THE EFFECT OF SEQUENCE OF OUTPUT TASKS ON NOTICING VOCABULARY ITEMS AND DEVELOPING VOCABULARY KNOWLEDGE OF IRANIAN EFL LEARNERS

Zahra Mahmoudabadi [1][†] --- Hassan Soleimani[2] --- Manoochehr Jafarigohar[3]--- Hasan Iravani[4]

[1,2,3,4] *Payame Noor University, Iran*

ABSTRACT

This study examined the role of output-first presentation of vocabulary tasks in noticing lexical items and enhancing vocabulary knowledge of EFL learners. The participants were 103 elementary level female Iranian EFL learners who were randomly divided into three groups: input-only, input-output, and output-input groups. After all participants took a placement test and a vocabulary pretest, the input-only group of learners received only input tasks, while the members of the other two groups received both input and output tasks in different sequences. All participants then took a vocabulary posttest. Comparison of input-only group with the other two groups showed that participants in the input plus output groups outperformed input-only group in the vocabulary post-test. The results of t-test and Mann-Whitney test indicated that output-input group performed better than the input-output group in both overall vocabulary posttest and the productive vocabulary section of the test. Moreover, the results of the semi-structured interview revealed the positive influence of output-first presentation of vocabulary tasks on noticing the gap in lexical knowledge. The findings of this study suggest presentation of vocabulary tasks in the sequence of output prior to input in order to enhance noticing vocabulary knowledge gap and develop vocabulary knowledge.

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Keywords: Output, Noticing, Tasks, Vocabulary, Sequence of presentation, EFL learners.

Contribution/ Originality

The paper's primary contribution is finding optimal conditions for the output tasks to promote vocabulary development. Moreover, the findings suggest how various conditions provided for

performing output tasks can help language learners notice the gap in their vocabulary knowledge. The results can be utilized by language researchers and practitioners.

1. INTRODUCTION

Vocabulary knowledge is one of the most influencing components in learning a second language. Many researchers have approved that vocabulary is crucial for second language learning (Coady and Huckin, 1997; Schmitt, 2008). The general agreement among researchers is that learning vocabulary is "an essential part of mastering a second language" (Schmitt, 2008).

Expanding vocabulary in a productive way has become a major concern for students, teachers, researchers and practitioners in this field. As students develop greater proficiency in English, it is significant for them to acquire more vocabulary knowledge. It is also essential for teachers to find out about the instructional programs through which they can promote vocabulary development of their students. It is noteworthy that foreign language learners are exposed to lexical input mainly through formal instruction in the classroom. Therefore, special attention must be given to presenting, practicing, and producing new vocabulary items.

1.1. Input and Output

Language input is simply defined as the language data a learner is exposed to (Gass and Mackey, 2007). Input has been a main focus of second language acquisition (SLA) research since late 1970's. One of the most influential second language acquisition (SLA) hypotheses is Krashen (1985) *input hypothesis*. Input hypothesis states that learners acquire target language (TL) when they when they receive input that is one step beyond their current stage of development. (Krashen, 1985). Some studies have confirmed the positive role of input-based instruction (Long *et al.*, 1998; Shintani, 2011). Generally, these researchers argue that input is a necessary and sufficient condition for progress so long as instruction is well-organized, while output might be a facilitative, but not a necessary condition, for L2 acquisition (Kwon, 2006).

Output, simply defined, is the language a learner produces. Output occurs, for example, when a learner discusses and writes within a group of learners who give immediate feedback for the purpose of solving a problem or building knowledge (Swain, 2000). Studies about the function of output in language acquisition are mainly based on Swain (1985) *output hypothesis*. This hypothesis posits that output may promote learners to progress from the semantic, open-ended, strategic processing needed for comprehension to the comprehensive grammatical processing required for accurate production (Gass and Mackey, 2007). Thus, it seems that students' meaningful production of language (i.e. output) has a significant role in language development.

Studies on input- and output-based instruction of vocabulary have revealed mixed results. Although many studies confirm the positive role of output production in the development of learners' vocabulary (DeKeyser, 1997; Izumi and Bigelow, 2000; Kwon, 2006; Jalilifar and Amin, 2008; Soleimani *et al.*, 2008; Hashemi and Kassaian, 2011), in some conditions, input-based instruction appears to be more effective in L2 vocabulary development (Long *et al.*, 1998; Shintani, 2011). Rassaei (2012) concluded that L2 knowledge might develop through both input-based and output-based instruction.

There were other studies which investigated the role of output in the development of productive vocabulary. For example, Laufer (1995) provided empirical evidence that the L2 learners' productive knowledge of words and receptive knowledge of words do not equally develop in a similar way. In other words, sheconcluded that if there is no instruction on productive vocabulary use, only a very limited portion of receptive vocabulary transforms to productive vocabulary. Some other studies by DeKeyser (1997), Ellis and He (1999), Izumi and Bigelow (2000) and Kwon (2006) provided evidence that the learning condition for productive vocabulary acquisition should be different from that of receptive vocabulary. In these studies, it is emphasized that output should be present to promote acquisition of productive vocabulary. In other words, these studies oppose previous views that receptive vocabulary acquisition naturally leads to productive vocabulary (Krashen, 1985). Therefore, we should provide appropriate conditions for the output to promote productive vocabulary development.

In the present study, it is assumed that output tasks presented in addition to input tasks have a positive influence on enhancing the learners' vocabulary development. Regarding this assumption, a question is raised about the conditions under which these tasks can be most influencing. One factor is supposed to be the sequence under which input and output tasks are presented. Few studies have been conducted in this regard and there is controversy in the findings of previous researches concerning the sequence under which input and output activities should be presented to the learners. Some studies have suggested input-first instruction (Long *et al.*, 1998) and others have recommended output-first presentation (DeKeyser, 1997; Izumi and Bigelow, 2000; Soleimani *et al.*, 2008). Kwon (2006) found no significant difference between output-first and input-first presentation of tasks. Therefore, the findings of this study can be beneficial to provide evidence to support one of these sequences. In the present study, the assumption is that output-first tasks may enhance learners' achievement of vocabulary knowledge and specifically productive vocabulary learning.

1.2. Output and Noticing

Swain conducted a series of studies and based on their findings, she refined the output hypothesis and specified four functions of output: noticing, hypothesis testing, meta-linguistic functions, and fluency development (Swain, 1995). The noticing function, which is the focus of this study, occurs when learners are involved in producing output and they realize they are not able to say their intentions because there are gaps in their knowledge. In this way, learners recognize problem areas in their linguistic production and modify their shortcomings (Swain, 1995). Izumi *et al.* (1999) studied the noticing function of output. They focused on whether production of output promoted the noticing of the target linguistic forms. They found partial support for the output hypothesis. In a series of articles, (Schmidt, 1990; 1993; 1995) proposed his *noticing hypothesis* in which noticing is considered as a necessary and sufficient condition for SLA. Schmidt (1993) believes that in addition to comprehending input, L2 learners need to notice "whatever features of the input are relevant for the target system" (p. 209). Schmidt (1990) also states that "intake is that part of the input that the learner notices" (p. 139).

Many studies have investigated the concept of noticing in SLA research (e.g.,(Swain, 1985; Schmidt, 1990; 1993; 1995; Adams, 2003; Horibe, 2003; Soleimani *et al.*, 2008)). Adams (2003) and Horibe (2003) examined the role of output in promoting noticing of the target linguistic features when compared to other conditions. Adams concludes that the production of output generates noticing which can promote learning of target-like forms. Horibe (2003) found no significant effect for output. He explained that this finding might be due to the learners' cognitive overload. We can imply from this explanation that the task type and the difficulty of the task are important factors in increasing learners' noticing of the target forms. Soleimani *et al.* (2008) investigated the role of using output-fronted activities in prompting FL learners to notice their linguistic problems. The results revealed that output-fronted activities had a considerable effect on learners' noticing of the target structures and forms.

Pan (2012) also investigated the noticing function of output. The results indicated no distinctive effects of output in comparison with doing the true-or-false comprehension exercises. However, the findings from an interview conducted to detect the subjects' attentional focus during the treatment suggested that retelling as a form of output does not always lead to noticing the target form, but it may have positive effects on noticing other aspects such as vocabulary and phrases in the input material.

As we can observe, most studies have examined the influence of output on noticing target structures and forms and the relationship between noticing and output in the area of vocabulary has been rarely investigated. In this study, the effect of output tasks and specifically, presenting output tasks prior to input tasks on noticing the gap in lexical knowledge is investigated.

1.3. Research Questions

Based on the objectives of the study, two research questions were raised as follows:

1.Is there any significant difference between EFL learners' level of vocabulary knowledge when they are instructed in the order of output-input and in the order of input-output?

2. Does involvement of learners in output-first tasks result in noticing on the part of the learners?

1.4. Research Hypotheses

On the basis of the findings from previous research and the questions raised in the study, the following hypotheses were formulated:

H_1: EFL learners' level of vocabulary knowledge is higher when they are instructed in the order of output-input rather than input-output.

H_2: Involvement of learners in output-first tasks results in noticing on the part of the learners.

2. METHOD

2.1. Participants

The suggested number of participants by a priori power analysis was 102 for this study. Initially, 112 participants were selected and then, nine were excluded due to their extremely high or low scores on the placement test or because of their absence in the treatment sessions or posttest. Thus, the final participants of the study were 103 elementary level female students who were native

Farsi speakers studying English; they came from different classes selected out of three private English language institutes located in Yazd. The age of the participants ranged from 12 to 26 (*M* = 16, *SD* = 2.76). All of the participants had different language learning experiences, depending on their age and school education; this variability was managed by pretesting.

2.2. Instruments

Nelson English language test (Fowler and Coe, 1978) was administered as a placement test. It is a standardized test which has been utilized in many studies. Fowler and Coe (1978) claim that they have validated all the test items empirically and have carefully checked choice distribution. Although all the participants had been placed at the elementary level initially by their respective institutes, the Nelson test was used to ensure the homogeneity of the participants at the beginning of the study. Cronbach's alpha was utilized to estimate the reliability index of this test (r = .769).

A vocabulary pretest (including 100 items) and vocabulary post-test (including 30 items) were also administered to the participants. The items for the vocabulary tests were selected from *Elementary Vocabulary* by Thomas (1990) and the format used for these tests was the Vocabulary Knowledge Scale (VKS). Wesche and Paribakht (1996) developed this scale for vocabulary assessment of ESL learners; it uses both self-report and demonstrated knowledge. Cronbach's alpha indicated a high reliability (r = .854) for the vocabulary posttest (see Appendix 1 for a sample item).

A semi-structured interview was conducted to investigate whether giving the output tasks first resulted in noticing the knowledge gap by the learners. It included four questions asking students if doing the output tasks before input tasks helped them notice the need to know the unknown items and whether it triggered them to learn the words in a more efficient way.

2.3. Procedure

In the first session, all the participants were given the Nelson English language test as a placement test. Then they took a vocabulary pretest. The items for the vocabulary pretest were selected from the word groups in the book *Elementary Vocabulary* by Thomas (1990). Six groups of words were randomly selected out of these word groups all of which were designed to be appropriate for elementary level learners. The total number of items in the selected groups amounted to be 100. The words in this book are separated into groups based on a variety of common everyday topic areas. For every group of related words, a corresponding picture is provided. For the purpose of this study, six groups of related words with their related pictures were selected (see Appendix 2).

The participants' answers to pretest items were used to extract a list of those items which received a score of 1 or 2 by almost all the participants in terms of VKS scale (i.e., the participants reported either to be completely unfamiliar with these items or to have seen the word before without knowing the meaning).

Thirty items were selected which were later used in treatment tasks and the posttest. Since the primary items for the pretest belonged to six word groups from the source book (Thomas, 1990), the unknown words were also naturally related to those six groups. The selected words from each

group were arranged as a word list, and finally, there were six word lists along with six related pictures. The topics of word groups included parts of the body, clothes, living room, in the street, jobs and going shopping.

In the next step, the participants were randomly assigned to three groups who received the same input and output tasks under different conditions:

- Group 1 received only input task (*Input-only group*).
- Group 2 received both input and output tasks in the order of input-first-then-output (*Input-output group*).
- Group 3 received both input and output tasks in the order of output-first-then-input (*Output-input group*).

During the second and the third sessions, the participants received the treatment tasks. In the input tasks, the participants received six lists of words along with their corresponding pictures. For every word in each list, the related part was marked by an alphabet letter in each picture. The participants were asked to connect each word to the related letter in the picture. All participants followed the same procedure for all the word lists.

In the output tasks which were a kind of picture completion task, the participants were given copies of six pictures. The pictures were the same as those used in the input tasks; however, no word list accompanied them. The participants were asked to write the appropriate words for different parts of the pictures which were marked by alphabet letters.

Input and output tasks given to all three groups were the same in content. However, input-only group received only input tasks in the second session. Input-output group first received input tasks in the second session and then, in the third session, output tasks were presented to this group. Output-input group received the tasks in the reverse order, i.e. output tasks in the second session and input tasks in the third session.

In the fourth session, the posttest was administered to the participants. It included the same 30 unknown items selected from the pretest and used in treatment tasks. Based on VKS, the participants were asked to make a sentence with each word, provided they had reported to be able to use that word in a sentence.

Then, during data analysis, those sentences which were produced correctly in the posttests (the sentences which were either both semantically and grammatically correct or only semantically correct but grammatically incorrect) were considered t to demonstrate the students' productive knowledge of words (i.e., their ability to use the words in their production).Immediately after the posttest, a semi-structured interview was conducted to investigate the role of output-first tasks in noticing the gap in lexical knowledge. Ten participants were randomly selected from output-input group to take part in the interview. Each interview took about 10 minutes.

The first hypothesis was investigated with respect to three variables:

a. Vocabulary test overall scores
b. Productive vocabulary (semantically correct but grammatically incorrect sentences [SCGI])
c. Productive vocabulary (both semantically and grammatically correct sentences [SCGC])

The procedure is summarized in Table 1.

Table-1.A Summary of the Study Procedure

Groups Sessions	Input-only group	Input-output group	Output-input group
Session 1	Nelson test and pretest	Nelson test and pretest	Nelson test and pretest
Session 2	Input tasks	Input tasks	Output tasks
			Continue
Session 3	---------------	Output tasks	Input tasks
Session 4	Post-test	Post-test	Post-test

2.4. Design of the Study

This study used a quasi-experimental method with a comparison design. For the purpose of examining the influence of output in learners' vocabulary development, an input-only approach was compared with an input-plus-output one. The assumption in this study was that engaging learners in output activities, added to language input exposure, would promote their vocabulary development. Moreover, a third group was created to compare to the first two and to explore the optimal conditions for output to promote vocabulary development. The examined condition was the sequence of presentation of input and output tasks. Accordingly, two research hypotheses were formulated and they were tested as explained in the procedure section. The first hypothesis proposed that output-input sequence is superior to input-output sequence for vocabulary development. The second hypothesis proposed that involvement of learners in output-first tasks results in noticing on the part of the learners.

3. RESULTS

In order to analyze the data, first the normality of distribution of the data was calculated using Kolmogorov-Smirnov Test. The obtained p values were greater than 0.05 ($p > 0.05$) for the vocabulary variable, so the statistics were not significant which meant that the distribution was normal for this variable. On the other hand, for the SCGI and SCGC variables, the statistics were significant ($p < 0.05$) in some groups which meant that the distributions were not normal for these variables. Accordingly, for the vocabulary test variable, parametric tests were used, while for SCGI and SCGC variables, non-parametric tests were applied.

To insure that no significant difference in language proficiency existed among the three groups at the beginning of the study, ANOVA test was used and the results indicated that Nelson test scores were not significantly different among the groups ($p = 0.564 > 0.05$).

In order to examine the role of output in vocabulary development and compare input-only instruction with input plus output instruction, ANOVA was utilized. The results indicated that the input plus output groups outperformed input-only group in vocabulary posttest ($p = 0.00 < 0.05$). It was concluded that producing output, in addition to being exposed to input, enhances the development of vocabulary knowledge confirming the findings of previous studies (e.g. (Swain, 1985; DeKeyser, 1997; Izumi and Bigelow, 2000; Kwon, 2006; Gass and Mackey, 2007; Jalilifar and Amin, 2008; Hashemi and Kassaian, 2011)). Then, the results of the posttest were analyzed with respect to each hypothesis.

3.1. Sequence of Output Presentation and Vocabulary Development

H_1: EFL learners' level of vocabulary knowledge is higher when they are instructed in the order of output-input rather than input-output.

a. Vocabulary

This hypothesis was investigated through the independent *t-test* considering the normal distribution of the vocabulary variable.

Table-2. The Independent t-test for Comparison of Vocabulary between the Output-Input and the Input-Output groups

Statistics groups	N	Mean	SD	SEM	Mean Difference	T	df	Sig. (2-tailed)
Output-Input	43	112.47	13.700	2.089	13.791	4.525	84	.000
Input-Output	43	98.67	14.550	2.219				

As we can observe in Table 2, there was a significant difference between the two groups ($p = 0.00 < 0.05$). This indicated that the participants in the input-output group and those in the output-input group were statistically different in their performance on the vocabulary posttest. The comparison of the means showed that the vocabulary mean in the output-input group was higher than that in the input-output group.

b. SCGI (Semantically correct but grammatically incorrect)

The *Mann-Whitney* test was utilized to compare the frequency of semantically correct but grammatically incorrect sentences between the two groups given the fact that SCGI was not normally distributed ($p < 0.05$).

Table-3. The Mann-Whitney Test for Comparing SCGI between the Input-Output and Output-Input Groups

Statistics Groups	N	Mean Rank	Sum of Ranks	Z	Sig. (2-tailed)
Input-Output	43	34.77	1495.00	-3.407	.001
Output-Input	43	52.23	2246.00		
Total	86				

As Table 3 indicates, the mean ranks were significantly different between the two groups ($p = 0.001 < 0.05$). Since the mean rank in the output-input group was higher than that in the input-output group, we can conclude that the output-input group outperformed the input-output group in terms of SCGI variable.

c. SCGC (Both semantically and grammatically correct)

Considering the fact that this variable was not normally distributed ($p < 0.05$), testing this part of the hypothesis was done through the *Mann-Whitney* test to compare the frequency of both semantically and grammatically correct sentences between the two groups.

Table-4. The Mann-Whitney Test for Comparing SCGC between Input-Output and Input-Only Groups

Statistics Groups	N	Mean Rank	Sum of Ranks	Z	Sig. (2-tailed)
Input-Output	43	29.53	1270.00	-5.386	.000
Output-Input	43	57.47	2471.00		
Total	86				

Based on the results of the *Mann-Whitney* test in Table 4, the mean ranks were significantly different between the two groups ($p = 0.00 < 0.05$) It revealed that the mean rank in the output-input group was higher than that in the input-output group. In other words, the participants in the output-input group performed better than those in the input-output group with respect to SCGC.

3.2. Output-first Tasks and Noticing

H_2: Involvement of learners in output-first tasks results in noticing on the part of the learners.

In order to answer whether involvement of learners in output-first language activities results in noticing on the part of the learners, an informal interview was done with 10 students after the treatment. There were four main questions in the interview. The results for each question were as follows:

1. *When doing the output task and trying to write the appropriate words for the pictures, did you feel the need to know these words?*

Table-5. Simple Frequency for the 1st Interview Question

Answer	Yes	No	Total
No. of interviewees	10	0	10

Table 5 indicates that all the students (100%) agreed that when doing the output tasks, they noticed that they felt the need to know the meaning of at least some of the words used in output task.

2. *Do you think that doing the output task first, helped you do the following input task more easily and with more attention?*

3.

Table-6. Simple Frequency for 2nd Interview Question

Answer	Yes	No	Maybe	Total
No. of interviewees	5	3	2	10

As presented in Table 6, out of 10 students, five of them (50%) stated that doing the output task first helped them do the following input task more attentively. Three of them (30%) believed that it didn't help and two of them (20%) were not sure of the effect of the output task on the following input task.

4. *Which task helped you more in remembering the meaning of words in the vocabulary post-test; input task or output task?*

Table-7. Simple Frequency for 3rd Interview Question

Answer	Input	Output	Both input and output	Total
No. of interviewees	4	1	5	10

Table 7 shows that out of 10 students, four of them (40%) believed that input task assisted them more in answering the vocabulary items in the post-test. One of them (10%) assumed that output task helped more and five (50%) considered both tasks as equally effective in remembering the meaning of words in the vocabulary post-test.

5. *Look at the word lists and the related pictures and underline the words you felt you really needed to know when doing the output tasks?*

Table-8. Simple Frequency for Noticed Items by Each Interviewee

Interviewee	1	2	3	4	5	6	7	8	9	10
No. of noticed items	9	12	9	5	15	9	7	8	14	11

Table 8 indicates that the minimum number of noticed items was 5 out of 30 items by the fourth interviewee (16.66%) and the maximum number of noticed items was 15 out of 30 items by the ninth interviewee (50%). The average number of noticed items by the interviewees was 9.9 items which means about 33% of the items.

By calculating the number of times each vocabulary item was noticed by the interviewees, it was revealed that some items were not noticed at all (6 out of 30 items: *sole, overcoat, kerb, parking warden, laborer and till*) and some items were noticed by most interviewees (e.g. *queue* by 90% of the students; *trousers* and *pedestrians* by 70% of the students).

4. DISCUSSION AND CONCLUSION

The results of the study can be used to support the first hypothesis, which predicted that EFL learners' level of vocabulary knowledge would be higher when they are instructed in the order of output-input rather than input-output. Those participants who received output tasks before input tasks performed significantly better than those who received the tasks in the order of input-first-then-output in both overall vocabulary test and the productive vocabulary section of this test. These findings support some of the previous researches regarding the presentation sequence of input and output tasks (e.g., (DeKeyser, 1997; Izumi and Bigelow, 2000)). It suggests that providing learners with output tasks prior to input tasks promotes output to positively influence vocabulary development of learners and also their progress in acquiring productive vocabulary knowledge. Making an effort to produce output before receiving input can draw the learners' attention to target features or vocabulary and as a consequence, it motivates them to solve their linguistic deficiencies and search for the correct form or vocabulary item in subsequent input (Kwon, 2006).

Moreover, this study confirms that in addition to encouraging learners to produce output, different conditions for the presentation of input and output tasks should be investigated to explore optimal conditions for the output to promote vocabulary development. However, this issue needs

further investigation since little research has been done in this area and contradictory findings have been revealed.

The second hypothesis was also approved by the results of this study. This hypothesis stated that involvement of learners in output-first tasks results in noticing on the part of the learners. Quantitative results of the interview indicated that providing an opportunity for the learners to produce vocabulary items before receiving input helps them notice the gap in their vocabulary knowledge and motivates them to learn the items in the following input. This finding advocates the psycholinguistic perspective arguing that noticing gaps "may trigger cognitive processes which might generate linguistic knowledge that is new for the learner, or that consolidates their existing knowledge" (Schmidt, 1995).

The obtained result is similar to the findings of some other studies such as Soleimani *et al.* (2008)) which found positive effect for output-fronted activities. The interviewees also mentioned that one factor that stimulated noticing the items was that the vocabulary items were among those required to be known in everyday life. Another influencing factor was that these items were accompanied by pictures through which they understood that these items were related to common objects and people we frequently face. Therefore, the type of task is a crucial factor in providing conditions for output to promote noticing to occur. Izumi and Bigelow (2000) and Kwon (2006) also found that task design and difficulty level can influence noticing of target items.

Thus, the findings of this study provide more evidence that output tasks presented prior to input tasks might facilitate EFL learners' vocabulary development. Moreover, this study indicates that output-first tasks result in noticing the gap in lexical knowledge on the part of the learners.

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APPENDIX 1

Sample item for vocabulary tests:

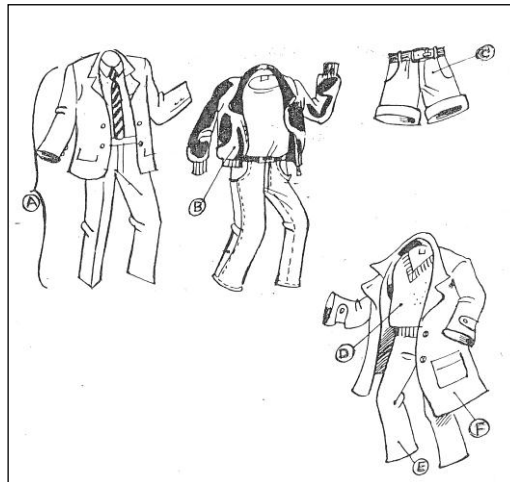For each word, select one of the choices and provide answer when you decide to choose 3, 4 or 5.

1. Waist

1) I don't remember having seen this word before.

2) I have seen this word before, but I don't think I know what it means.

3) I have seen this word before, and I think it means _____. (Synonym or translation)

4) I know this word. It means _____. (Synonym or translation)

5) I can use this word in a sentence: _____. (If you do this section, please also do category 4)

APPENDIX 2

Sample word group along with its corresponding picture:

| **Word group (Clothes):** |
| Sweater – overcoat – casual jacket – trousers – suit – shorts |