a gas station on the map. | ( ) |

ahead　前方に
map　地図

5. Expressing Interest Function-chain

| | | |
|---|---|---|
| A (Teacher): | There is a place where you can borrow books. | |
| B (Puppet): | a. I see. | ( ) |
| | b. That's nice. | ( ) |
| | c. There is? | ( ) |

…where ～
～である（ところの）…
～する（ところの）…
borrow…を借りる