

Articles

Word Definition and Language Proficiency

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This study investigates, on the basis of a taxonomy of definitions subjects produced, the relationship between target language proficiency level and both the syntactic form and the content of these definitions. A questionnaire consisting of 11 concrete English nouns was administered to four groups of 10 subjects each: three groups of Japanese university students at low, intermediate and advanced levels of English, and a group of adult native speakers of English. The subjects defined the words in English. Examination of syntactic forms revealed that the frequency of the forms used varied according to proficiency level. However, the content of the definitions did not show significant difference at any level. The results suggest that these learners of English have the lexical knowledge to give information on the definiendum (i.e., the term to be defined), but lack sufficient linguistic knowledge about forms for effective expression, although advanced learners showed greater control. Implications of the results for English language learning are drawn.

本稿は、日本の大学生を被験者とし、語の定義能力と言語（英語）習熟度の関係を調査、分析したものである。英語の習熟度によって、被験者をそれぞれ10人ずつ三つのグループにわけ、11の具体名詞を英語で定義させるテストをした。英語の母語話者10人にも同じ語の定義をしてもらった。

得られたデータを、文法形式と内容（定義されるものの特徴）について分析し、文法形式を4つの範疇に、内容を18の範疇に分類した。結果は、以下のように要約できる。

定義の内容は、各レベル間で大差はなかった。しかし文法形式の分布は、レベルによって異なった。英語の習熟度の低いグループと中レベルのグループでは大差はなかったが、この二つのグループと習熟度の高いグループとの間には著しい差が見られた。

さらに、レベルの高いグループと母語話者の間にも差が見られた。

この結果は、これらの英語学習者が定義されるものの特徴を表わす語彙の知識はあるが、それをより効果的に表現する文法形式についての十分な知識を欠いていることを示唆している。最後に、語の定義に関する指導についても言及する。

Many studies have recently been carried out on word definition. The focus of these studies, however, has been on how words are defined by children (c.f. Litowitz, 1977; Watson, 1985; Benelli, 1988; Markowitz & Franz, 1988). Although some studies (Benelli, Arcuri & Marchesini, 1988, McGhee-Bidlack, 1991; Wehren, DeLisi & Arnold, 1981) include adults in their data, the focus is still on the development of children's ability to make definitions in their first language. Litowitz (1977) analyzed children's responses according to definitional form, classifying them into five levels. Her results showed that children use more complicated, adult-like definitional forms with increasing age. Wehren, DeLisi & Arnold (1981) focused on the content of definitions produced by children and adults. They found that with increasing age there was a shift from definitions which had functional information to definitions which were a combination of descriptive and functional information.

Except for Snow and her colleagues (Snow, 1987, 1990; Snow, Cancini, Gonzalez & Shriberg, 1989), few investigators have looked at the ability to define words in both first and second languages. Snow, et al. found that school literacy is strongly related to performance in the making of formal definitions and that students perform definitional tasks as well in the L2 as in the L1. These findings about the ability of school children to define words in the L2 throw light on how adults make definitions in the L2.

Few studies (Flowerdew 1991, 1992a, 1992b) to date have explored in detail adult definitional skills in the L2. Flowerdew's studies were based on spoken definitions drawn from science lectures by native English-speaking lecturers given to non-native English-speaking students. Flowerdew (1992b) is of interest to the present study. The focus of his study was on the forms as well as the functions that definitions fulfill in a lecture.

The present study is based on written definitions, and focuses on how adults produce definitions in a foreign language. The purpose of this study is to identify the types of definitions learners produce, and to investigate the relationship between the learners' proficiency level in the target language and the form and content of the definitions they give. Specifically, three research questions are asked:

1. What types of definitions do learners produce?
2. Does the form of definitions used by learners vary according to their target language proficiency level?

3. Does the content of definitions given by learners vary according to their target language proficiency level?

The main concern of this paper is questions 2 and 3, but question 1 is an essential ground-clearing preliminary.

Method

Subjects: There were four groups each consisting of 10 subjects: three groups of Japanese EFL students at low (Low), intermediate (Int.) and advanced (Adv.) levels of proficiency in English, and a group of native speakers (NS) of English as the comparison group. Subjects in the learner groups were students at a women's university in Japan. The average age of the learner groups was 20. The English proficiency level of the learners was measured by the CELT (*A Comprehensive English Language Test for Learners of English*). The test was administered to 104 students, and the top 10 students (CELT scores 239-268), the middle 10 students (CELT scores 196-204) and the bottom 10 students (CELT scores 123-175) were chosen to represent their levels.

The native speaker subjects were randomly chosen from students in the graduate program of a university in Japan. This group contained both females and males, with an average age of 37.

Materials: A questionnaire consisting of 15 concrete nouns was constructed in English on the basis of the vocabulary portion of the *Japanese Standard Edition of Wechsler Intelligence Scale for Children—Revised* (Kodama, Shinagawa & Motegi, 1978) and the vocabulary portion of the *Gengo Hattatsu Shindan Kensa* (Kawai, 1979), a diagnostic test for language development. The English words used were the basic translational equivalents of the Japanese words. Three criteria were used in the selection of the words: (a) they were in all likelihood familiar to all students; (b) each had only one referent; and (c) they had sufficiently clear characteristics to present no obstacle to definition. Subjects were asked to write definitions for these words. Four English items whose meanings were unknown to all the learners were excluded from the investigation, leaving the following 11 concrete nouns:

watermelon	bicycle	potato	chicken	tulip
clock	kangaroo	umbrella	cow	

Procedure: The questionnaire was administered during a regularly scheduled class period. Subjects were instructed to define the above words in

English. Dictionaries were not allowed. The majority required the full hour allotted to complete the task. The questionnaire was sent out to 60 native speakers of English. Of 30 questionnaires returned, 10 were randomly chosen for analysis.

Results and Discussion

Taxonomy of Definitions

The total number of English definitional responses given by the three learner groups and the native speaker group was 440, each group producing 110. First, the responses were looked at in order to identify the forms of definitions that had been produced. They were classified into four categories as follows: (1) categorical definitions, (2) specified categorical definitions, (3) specified generic definitions, and (4) non-conventional definitions. Second, all the definitions produced were classified according to their content. Content refers to the differentiating characteristics that are the attributes of the definiendum (i.e., term to be defined). All definitions in the present corpus fit into one or more of the following five categories: (1) description, (2) function, (3) relation, (4) exemplification, and (5) association. The taxonomy was developed, drawing on the typology shown in the literature (Wehren, De Lisi & Arnold, 1981; Benelli, Arcuri & Marchesini, 1988; Flowerdew, 1992b) and was adapted to fit the present data.

I coded all the subjects' responses once, and after two weeks I coded them again. The percentage of intra-coder agreement was 95. All the examples in the following taxonomy are direct quotations from the subjects' responses.

Classification According to Form

1. Categorical definitions: Presence of superordinates only.

piano	"a musical instrument." (NS)
potato	"It is a vegetable." (Int.)

2. Specified categorical definitions: The superordinate followed by specifications of some sort. These specifications may be relative clauses (restrictive or non-restrictive), reduced relative clauses, or prepositional phrases.

bicycle	"A kind of vehicle which has two wheels and pedals." (Adv.)
kangaroo	"A marsupial unique to Australia." (NS)
piano	"A large musical instrument with many black and white keys." (Adv.)

3. Specified generic definitions: Generic terms such as "something," "a thing," or "an object" instead of the specific superordinate, followed by one or more specifications of some sort. These may be relative clauses (restrictive or non-restrictive), reduced relative clauses, or prepositional phrases.

hat	"Something people wear on their heads" (Int.)
piano	"A thing which makes sound and music to touch it." (Low)

4. Non-conventional definitions: Lack of superordinates.

watermelon	"You can eat it most in summer. It looks like a basket ball colored green and black. It is red and has many seeds inside." (Adv.)
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Classification According to Content

1. Description: Reference to the properties of objects (e.g., visual, tactile, and taste), means of operation, or geographical distribution.

watermelon	"It has green and black stripes outside but inside is red. It tastes sweet but has many seeds." (Int.)
bicycle	". . . you pedal to make it move." (Int.)
kangaroo	"You can see this animal in Australia" (Adv.)

2. Function: Reference to the functional properties of objects.

umbrella	"You use it for preventing yourself from getting wet when it rains." (Adv.)
clock	"an instrument that tells you time." (Adv.)

3. Relation: Use of an analogy or comparison.

tulip	". . . The shape of flower is like a wine glass." (Adv.)
bicycle	". . . To ride a bicycle is faster than to walk." (Low)

4. Exemplification: Use of examples.

potato	". . . When we eat it, we cook into, for example, fried-potato, boiled-potato and so on." (Low)
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5. Association: Reference to indirect associations with stimulus words, which may be culture-bound; conventional or personal comments, etc.

watermelon	". . . we used to eat it at Fourth of July picnics." (NS)
kangaroo	". . . Very interesting animal." (Low)

Form of Definitions

Conventional Syntactic Form: Definitions have a conventional syntactic form. In making a definition the following are given: the term to be defined (definiendum), the class to which the term belongs (superordinate), and the distinguishing characteristics that make the

definiendum different from other members of its class. Characteristics are often stated in a relative clause. Thus the conventional English syntactic form of a definition may be stated as follows:

An X is a Y which / that is/ has Z (characteristics)

Bierwisch & Kiefer (1969) point out that a definition may take a variety of forms, and Flowerdew (1991) demonstrates that a definition "can be subject to modification" (p. 253). However, both of them agree that the conventional form described above is the most typical form. Most researchers agree on this conventional definitional form (e.g., Litowitz, 1977; Watson, 1985; Benelli, 1988; Markowitz & Franz 1988). This form is also evident in dictionary definitions, as seen in the *cobuild English Language Dictionary*:

A watermelon is a large round fruit which has a green skin on the outside and is pink and juicy inside with a lot of black seeds. (p. 1644)

This form is represented by Category 2 (Specified categorical definitions) in the present taxonomy:

"A bicycle is a kind of vehicle which has two wheels and pedals." (Adv.)

The conventional syntactic form of a definition consists of a definiendum, a copula construction, a superordinate, and a post-modifier of some sort. However, in this study responses omitting the definiendum and the copula were treated as responses with these, since dictionary definitions often omit them. Therefore, the above example would be considered as having the conventional format even in the absence of "A bicycle is."

Categories 1 (categorical definitions) and 3 (specified generic definitions) also have the conventional definitional format, "an X is Y," though where the former does not have any characteristics, the latter does. These categories (1, 2, and 3) have superordinates. The presence of a superordinate is an essential feature of the conventional form of a definition. Although specified generic definitions have the conventional form of "an X is a Y which /that is/ has Z (characteristics)," the superordinates they include are not specific superordinates but generic superordinates such as "an object," "a thing" or "something":

hat "It is something you wear on your head to protect from
sunshine or coldness, and for fashion." (Adv.)

Using a specific superordinate instead of a generic superordinate would produce a more informative and more precise definition.

Category 4 (non-conventional definitions) in the present taxonomy lacks superordinates and the format, "an X is Y." Instead, their definitional forms are "an X has . . .," "we (you) do . . .," or "an X is used for Y-ing," which are non-conventional definitions:

bicycle	"It has two wheels, a handlebar and saddle . . ." (Int.)
hat	"We wear it on the head." (Low)
clock	"It's used for informing you of time." (Int.)

Frequency of Definitional Forms: In order to see the relationship between the subjects' proficiency level in the target language and the types of definitional forms they produced, responses were analyzed according to four categories: specified categorical, categorical, specified generic, and non-conventional definitions. Uninterpretable answers were excluded from analysis. The first three categories are either full- or semi-conventional definitions. A response which did not include any of the above three conventional definitional forms was classified as non-conventional. Table 1 presents the percentage and number of these different definitional forms given by subjects at different proficiency levels

Table 1: Percentage and Number of Definitional Forms Given in English by Proficiency Level

Definitional Form	Proficiency Level							
	NS		Adv.		Int.		Low	
	%	(no.)	%	(no.)	%	(no.)	%	(no.)
Specified Categorical	78.2	(86)	50.9	(56)	29.1	(32)	26.4	(29)
Categorical	15.5	(17)	26.4	(29)	35.5	(39)	36.4	(40)
Specified Generic	4.5	(5)	8.2	(9)	2.7	(3)	10.0	(11)
Non-conventional	1.8	(2)	13.6	(15)	30.0	(33)	20.9	(23)
Uninterpretable	0.0	(0)	0.9	(1)	2.7	(3)	6.4	(7)
Total	100	(110)	100	(110)	100	(110)	100	(110)

NS = Native speakers of English

Adv. = Advanced proficiency learners

Int. = Intermediate proficiency learners

Low = Low-proficiency learners

1. Specified categorical definitions vs. categorical definitions: It can be seen from Table 1 that although the subjects at different levels produced all four forms, they used each form in different proportions. The proportion of specified categorical definitions tends to increase with

proficiency level. Categorical definitions, on the other hand, show the opposite trend and are inclined to decrease with proficiency level. The main differences lie between the advanced and the intermediate levels, thus dividing the subjects into two major groups: (1) native speakers and advanced learners, and (2) intermediate and low-proficiency learners. The clear-cut difference in the proportion of definitional forms between the advanced learners on the one hand, and the intermediate and low proficiency learners on the other, shows that the advanced learners are able to make definitions in English, even though they are not as proficient as native speakers of English. This is confirmed in part by the striking findings from Snow, Cancini, Gonzalez & Shriberg (1989) that "the advanced school learners of English scored just as well on all the definitions subscores as the native monolinguals" (p. 248).

The reason why the proportion of specified categorical definitions increases and that of categorical definition decreases with proficiency level may be explained with reference to post-modification. The syntactic format for specified categorical definitions is "an X is a Y which /that is/ has Z," while that for categorical definitions is "an X is a Y." The only difference between specified categorical definitions and categorical definitions is the presence or absence of post-modification. As Table 1 shows native speakers and advanced learners, because of greater knowledge of the target language forms, produced sentences with post-modification more often than those at the lower levels, although there was a great difference in the percentage of the two types between native speakers and advanced learners.

2. Specified generic definitions. The specified generic definition, which has a generic superordinate such as "an object," "a thing," or "something," was the definition least frequently given by all the subjects except the native speakers. According to Litowitz (1977), in a child's developmental stages of making definitions, the specified generic definition is the transitional form between non-conventional definitions and specified categorical definitions: that is, a child learns a generic superordinate, "something," before learning an appropriate superordinate. Table 1 suggests that even adult native speakers will produce specified generic definitions.

3. Non-conventional definitions. As the proficiency level increases, the percentage of non-conventional definitions tends to decrease. However, this type of definition was used more often by the intermediate learners than by the low-proficiency learners. Litowitz (1977) notes that even adults who can construct definitions in a mature form often utilize the functional definitional form in situations where "the Aristotelian form is not demanded"

such as when conversing with friends (p. 302). The task given in the present study, the completion of a questionnaire, was obviously not a casual one, but one in which conventional definitions might reasonably be expected and preferred. It is interesting to note that the native speakers generated only two non-conventional definitions:

clock	"It's used to tell time."
umbrella	"It's used to prevent your body from getting soaking wet on rainy days."

This suggests that even native speakers use non-conventional definitions in situations where these may not be the norm. Needless to say, a much wider sample is needed to provide statistically valid conclusions on this issue.

Content of Definitions

Types of Information: This section examines whether the content of definitions is related to the level of proficiency in the target language. By the content is meant the type of information chosen, that is to say, the differentiating characteristics that are the properties or attributes of the definiendum. Whether or not a superordinate (i.e., a class to which the term belongs) is present is not considered here, since the focus of the investigation is on the distinguishing characteristics which make the definiendum different from other members of its class. In the taxonomy developed for this study, the different kinds of information were classified into description, function, relation, exemplification, association, and any combination of these types. Two or more instances of a single type in one response were counted as one. For example, the following response was counted as one instance of functional-type (characteristics are in the brackets):

chicken	"This is a kind of bird [which is sometimes kept as a pet,] [usually used for food]" (Adv.)
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The following example was classified as a combination of function and description:

clock	"[It shows us what time it is now.] [It has three needles.]" (Int.)
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Frequency of Informational Types: Table 2 shows the raw frequencies for the different types of information given in English at the various proficiency levels. The data show that description, function, description and function, and description and association are the four major types of re-

Table 2: Distribution of Types of Information
Given in English by Proficiency Level

Types of Information	NS	Adv.	Int.	Low
Description	40	36	30	29
Function	25	23	27	33
Description & Function	15	25	14	10
Description & Association	11	8	12	12
Description, Function & Relation	-	1	-	2
Description, Function, Relation & Exemplification	-	-	1	-
Description, Function & Association	5	-	1	-
Description & Relation	1	4	5	3
Description, Relation & Association	1	1	2	1
Description & Exemplification	2	-	-	-
Description, Exemplification & Association	2	-	-	-
Function & Relation	-	-	-	1
Function & Exemplification	1	2	-	2
Function, Exemplification & Association	-	-	-	1
Function & Association	2	1	5	3
Relation	-	-	-	1
Relation & Association	-	2	1	-
Association	2	3	9	5
Uninterpretable Information	-	1	3	7
Total	107*	107*	110	110

(*Note: Three definitions given by native speakers and advanced learners had superordinates only and are not included.)

NS = Native speakers of English

Adv. = Advanced learners

Int. = Intermediate learners

Low = Low-proficiency learners

sponses at all levels. Of the four types of responses, the two most common were those occurring independently, i.e., description and function. The least frequent type employed by all the subjects, except by low-proficiency learners, was the combination of description and association.

Responses to Different Nouns. The responses to different nouns were examined in order to see if there was any major difference among subjects at different proficiency levels. Subject responses to each noun did not vary greatly by proficiency level, except to the word "umbrella." Native speakers and advanced learners gave five and four instances of the combinational type of the "description & function," respectively, while the intermediate and the low-proficiency learners produced just one instance per group of this type, out of 10 responses, the remaining nine being functional-type. The most frequently given functional type by all the subjects was for the word "hat" (native 7, advanced 9, intermediate 10, and low 8). All the subjects knew the physical appearance of the object and were able to include descriptive information in their definitions. The tendency to define this word only by function may suggest that "function constitutes the core component of subjects' conceptions of what a definition is, rather than a reflection of their knowledge of the object per se" (Wehren, De Lisi & Arnold, 1981, p. 173).

Conclusions and Implications

The results show that although the subjects at different target language proficiency levels produced the same four definitional forms, they differed in the proportion of each. However, the definitional content was not related to proficiency level. Subjects used the same types of information, and the frequency of each of those types did not vary significantly with respect to proficiency level.

These results provide evidence that learners of English have the lexical knowledge to give information on definienda but lack the syntactic forms of English to express it, though advanced learners have greater control than intermediate and low proficiency learners.

Snow (1990) suggests that "definitional skill in school-aged children is heavily influenced by the opportunity to practice giving definitions" (p. 708). With young adults acquiring this skill in a foreign language, even though they have the knowledge of what a definition is in their native language and are not doing it from scratch, there exists the same problem as in FL data in general: frequency of input.

Foreign language classroom tasks do not usually include the task of learning definitional forms. This kind of skill cannot easily be acquired

incidentally from other language tasks. The implication of this study for the classroom is that the definitional skill has to be learned and practiced in order for it to be utilized at close to native speaker proficiency. This is true especially for students at the intermediate and lower levels. It may be that failure to produce specified categorical definitions in L2 is associated with faulty definitional skills in the L1.

More research is required to determine exactly what contributes to the development of definitional skill in a foreign language among adult learners. Possibly, L1 definitional skill is a necessary but not sufficient condition for attaining L2 skill. As teachers come to understand more about what is involved in mastering definitional skill, they will be able to give greater help to their students in acquiring this skill which, although of limited application, is nevertheless necessary.

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An Inquiry into Reading Comprehension Strategies through Think-aloud Protocols

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Asking comprehension questions might reveal how much readers have understood of a given text, but such a measure is hardly sufficient to determine how the readers have actually processed the text in their minds. For the purpose of obtaining direct insight into how EFL readers search for meaning and what kinds of reading comprehension strategies they possess and utilize during the act of reading, the author collected think-aloud protocols of 43 Japanese university students recorded on cassette tapes and examined the data, using the broad categories of top-down processing and bottom-up processing with accompanying sub-categories. This article reports the method of classifying the data, analyzes the characteristics of strategies used by the subjects, and investigates the relationship between strategy use and reading comprehension ability shown in the results of semester examinations. Finally, it considers the implications of this data for teaching reading to Japanese university students.

EFLの読み手が、意味をとろうとして、どのように苦闘しているか、また、どのような読解ストラテジーを有し、それを役立てているかを考察するには、理解度を問う質問をするだけでは不十分である。理解度を問う質問は、読み手が与えられたテキストをどれくらい理解したかは明らかにするであろうが、実際に読み手が心の中で、どのようにテキストを処理したかを教えてはくれない。筆者は、43名の日本人大学生の発話思考法によるプロトコルをカセット・テープに録音して収集し、トップ・ダウン処理とボトム・アップ処理という広い範疇と、その下位範疇を使ってそれらのデータを分析した。本稿は、分類の方法を報告し、被験者の使用したストラテジーの特徴を分析し、ストラテジー使用と期末試験に現われた読解能力との関係を考察する。最後に、その結果をもとに、日本人大学生への読解指導法を検討する。

Reading comprehension in a foreign language can be much more complicated than in one's native language. In the case of reading in one's native language, lower-level processes such as recognizing individual words and grasping syntactic structures are mostly automatic (Grabe, 1988; McLeod & McLaughlin, 1986), whereas reading in a