A Study on Korean English Learners' Acquisition of English Verb Classes*

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Lee, Heechul & Shim, Jaewoo. (2013). A Study on Korean English Learners' Acquisition of English Verb Classes. *The Linguistic Association of Korea Journal, 21*(3), 97-113. This study is based on verb classes and their semantic features of meaning which were proposed by Vendler (1967), Dowty (1979), Van Valin & LaPolla (1997), and Van Valin (2005). Especially, this empirical study attempted to investigate how the verb classes are acquired by 65 EFL college learners. The subjects responded to a 20-item instrument by indicating whether sentences in which verbs occur in the progressive aspect or co-occur with some phrases were acceptable or not. Their responses were submitted to a Winsteps program that is based on the Rasch analysis. The item fit indices showed that each test item followed Rasch analysis expectations. Further Rasch analysis showed that the combined semantic features of both punctual and telic were more difficult than a single semantic feature of static or telic, and that the verb class which is unmarked for all the three semantic features was the easiest. This result indicated that semantic meanings may be hierarchically organized so that verbs with semantically more difficult features are likely to be more difficult than others. In particular, it was found that the hierarchical difficulty order was from the easiest class of activity verbs, which are unmarked for all the three semantic features, to state verbs, to accomplishment verbs, and to the most difficult class of achievement verbs, which are marked for both punctuality and telicity. A practical approach for teaching verb meanings was suggested, based on a consciousness-raising task.

Key Words: verb classes, semantic features of verbs, consciousness-raising task, meaning, inductive grammar teaching

1. Introduction

There are many ways to classify verbs, depending upon grammatical behaviors considered. For example, one way of grouping the verbs relies upon whether implicativeness is part of their meaning, which enables us to correctly understand the meaning of the sentence in which the verb involved occurs (Givón, 1984). The sentence containing an implicative verb implies that the manipulation expressed by the meaning of the verb is successful whereas that containing a non-implicative verb does not. Verbs can also be divided into stative verbs and dynamic ones, which makes it possible to explain grammatical phenomenon related to the progressive aspect and pseudo-cleft sentences (Greenbaum & Quirk, 1990). Stative verbs cannot occur in the progressive aspect. They cannot occur in pseudo-cleft sentences as a subject complement, either. However, dynamic ones can occur in both constructions. It is also possible to categorize verbs further into four types, considering their grammatical behaviors including co-occurrence: state, activity, accomplishment, and achievement verbs. The purpose of this study is to find hierarchies, if any, of the four verb classes and, accordingly, those of semantic features characteristic of the verb classes in Korean EFL learners' acquisition.

2. Four verb classes and their semantic features

Examples of verbs from the four categories are as follows (Vendler, 1967; Dowty, 1979; Van Valin & LaPolla, 1997; Van Valin, 2005):

1) a. States: know, believe, have, desire, love, be sick, be tall, be dead
   b. Activities: run, walk, swim, push a cart, drive a car, march, roll (the intransitive versions), think, rain, read, eat, snow, write, drink
   c. Accomplishments: paint a picture, make a chair, deliver a sermon, draw a circle, recover from illness, melt, freeze, dry, learn
   d. Achievements: recognize, spot, find, lose, reach, die, pop, explode, collapse, shatter

The first grammatical behavior to consider is whether a verb can occur in the progressive aspect or not. Let us look into the examples, as follows:

2) a.*Bill is knowing the answer.
   b. Brittney is singing.
   c. The snow is melting.
   d. *The balloon is popping.

In the above examples, (2a) is ungrammatical because the verb *know* is static as part of its meaning. A verb can be said to be non-static if it can occur in a sentence as an answer to the question *What happened?* or *What is happening?* (Van Valin & LaPolla, 1997; Van Valin, 2005). Such verbs as *know* are classed as state verbs according to the Aktionsart classification (Dowty, 1979). State verbs cannot occur in the progressive aspect. Interestingly, the example (2d) is also unacceptable. The reason is that the verb *pop* has no internal duration as part of its meaning.[1] So the verbs which have no temporal duration as part of their meaning cannot occur in the progressive aspect. These punctual verbs are named achievement verbs in Aktionsart (Dowty, 1979). From the examples in (2) above, it is possible to say that only the verbs which are non-static and which have internal temporal duration can occur in the progressive aspect. In other words, to use semantic features to represent the same phenomenon, only the verbs which are [-static] and [-punctual] can occur in the progressive aspect.

Let us consider the examples to see whether the verbs can co-occur with the adverb *actively*, as follows:

3) a. *Thomas knows the answer actively.
   b. Lindsay is singing actively.
   c. *The snow melted actively.
   d. *The window broke actively.

In the above examples, only (3b) is acceptable. The verbs like *sing* have no inherent terminal point as part of their meaning and thus are represented by the

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1) Of course, the sentence *The balloons are popping* is grammatical with the subject in plural, in which is meant each balloon popping in sequence.

semantic feature [-telic]. In that sense, they are like state verbs. On the other hand, they are different from state verbs in that they are non-static whereas state verbs are static. Such verbs as *sing* are categorized as activity verbs in the Aktionsart verb classes (Dowty, 1979). The above examples show that only activity verbs can co-occur with *actively*. They can also co-occur with such adverbs as *vigorously, energetically,* and *dynamically.* Activity verbs are characterized in semantic features as [-static] and [-telic].

Let us examine the examples in which the pace adverb *slowly* occurs, as follows:

4) a. *Monica knows the answer slowly.
   b. Madonna is singing slowly.
   c. The snow is melting slowly.
   d. *The bomb exploded slowly.

The linguistic behaviors shown above indicate that they are parallel with those in the examples in (2). That is to say, the verbs which can occur in the progressive aspect also can co-occur with the pace adverb *slowly.* So we can say that only the verbs that are [-static] and [-punctual] can co-occur with such pace adverbs as *slowly* and *quickly.*

Let us investigate the examples in which a *for*-time phrase occurs, as follows:

5) a. John liked Anita for an hour.
   b. Angela danced for ten minutes.
   c. The snow melted for an hour.
   d. *The window broke for ten minutes.

In the examples in (5) above, only (5d) is unacceptable. The characteristic of the verb *break* is that it has no internal temporal duration at all as part of its meaning (Van Valin & LaPolla, 1997; Van Valin, 2005). The kind of verbs is represented by the semantic feature [+punctual] and the feature picks *break* out from among the verbs occurring in sentences in (5). The verbs which share the feature [+punctual] are grouped together as achievement verbs and they cannot occur in a *for*-time phrase, as shown in the above examples. The other way

around, it is also possible to say that only [-punctual] verbs can co-occur with a *for*-time phrase.

Since it was examined previously whether the verbs in consideration could co-occur with a *for*-time phrase, it seems natural to check to see whether they can co-occur with an *in*-time phrase, as follows:

6) a. *Raymond liked Mary in an hour.
   b. *Hillary danced in ten minutes.
   c. The snow melted in an hour.
   d. *The window broke in ten minutes.

As presented above, only (6c) is acceptable while the others are not. The verbs like *melt* occurring in (6c) have both inherent terminal point and internal temporal duration as part of their meaning and accordingly, are represented by the semantic features [+telic] and [-punctual], respectively (Van Valin & LaPolla, 1997; Van Valin, 2005). Those verbs are classified as accomplishment verbs and they alone can co-occur with an *in*-time phrase.

Let us take stock of the discussion so far. Verbs can be divided into such four different categories as state, activity, accomplishment, and achievement verbs, according to the Aktionsart verb classes (Dowty, 1979).[2] The classification is justified since the four groups of verbs show differences in their linguistic behaviors. First, state and achievement verbs cannot occur in the progressive aspect whereas activity and accomplishment verbs can. Second, only activity verbs can co-occur with such verbs as *actively, vigorously, dynamically,* and *energetically.* Third, activity and accomplishment verbs can co-occur with such pace adverbs as *slowly* and *quickly* while state and achievement verbs cannot. Fourth, only achievement verbs cannot co-occur with a *for*-time phrase whereas the others can. Lastly, only accomplishment verbs can co-occur with an *in*-time phrase whereas the others cannot.

The four verb classes which show different grammatical behaviors are represented by semantic features, as follows:

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2) More verb classes are put forward in Van Valin and LaPolla (1997) and in Van Valin (2005) than in Dowty (1979), but this paper focuses on the four verb classes to serve its own purpose.

Table 1. Verb classes and their semantic features

	Static	Telic	Punctual
State	+	−	−
Activity	−	−	−
Accomplishment	−	+	−
Achievement	−	+	+

As seen in the table above, activity verbs are unmarked for all the three semantic features, both state and accomplishment verbs are marked for only one feature, and achievement verbs are marked for two features. Based on the un/markedness of the verb classes for the semantic features, it is possible to predict that activity verbs are the easiest ones and achievement verbs are the most difficult ones in Korean English learners' acquisition. In other words, it is hypothesized that activity verbs are on the leftmost side, achievement verbs on the rightmost side, and both state and accomplishment verbs in the middle of the continuum of acquisition difficulty.

3. Research questions

Acknowledging the fact that verbs can be categorized into four classes and the four classes of verbs show different linguistic behaviors, this research addresses the following questions:

First, are there any dimensions of meaning among verbs and if so, do college students learning English as L2 distinguish the verb classes from one another with respect to whether they are state, activity, accomplishment, or achievement verbs? Alternatively, do internal semantic structures of verbs exist and if so, do college students distinguish the verb classes from one another with respect to such semantic features as [static], [telic], and [punctual]? Is it possible to confirm the internal semantic structures of the verb classes through the Rasch analysis, a type of item response theory?

Second, is there any hierarchy of the verb classes in the degree of easiness or difficulty of their meaning in relation to their grammatical behaviors? Do EFL

learners find a specific type of verbal meaning easier or more difficult than others? If so, what is the root of the phenomenon?

Third, what are the implications of the different dimensions of verb meanings for teaching verbs?

4. Method

4.1. Subjects

A total of 65 subjects participated in this study. All of them were undergraduate English majors at a large university. They include students at four grade levels, first, second, third, and fourth year students. At the time of this study, the subjects were taking courses on English teaching and learning, linguistics, and English grammar. They have been studying English as a foreign language since their third year in elementary school. Although the TOEIC or TOEFL test scores of the subjects were not known, their English ability was considered intermediate or above intermediate by native speaker teachers who had been teaching the subjects for a number of semesters. The subjects were taking the courses in which the medium of instruction is in English.

4.2. Instrument

Based on the theoretical assumption of verb types proposed by Vendler (1967), Dowty (1979), Van Valin & LaPolla (1997), and Van Valin (2005), one of the researchers developed the 20-item instrument that was composed of 4 different types of verbs, as in table 2 below. The instrument was prepared for the five tests in such a way that a sentence with a verb belonging to a verb class does not occur in sequence with another sentence containing a verb belonging to another verb class for the same test. This way subjects are prevented or at least hindered from realizing what they are tested for. In addition, verbs which are considered familiar, from the point of frequency, to the subjects were chosen from each verb class. Finally, the subjects were asked to indicate whether each item in the instrument was correct or incorrect.

Table 2. Test items

1) Madonna is singing quickly. (   )
2) Raymond liked Mary in an hour. (   )
3) Angela danced for ten minutes. (   )
4) Bill is knowing the answer. (   )
5) The snow melted in an hour. (   )
6) Brittney is singing. (   )
7) The window broke for ten minutes. (   )
8) The snow melted actively. (   )
9) Thomas actively knows the answer. (   )
10) The snow is melting. (   )
11) The bomb exploded quickly. (   )
12) The snow melted for an hour. (   )
13) The window broke in 10 minutes. (   )
14) The window broke actively. (   )
15) The balloon is popping. (   )
16) Monica quickly knows the answer. (   )
17) The snow is melting quickly. (   )
18) John liked Anita for an hour. (   )
19) Hillary danced in ten minutes. (   )
20) Lindsay is singing actively. (   )

4.3. Measure

The reponses by the 65 subjects were coded either 1 for a correct answer or 0 for an incorrect answer. This procedure of coding their answers into dichotomous data was required to apply the Rasch model analysis. Winstep 3, a Rasch analysis software program was used to analyze the data for exploring any composition of verb meanings indicated by how difficult the subjects felt in judging the usage of verbs in the instrument. The collection of dichotomous data based on true or false choices the subjects made were necessary, although the data themselves reflected declarative knowledge of English rather than procedural or unconscious type of knowledge. Accordingly, any result based on dichotomous data should be limited to an interpretation in terms of declarative knowledge.

In the Rasch model analysis, dichotomous data are transformed into natural

logs. Through this process, the abilities of subjects and the difficulties of test items are arranged on the same probabilistic logit scores. This transformation of actual data into logit scores enables researchers to identify misfit items that behave erratically in person ability and item difficulty, to directly compare person ability with item difficulty, and to understand any hierarchical relations among items implicated by item difficulties (McNamara, 1996; William & Slawski, 1982; Wright & Masters, 1982)

5. Results

5.1. Fit statistics of items

Goodness-of-fit was examined by a MnSq infit statistic range of 0.80 to 1.2, standardized value of infit ZSTD range of -2 to 2 (Li & Olejnik, 1997; Lord, 1980). According to these guidelines, all the items except for items 13 and 18 followed the Rasch analysis expectations. Yet, since those two items were on the borderline, it was decided that they could be included in the analysis.

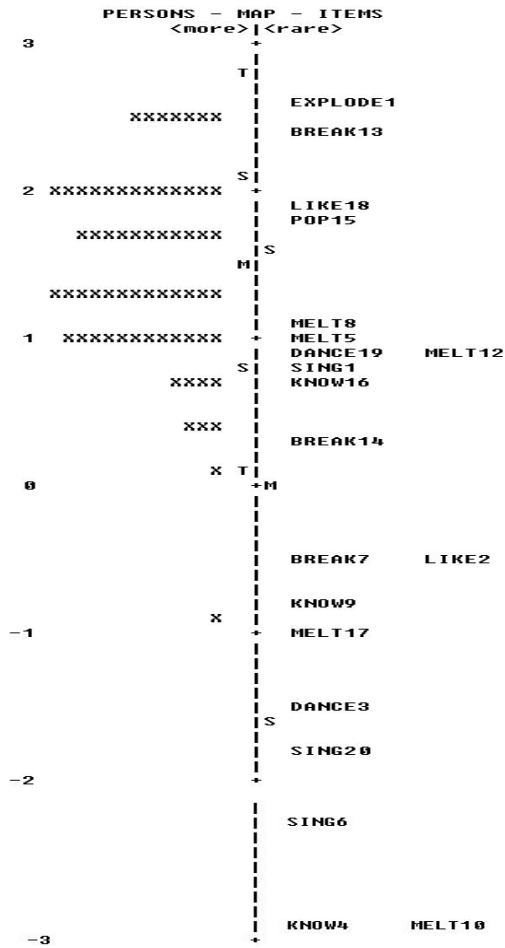Table 3. Item Statistics: Measure Order

ITEM STATISTICS: MEASURE ORDER

ENTRY NUMBER	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	ZSTD	OUTFIT MNSQ	ZSTD	PT-MEASURE CORR.	EXP.	EXACT MATCH OBS%	EXP%	ITEM
11	17	65	2.60	.29	1.02	.2	1.01	.1	.23	.25	73.8	73.9	EXPLODE1
13	20	65	2.35	.28	1.26	2.1	1.69	3.6	-.20	.26	61.5	70.0	BREAK13
18	26	65	1.91	.26	.85	-2.0	.81	-1.8	.51	.28	78.5	64.4	LIKE18
15	28	65	1.77	.26	1.07	1.0	1.09	.9	.18	.29	53.8	63.4	POP15
8	38	65	1.09	.26	.99	-.1	.98	-.2	.32	.30	63.1	64.0	MELT8
5	40	65	.95	.27	1.14	1.5	1.19	1.7	.08	.30	63.1	65.4	MELT5
12	41	65	.88	.27	1.04	.4	1.02	.2	.25	.30	61.5	66.5	MELT12
19	41	65	.88	.27	.94	-.6	.92	-.6	.39	.30	67.7	66.5	DANCE19
1	42	65	.81	.27	1.09	.9	1.08	.7	.18	.30	63.1	67.5	SING1
16	44	65	.66	.28	1.05	.5	1.06	.5	.22	.29	72.3	69.8	KNOW16
14	48	65	.33	.29	1.01	.1	.94	-.3	.29	.28	70.8	74.9	BREAK14
2	56	65	-.52	.37	.84	-.6	.63	-1.2	.51	.24	87.7	86.4	LIKE2
7	56	65	-.52	.37	.97	.0	.83	-.4	.33	.24	84.6	86.4	BREAK7
9	58	65	-.83	.41	.90	-.2	.71	-.7	.40	.23	90.8	89.3	KNOW9
17	59	65	-1.01	.44	.94	-.1	.77	-.4	.32	.21	90.8	90.8	MELT17
3	61	65	-1.47	.53	.81	-.3	.43	-1.1	.51	.19	93.8	93.8	DANCE3
20	62	65	-1.79	.60	.87	-.1	.61	-.5	.36	.17	95.4	95.4	SING20
6	63	65	-2.22	.73	1.05	.3	.95	.2	.08	.14	96.9	96.9	SING6
4	64	65	-2.95	1.02	.99	.3	.44	-.2	.20	.10	98.5	98.5	KNOW4
10	64	65	-2.95	1.02	1.02	.3	.81	.2	.09	.10	98.5	98.5	MELT10
MEAN	46.4	65.0	.00	.42	.99	.2	.90	.0			78.3	79.1	
S.D.	14.7	.0	1.64	.23	.11	.8	.27	1.1			14.5	13.1	

5.2. Item map analysis

Based on item difficulty logit scale and person ability logit scale, an item map was constructed. In general, an item map gives information on how difficult items are in comparison to persons who have taken a test. This comparison is possible since item difficulties and person abilities are arranged on the same logit scale as shown in Figure 1, as below:

Figure 1. Item map


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         PERSONS - MAP - ITEMS
              <more>|<rare>
3                   +
                   T|
                    |
                    |    EXPLODE1
         XXXXXXX    |    BREAK13
                    |
                    |
                   S|
2  XXXXXXXXXXXX     +
                    |    LIKE18
                    |    POP15
         XXXXXXXXXX  |S
                   M|
     XXXXXXXXXXXXX   |
                    |
                    |    MELT8
1    XXXXXXXXXXXX   +    MELT5
                    |    DANCE19    MELT12
                   S|    SING1
             XXXX   |    KNOW16
                    |
              XXX   |
                    |    BREAK14
            X  T|
0               +M
                    |
                    |
                    |    BREAK7     LIKE2
                    |
                    |    KNOW9
              X  |
-1               +    MELT17
                    |
                    |
                    |    DANCE3
                   |S
                    |    SING20
-2               +
                    |
                    |    SING6
                    |
                    |
                    |
                    |    KNOW4     MELT10
-3               +
```

The item map above was expressed again in terms of verb features in Table 4.

Table 4. Logits of difficulty and semantic features of verbs

Item No.	Verb	Logit of Difficulty	Feature 1 Static	Feature 2 Telic	Feature 3 Punctual
11	explode	2.60	-	+	+
13	break	2.35	-	+	+
18	like	1.91	+	-	-
15	pop	1.77	-	+	+
8	melt	1.09	-	+	-
5	melt	.95	-	+	-
12	melt	.88	-	+	-
19	dance	.88	-	-	-
1	sing	.81	-	-	-
16	know	.66	+	-	-
14	break	.33	-	+	+
2	like	-.52	+	-	-
7	break	-.52	-	+	+
9	know	-.83	+	-	-
17	melt	-1.01	-	+	-
3	dance	-1.47	-	-	-
20	sing	-1.79	-	-	-
6	sing	-2.22	-	-	-
4	know	-2.95	+	-	-
10	melt	-2.95	-	+	-

6. Discussions

6.1. Dimensions of semantic meanings of verbs

Let us consider figure 1, and tables 3 and 4 above. First, they show that

items 3, 6, and 20, which are below the item difficulty -1, and which are in the majority of the items in the same range, are activity verbs. Activity verbs are the easiest ones in the hierarchy of difficulty and can be said to be unmarked, congruent to what was hypothesized at the beginning of this paper. Second, items 2 and 9, which are placed between 0 and -1 of difficulty levels are state verbs and they are [+static]. Third, of the items located between a little over 1 and 0 of item difficulty levels, 5, 8, and 12 are accomplishment verbs and they outnumber the other verb classes in the same range. Accomplishment verbs are marked + for the semantic feature of [telic]. Last, items 11, 13, and 15 are located on top of item difficulty and accordingly, the most difficult in the hierarchy of difficulty. They belong to the achievement verb class and are represented by the semantic features [+telic] and [+punctual].

On the continuum of difficulty hierarchy lies activity verbs as the easiest ones, achievement verbs as the most difficult ones, and state and accomplishment verbs in the middle. The difficulty hierarchy of the four verb classes is as follows:

7) achievement > accomplishment > state > activity

Since activity verbs are unmarked for all the three semantic features, it seems natural that they are the easiest ones. As shown in the table 1 above, state and accomplishment verbs are distinct from activity verbs in one value of the semantic features. State verbs are distinguished from activity verbs in the value of the semantic feature [static] while accomplishment verbs are in the value of the semantic feature [telic]. Taking into consideration the verb hierarchy in (7), the feature marked for [telic] or [+telic] seems to be more difficult than the feature marked for [static] or [+static]. Achievement verbs are different from activity verbs in two values of the semantic features and so they may be said to be more marked than state and accomplishment verbs, assuming that activity verbs are unmarked. So the combined features marked for both [telic] and [punctual], or [+telic, +punctual] seem to be the most difficult. The difficulty hierarchy of the three semantic features is as follows:

8) [+telic, +punctual] > [+telic] > [+static] > Unmarked

In their five linguistic phenomena presented above, achievement verbs show the same linguistic behavior as activity verbs only in the co-occurrence with an *in*-time phrase. So it is possible to say that achievement verbs are more different from activity verbs than state or accomplishment verbs are in their grammatical phenomena. This is congruous with the degree to which activity verbs are different from other classes of verbs according to the calculation of the values of the semantic features for each verb class.

There are, of course, limitations of this research. Even though this study aims at finding a general hierarchy of the four verb classes in Korean English learners' acquisition, it did not consider each linguistic test separately for the classes. It would produce a more valued research to examine the four verb classes for the same kind of linguistic test, for instance, for the progressive, and to do the same thing for another linguistic test. Although this investigation is mainly concerned with verb classes, not with individual verbs, it would enhance the validity and reliability of the statistics to add more verbs to and to use the same number of different verbs for each class in the survey. With these limitations excluded, or, at least, reduced, the future research will be carried out.

6.2. A practical approach towards teaching verb meanings; a consciousness-raising task

Consciousness-raising tasks have been proposed by Ellis (2003). It has been suggested that consciousness-raising tasks facilitate grammatical competence while students are engaged in conversations through noticing, comparing, and integrating a grammatical feature (Schmidt, 1990). A consciousness-raising task for this study was selected for the feasibilities of subjects noticing, comparing, and integrating verbal meanings. In other words, in the context of this study of verb meanings, it is plausible to say that students come to notice features of verb meanings that have been introduced, to compare the gap between what they have known and how the verbs actually behave, and to integrate the meanings of verbs into their interlanguage, all of these through a consciousness-raising task. In particular, it was believed that verb meanings may be taught most effectively through the processes of noticing, comparing, and integrating meanings. Furthermore, in literature, there existed no suggestion as

to teaching semantic meanings through traditional teaching methods such as Grammar Translation Method and Audiolingualism.

In literature, there are two approaches of doing consciousness-raising tasks; that is, inductive or deductive methods. If the teacher gives students some linguistic data and asks them to work out a rule to explain the data, it is called an inductive approach. On the contrary, if the teacher gives a rule about some linguistic data and has students apply the rule, it is called a deductive approach. With some applications of Task-Based Language Teaching, the consciousness-raising task for this study consisted of three steps of pretask (i.e., noticing a feature), task-cycle (i.e., working out certain rules), and language focus (i.e., applying rules to linguistic data). The following is a task procedure that can be used to help students in groups of 4 or 5 integrate verb meanings into their interlanguage:

Task 1. Study the following verbs. What forms (e.g., *for*-time, *-ing*, adverbs such as *actively*) tend to be used with each verb? Wrong sentences are marked with (x) and correct sentences with (○).

Bill is believing that the earth is round. (X)
Brittney is singing. (○)
The snow is melting. (○)
The balloon is popping. (X)
Thomas actively believes that the earth is round. (X)
Lindsay is singing actively. (○)
The snow melted actively. (X)
The window broke actively. (X)
Monica slowly believes that the earth is round. (X)
Madonna is singing slowly. (○)
The snow is melting slowly. (○)
The bomb exploded slowly. (X)
John liked Anita for an hour. (○)
Angela danced for ten minutes. (○)
The snow melted for an hour. (○)
The window broke for ten minutes. (X)

Raymond liked Mary in an hour. (X)
Hillary danced in ten minutes. (X)
The snow melted in an hour. (○)
The window broke in ten minutes. (X)

Task 2. Come up with rules about what forms may be used with the set of verbs in Task 1. Use metalinguistic terms such as adverbs, progressives, prepositional phrases of *for*-time or *in*-time in your rules.

Task 3. Write a sentence for each verb surveyed in task 1. Share your group's sentences with the whole class.

7. Conclusion

This study has focused on how Korean EFL learners acquire the fine-grained meanings of some verbs, based on the dimensions of verb meanings proposed by Vendler (1967), Dowty (1979), Van Valin & LaPolla (1997), and Van Valin (2005). The empirical data drawn from the subjects have confirmed the different dimensions of verb meanings as shown in the hierarchical order of verb features and accordingly, verb classes. In addition, it has been suggested in this study that the teacher provide students with a consciousness-raising task to facilitate the semantic knowledge.

However, more empirical studies on the acquisition of verb meanings by different levels of language learners, for example, by high school students, seem to be needed. In literature, there are few studies that have investigated secondary school students' acquisition of verb meanings, although the complete acquisition of those semantic features is a prerequisite for acquiring verb meanings. Also, teachers in secondary or tertiary schools should be informed of semantic meaning and instructed to teach semantic meaning as part of their grammar teaching in addition to form (i.e., syntax) and function (i.e., pragmatics). Other models of teaching meaning may need to be explored so that learners can pay attention to semantic aspects of communication.

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