THE EFFECT OF DISSECT STRATEGY ON FIRST YEAR EFL UNIVERSITY STUDENTS' WORD AWARENESS

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Abstract

The present study aims at understanding, explaining and assessing the word identification strategy, DISSECT, which has become an increasingly important skill for learning disabilities, to minimize oral reading errors made by students at the Department of English, School of Languages, University of Zahko.

Giving first year students of English a previously prepared list of affixes, the students could make use of them to decode difficult and unfamiliar multisyllabic words taken from a variety of content areas. Focusing on the students' adoption of the DISSECT strategy, the researcher followed the methods of observation and evaluation to discover the range of reading skills through word awareness on the part of the students. Depending on a number of tests, the researcher evaluated and measured students' abilities to easily master the word awareness skills. Following some teaching instructions and practices, students were given the steps of DISSECT strategy to assess their word awareness skills. Finally, the strategy in question was measured to evaluate students' abilities in mastering and improving the reading skills, by means of a series of t-tests, ANOVAs and multiple comparison correlations, that were programmed and output by SPSS software 17.0.

Keywords: DISSECT strategy, word awareness, university students, reading skills

Introduction

Reading is one of the most important academic tasks faced by students. It "receives a special focus" in the process of teaching (Richards and Renandya, 2002). Some students face difficulties in reading different texts especially those related to science and social studies. This is due to the fact that these texts include unfamiliar words. Students do not know how to read these words or understand their meanings. Simply, the students lack the

capability of decoding such words. So, reading strategies have to be established to improve students' reading comprehension. There are a wide range of reading strategies suggested by reading specialists and educators. These strategies differ because they are adopted depending on types of texts (i.e. literary or scientific) and learners' level of education (preschool, elementary, high school or university). According to Twining (1991), these strategies may have any purpose such as understanding words, phrases and sentences, organizing information in a text, improving attention and concentration, interest, and so on. Failure to achieve these purposes leads to lack of reading comprehension.

The reading strategy used in the current study is the word identification strategy, DISSECT, presented by Lenz and Hughes (1990). It focuses on how difficult and unfamiliar words are segmented, manipulated, read and finally understood. In other words, the strategy concentrates on the first basic phonological awareness level, which is word awareness.

Aims of the Study

Studies concerning phonological awareness, the word awareness level and learning strategies in particular are not widespread in a context where Kurdish is the official language and English is the foreign language. The effects of applying the DISSECT strategy on assessing the word awareness level are taken into consideration. Though the DISSECT strategy is more suitable to be applied on secondary and high school students, these skills are applied to the students of Department of English at University of Zakho. The first year students were found having some reading disabilities in several content areas especially the reading texts that contained words and vocabularies related to science and social sciences. Simply, the study investigates:

1. Assessing university students' word awareness skills.
2. Measuring the effect of DISSECT strategy on university students' word awareness level.

Value of the Study

Although lots of research papers have been written on reading comprehension, skills, activities, strategies and assessment, research on decoding and comprehending unfamiliar vocabularies is open to investigate. To the best of my knowledge, the use of the DISSECT strategy to reduce reading errors with Kurdish university students' reading errors has not been tackled yet. Therefore, it is very important to explain, assess and measure the DISSECT strategy, and show learners' performance in terms of reading comprehension. Using reading skills and strategies is very significant for the assessment of word awareness. They help students with reading disabilities

to gain knowledge on how to be aware of unfamiliar words and vocabularies morphologically and semantically. In brief, students, with or without disabilities, benefit from word awareness assessment (Chard and Dickson, 1999).

Word Awareness:

Word awareness is the first basic level among other phonological awareness levels. In order to understand the concept of word awareness, it is important to shed light on phonological awareness as a valuable way to assess reading skills. Many linguists and researchers see that assessing phonological awareness at preschool stages (i.e. kindergarten) really leads to success in reading, spelling and writing. That is, having good knowledge at kindergarten stage makes the learners at later studying stages better understand the structure of spoken language, namely sounds, rhymes, syllables, and words.

According to Trehearne (2003), phonological awareness refers to "an understanding of the sound structure of language—that is, that language is made up of words, syllables, rhymes, and sounds (phonemes)". Johnston (2004) gives a similar definition by stating that it "is the ability to consciously attend to sound segments of our spoken language: to syllables, onsets and rhymes, and to the smallest units known as phonemes". Here, the arrangement of phonological awareness levels is taken into consideration. Almost all definitions focus on the idea of assessing phonological awareness in order to help learners improve their reading and spelling. In brief, according to the main levels, phonological awareness is a broad skill that includes identifying and manipulating units of oral language such as words, syllables, onsets and rimes, and phonemes.

It is important to know that phonological awareness does not develop naturally. Phonological awareness skills are rather developed with direct training and instruction. Therefore, many reading experts recommend phonological awareness training as a prerequisite to early literacy training. This suggests that some people need phonological awareness training in order to learn to read (Rubba 2003).

For Chard and Dickson (1999), Torgesen and Mathes (1999), Gillon (2002), Lane (2007), Knobelauch (2008), Moats and Tolman (2013), phonological awareness skills and tasks are of four levels: (1) word awareness, (2) syllable awareness, (3) onset-rime awareness and (4) phoneme awareness. It develops in top-down fashion; i.e. learners begin at the level of the whole word and gradually move to the smallest segments of sounds (Moats and Tolman, 2013 and Rubba, 2003). Hence, in order to assess learners' phonological awareness successfully, it is better to follow

the levels systematically. As such, the word awareness level is the first level that should be started with in the teaching process.

Phonological awareness skills are important in order to develop good reading skills. Having good phonological awareness skills means that the learners are able to manipulate linguistic structures especially words, or "play" with the words (Knobelauch, 2008). So, such skills are believed to have an important role in the acquisition of reading skills (Rubba, 2003).

By observing and instructing the learners over time in a variety of activities, it can be noticed that the learners may demonstrate knowledge of a particular phonological awareness skill in some situations but not in others. That is, not all activities are used; however, teachers use and go through a variety of skills and activities according to learners' needs. In other words, teachers are supposed to follow the activities designed to elicit active responses from the learners (Trehearne, 2003 and Thomas and Pritchard, 2009). Since the word and syllable awareness skills can be developed and evaluated through many reading strategies related to decoding and manipulating difficult and unfamiliar words, the concept of word awareness and syllable awareness is mainly associated with the DISSECT strategy because they altogether work to manipulate words and finally understand their meanings.

When teachers and reading experts assess learners' phonological awareness, it is recommended that they start from the level of the whole word because it is considered the basic level (Geudens, 2000 and Rubba, 2003). Put it differently, learners should first be able to identify and isolate large units of oral language (i.e. spoken words). So, it is very significant to start with words. Even at the level of word awareness, learners should be able to assess the content words then the functional ones. This is du to the fact that content words (i.e. free morphemes) like *picture, chair, pretty, bag, school, book, great,* and son, will be understood by the learners more readily than functional words like articles (*a, an, the*), demonstratives *(this, that, these, those*), conjunctions (*and, but, or, etc.*), pronouns (*he, she, it, you, they, myself, me, etc.*), among other functional words. In simple, some words are more complex than others (Tompkins, 2011). The same is true with bound morphemes including affixes. However, it is very significant to teach learners different meanings of different affixes, prefixes and suffixes that help learners predict the meaning of words. The use of content words in simple sentences will facilitate learners' understanding of the concept of word awareness (Thomas and Pritchard, 2009). Simply, word awareness is the knowledge that sentences consist of words and that these words can be manipulated. To assess word awareness, various tasks and activities are used. Following Torgesen and Mathes (1999), Yopp and Yopp (2000), the tasks that are achieved at the level of word awareness are: (1) word identification

and (2) word segmentation. According to Trehearne (2003) and Lane (2007), different word awareness activities which may include reading aloud, thinking aloud, identifying missing words, fill in the blanks, word counting, among many others, are used in the teaching process.

Also, it is very necessary for learners to have enough knowledge about the parts or components of words. Hence, the idea of "syllableness," comes under focus. Most students have a sense of such an idea even if they do not know what a syllable is (Trehearne, 2003 and Gillon, 2002). This means that they can recognize the number of syllables in a word. Learners should be taught how to segment, blend or delete parts (i.e. syllables) of words. Worth noting, i.e. segmenting word parts is the easiest level. Almost all learners have no problem with one-syllable words; however, they have more difficulty with two-, three-, four or five-syllable words. With modeling and practice (i.e. dissecting), they can be able to distinguish between all syllables. This means that the learners who develop a good awareness of syllable patterns can use their knowledge to read and spell more effectively and efficiently (Trehearne, 2003). Simply, syllable awareness is the ability to have knowledge on parts that comprise the word. The tasks that are achieved at the level of syllable awareness include: (1) syllable segmentation, (2) syllable blending and (3) syllable deletion. According to Yopp and Yopp (2000), Trehearne (2003) and Lane (2007), it is easier for learners to blend syllables than to segment them. For example, it is an easy task for a person to say the two parts of a word like "picture" separately as in "pic—ture".

The DISSECT Strategy

DISSECT is a strategy designed to help learners decode and manipulate difficult and unfamiliar words (Lenz and Hughes, 1990). The mnemonic DISSECT strategy is highly recommended to be applied on multisyllabic words in content area reading materials. It is simply a word identification (i.e. awareness) strategy used to improve learners' ability to read longer words (Boyle, 2008 and McCollin, 2008). According to Lenz and Hughes (1990), the acronym DISSECT stands to represent seven combined strategies. They altogether work to analyze the context surrounding the word, and the word component parts, and finally develop reading skills (Warrington, 2006). Being a systematic process, the steps are as follow:

1. Discover the context:

Identify the unfamiliar word. Read until the end of the sentence. Try to guess the meaning of this word through the surrounding words in the context. If unable to guess the meaning of the word, continue to step 2.

2. Isolate the prefix.

Check the first few letters of the word. If they comprise a familiar prefix such as *dis-, il-, in-, im-, non-, re-, un-, pre-, mis-,* and the like, circle it to isolate it.

3. Separate the suffix.

Check the last few letters of the word. If they comprise a familiar suffix such as *–ful, -er, -less, -ness, -able, -est, -y, -ly, -al, -ing,* and the like, circle it to isolate it.

4. Say the stem.

Whether or not the word contains a prefix or suffix, students should proceed to this step to try to identify the stem.

5. Examine the word.

If a stem or a part of the stem begins with a vowel, divide off the first *two* letters. If it begins with a consonant, divide off the first *three* letters.

6. Check with someone.

If the student still cannot pronounce the word or guess its meaning, check with someone like a teacher or a better reader.

7. Try the dictionary.

If no one is available to assist the student, it is recommended that the student has a dictionary available to look for the word meaning and correct pronunciation.

Bos and Vaughn (1994) argue that in order to identify the stem after isolating the prefix and separating the suffix in a more successful way, it is very necessary to teach students how to divide the stem into easy parts to pronounce parts following three simple rules for segmenting syllables. These rules are called the rules of Twos and Threes. They direct the students to divide the word off into two or three letters:

Rule 1: If a stem, or any part of a stem, begins with a vowel, the first two letters are separated and pronounced. Also, if a stem begins with a consonant, the first three letters are separated and pronounced. If this rule cannot be applied to the stem, then Rule 2 is ahead.

Rule 2: The first letter of the stem is isolated and Rule 1 is applied again.

Rule 3: When two different vowels appear together in a stem, they are pronounced together and the rules of Twos and Threes are applied again until the end of the stem is reached.

The students are instructed to proceed segmenting the stems in this way until they reach the end. For instance, the word *"capability"* starts with a consonant sound. According to the rules of Twos and Threes, the first three letters (i.e. *cap-*) are isolated and pronounced. The rest of the word starts with a vowel, so the first two letters (i.e. *-ab*) are isolated. The remaining part of the word starts with another vowel, hence the first two letters (i.e. *-il*)

are pronounced. Further, what is left is a part of a stem that begins with another vowel, segmenting the first two letters (i.e. -*it*) again. The final letter is -*y*. Here, the multisyllabic word *capability* is dissected and pronounced in separate parts as in *cap-ab-il-it-y.*

Importance of the DISSECT Strategy

The word identification strategy, DISSECT, is one of the important methodological concepts in recent years. It helps learners with reading disabilities to reduce reading comprehension errors as much as possible. Hence, it plays a significant role in developing good literacy and reading skills. This means that it is considered a reliable predictor of reading ability. Learners begin to read texts and then apply the strategy on to word awareness by using context clues and word analysis including prefixes, suffixes and stems (Deshler, 2002). Hence, while thinking aloud, they go through the seven steps of the strategy in order to identify and segment unfamiliar words in general reading comprehension and assignments. The DISSECT strategy is used to increase learners ability to decode and identify difficult and unfamiliar multisyllabic words in content area materials (Lenz and Hughes, 1990). Hence, learners can be successful in the teaching process (Cantrell, 2010).

Method

The research technique that used in the present study is observation and evaluation. Participants were 28 undergraduate first-year students (11 males, 17 females) who were enrolled in a reading comprehension course at the Department of English, University of Zakho. As it is known, the participants were new to university settings. That is to say, they had come from high school. They were taught English vocabularies according to traditional methods. Making use of teaching instructions, training and practice, the students had been evaluated after giving them a course in reading comprehension.

With the help of one of his partners, the researcher could go ahead to assess the first-year students' comprehension reading skills. Reading comprehension, side by side with listening and writing, are taught as a part of an independent subject called communication skills. In this class, the researcher observed the process of teaching and learning closely. Following the teacher's instructions and explanations, the students understood the material better. Then, they did two exams out of 20 on reading comprehension. The first exam was done in a traditional manner before applying the DISSECT strategy and assessing the word and syllable awareness tasks. The second exam was done at the end of the course. This means, it was done after training the students on the DISSECT strategy. To

teach DISSECT, Lenz and Hughes (1990) used an eight-step instructional sequence. The researcher wanted to follow the outlined procedure so that training the students' on reading comprehension skills could be more successful. The following are the eight steps:

1. Obtaining a pre-training measure of students' skills and gain the students' commitment for learning.
2. Making the students aware of the strategy steps and its importance.
3. Modeling the strategy in demonstrating for students how to use the strategy.
4. Making sure of students' abilities to understand and name the strategy steps.
5. Ensuring that students master the use of the strategy in their content materials.
6. Making sure of the students' abilities to master the use of the strategy in content materials of higher levels.
7. Obtaining a post-training measure of students' skills.
8. Ensuring that the students can generalize to identify the strategy settings to general oral reading situations in the classroom.

The above procedural steps are very important to follow because the strategy works best when following a systematic procedure. Worth noting, Lenz and Hughes (1990) claimed that working on the DISSECT strategy within groups is more successful than applying it to individuals. Hence, the researcher divided his class into seven groups of four students. The students' performance on reading skills was determined by scores obtained on the two exams. Both exams were compared by a series of t-tests, ANOVAs and multiple comparison correlations. Before measuring the effect of the DISSECT strategy on learners' word awareness, the researcher used two tools to measure the learners' performance on reading skills:

1. The researcher provided the learners with a list of common prefixes and suffixes taken from Quirk et al. (1972), Akmajian (1995) and Yule (2006). Affixes can help the learners segment multisyllabic words in an easier way because they are considered bound morphemes. This means they can be attached to free morphemes and isolated or separated again, leaving the root word in isolation. These affixes are mentioned in Appendix I at the end of this paper.
2. Students were given five tasks to assess word and syllable awareness skills. The data (i.e. words) collected to achieve these tasks were taken from *Skills in English: Reading Resources* by Phillips (2004). The words are mentioned in Appendix II. The tasks involved the following:

- Task 1, word identification: 10 words were given to students and they were asked to decide how many lexical items are covered by each word. For example, the lexical items that are covered by the word *phone* include *phones, phony, phonetic, phonemic, phoneme*, and so on.
- Task 2, word segmentation: Students were given 10 phrases and sentences which consisted of content and functional words. Students, in the first reading, were asked to count the total number of words in each phrase and sentence. In the second reading, they were instructed to count the content words, and in the third reading, they were asked to count the number of functional words.
- Task 3, syllable segmentation: Students were presented with a list of 10 multisyllabic words and were asked to count. That is to segment the number of syllables in each word. For instance, the word *segmentation* has four syllables, *seg-, men-, ta-* and *-tion*.
- Task 4, syllable blending: 10 pairs and sets of syllables were given to the students and they were asked to form whole words from these syllables. For example, the single syllables *a-, gri-, -cul, -ture* can make one word which is *agriculture*.
- Task 5, syllable deletion: Students were provided with 10 multisyllabic words and were instructed to delete one syllable whether initial, middle or final.

The above tasks with instructions and practice items are mentioned in Appendix III. As it is mentioned above, each word and syllable awareness task consisted of 10 items. The students' performance on each task was determined by counting the number of items performed correctly. So, the students' performance on the tasks was evaluated. This was very important for them to have an idea of how to identify and segment words. Assessing these tasks was helpful to go through the DISSECT strategy steps easier.

Hypothesis:

The present research hypothesizes the following:

1. There is a statistical significant difference at the level of 0.05 between the scores obtained on the five word and syllable awareness tasks.
2. There is no statistical difference at the level of 0.05 between the scores obtained on identifying content and functional words at the level of word awareness.
3. There is a statistical significant difference at the level of 0.05 between the average marks obtained on Exam 1 and the five word and syllable awareness tasks.

4. There is a statistical significant difference at the level of 0.05 between the average marks of the two exams (i.e. an exam done in a traditional manner and an exam done after assessing the DISSECT strategy and word and syllable awareness skills).

Results

After completing the course and applying the steps and procedures of the DISSECT strategy to reading comprehension skills**,** the learners word awareness skills, the researcher analyzed the data using the t-test, ANOVAs and multiple comparisons. The results of the analysis are presented in the following subsections.

Word and Syllable Awareness Tasks

Mean, standard deviation, minimum and maximum of scores obtained on the five word and syllable awareness tasks after having the first exam are presented in Table 1.

Table 1. Mean, standard deviation, minimum and maximum of scores obtained on the five word and syllable awareness tasks.

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Task 1	28	13.14	2.677	.506	12.10	14.18	8	20
Task 2	28	14.14	3.587	.678	12.75	15.53	4	18
Task 3	28	17.50	2.317	.438	16.60	18.40	14	20
Task 4	28	19.00	.000	.000	19.00	19.00	19	19
Task 5	28	15.68	2.389	.451	14.75	16.60	11	20
Total	140	15.89	3.265	.276	15.35	16.44	4	20

Although there was a wide range of abilities demonstrated on all five tasks, students demonstrated the widest range of skills on Task 4 (syllable blending, Mean = 19.00), and Task 3 (syllable segmentation, Mean = 17.50). Demonstrating a series of multiple ANOVA comparisons, the results were shown as Sig. = 0.00, a < 0.05, in favor of Task 4 and Sig. = 0.00, a < 0.05 in favor of Task 3 again. This means that the mean difference was significant at the 0.05 level between all the tasks specifically Task 4 (syllable blending, Mean = 19.00) and Task 1 (word identification, Mean = 13.14) as demonstrated in Table 2. Hence, there are statistical differences in showing the students' abilities in the tasks.

Table 2. Level of significance and mean difference of scores obtained on the five word and syllable awareness tasks.

I	J	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-1.000	.667	.690	-3.08	1.08
	3	-4.357*	.667	.000	-6.44	-2.27
	4	-5.857*	.667	.000	-7.94	-3.77
	5	-2.536*	.667	.008	-4.62	-.45
2	1	1.000	.667	.690	-1.08	3.08
	3	-3.357*	.667	.000	-5.44	-1.27
	4	-4.857*	.667	.000	-6.94	-2.77
	5	-1.536	.667	.263	-3.62	.55
3	1	4.357*	.667	.000	2.27	6.44
	2	3.357*	.667	.000	1.27	5.44
	4	-1.500	.667	.287	-3.58	.58
	5	1.821	.667	.120	-.26	3.90
4	1	5.857*	.667	.000	3.77	7.94
	2	4.857*	.667	.000	2.77	6.94
	3	1.500	.667	.287	-.58	3.58
	5	3.321*	.667	.000	1.24	5.40
5	1	2.536*	.667	.008	.45	4.62
	2	1.536	.667	.263	-.55	3.62
	3	-1.821	.667	.120	-3.90	.26
	4	-3.321*	.667	.000	-5.40	-1.24

* Indicates significance at the 0.05 level.

According to the abilities performed on Task 2 (word segmentation), i.e., segmenting words to content words (Mean = 13.50) and functional words (Mean = 10.04), Table 3 shows the descriptive statistics of both types of words.

Table 3. Mean and standard deviation of scores obtained on content and functional words

	N	Mean	Std. Deviation	Std. Error Mean
Content Words	28	13.50	2.301	.435
Functional Words	28	10.04	3.237	.612

The results showed that students achieved greater success when they had to resolve tasks which demanded the awareness of segmenting content words. Hence, the mean difference was significant at the 0.05 level in favor of content words. In other words, students performed a wider range of

abilities in content words, i.e. Sig = .000, a < 0.05, as presented in Table 4**.** So, the results were not in agreement with hypothesis 2.

Table 4. Level of significance and mean difference of scores obtained on content and functional words.

		F	Sig.	t	df	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Marks	Equal variances assumed	2.936	.092	4.615	54	.000	3.464	.751	1.959	4.969
	Equal variances not assumed			4.615	48.738	.000	3.464	.751	1.956	4.973

Correlations between Word and Syllable Awareness and Reading Comprehension Exam 1:

A comparison was made between the word and syllable awareness tasks and Exam 1, which was done before applying the tasks and DISSECT strategy, using a series of t-test correlations. With regard to the abilities performed on the word and syllable awareness (Mean = 16.07), including the average marks of all the students in all tasks, and reading comprehension Exam 1 (Mean = 11.39), including the average marks of all the students in Exam 1, Table 5 shows the descriptive statistics of both the tasks and Exam 1.

Table 5. Mean and standard deviation of scores obtained on word and syllable awareness tasks and Exam 1.

	N	Mean	Std. Deviation	Std. Error Mean
Exam 1	28	11.39	3.071	.580
Word and Syllable Awareness Tasks	28	16.07	.858	.162

The results show that students achieved greater success in the word and syllable awareness tasks. Hence, the mean difference was significant at the 0.05 level in favor of the tasks. In other words, students performed a wider range of abilities on the tasks, i.e. Sig = .000, a < 0.05, as presented in Table 6.

Table 6. (Level of) significance and mean difference of scores obtained on word and syllable awareness tasks and Exam 1.

		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Marks	Equal variances assumed	23.71	.000	-7.764	54	.000	-4.679	.603	-5.887	-3.470
	Equal variances not assumed			-7.764	31.18	.000	-4.679	.603	-5.887	-3.450

Reading Comprehension Performance:

Mean and standard deviation of the scores obtained on Exam 1 (Mean = 11.39), which was done before applying the DISSECT strategy and assessing word and syllable awareness tasks, and Exam 2 (Mean = 14.07) after assessing the strategy and tasks, are presented in Table 7.

Table 7. Mean and standard deviation of scores obtained on Exam 1 and Exam 2.

	N	Mean	Std. Deviation	Std. Error Mean
Exam 1	28	11.39	3.071	.580
Exam 2	28	14.07	2.017	.381

The results show that the mean difference was significant at the 0.05 level in favor of Exam 2. In other words, students performed a wider range of abilities on Exam 2, i.e. Sig = .000, a < 0.05, as presented in Table 8.

Table 8. Level of significance and mean difference of scores obtained on Exam 1 and Exam 2.

		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Marks	Equal variances assumed	4.049	.049	-3.857	54	.000	-2.679	.694	-4.071	-1.286
	Equal variances not assumed			-3.857	46.63	.000	-2.679	.694	-4.076	-1.281

Discussion

In the present study, the participants demonstrated a wide range of abilities on the word and syllable awareness tasks employed. Though being university students, this suggests that students may bring different levels of

word and syllable awareness abilities to reading comprehension classes. In other words, general word awareness skills can be introduced into university fields of study especially reading comprehension courses. This is due to the fact that not all students show abilities in analyzing and manipulating the morphological structure of their language. Hence, the use of different strategies can help learners increase correctness of oral reading errors. The DISSECT strategy proved to be effective in decreasing such errors.

The five word and syllable awareness tasks, as displayed in Tables 1 and 2, were correlated with each other suggesting that the students were assessing morphological skills with approximately similar abilities. Generally speaking, the results show that the students demonstrated the widest range of skills on Task 4 (syllable blending, Mean = 19.00), and Task 3 (syllable segmentation, Mean = 17.50). This means that the students' highest performance was on syllable blending. Furthermore, such a task indicates to be helpful in dissecting words into its components. However, the lowest percentage was of Task 1 (word identification, Mean = 13.14). As shown in Table 2, the mean difference was significant at the 0.05 level (Sig. = 0.00, a < 0.05) in favor of Task 4 and Task 3.

The results show the percentage of success of both the awareness of both content words (Mean = 13.50) and function words (Mean = 10.04). The mean difference is very clear in Table 3. This indicates that the students achieved greater success in the awareness of segmenting content words. Hence, the mean difference was significant at the 0.05 level (Sig = .000, a < 0.05) in favor of content words, as correlated in Table 4. So, these results are not in agreement with hypothesis 2 regarding content and function words.

As hypothesized, the students showed good abilities in word and syllable awareness tasks. Assessing such skills is very significant for university students because the percentage of success in the tasks (Mean = 16.07) was higher than that of reading comprehension Exam 1 (Mean = 11.39). Hence, the mean difference was significant at the 0.05 level (Sig = .000, a < 0.05) in favor of word and syllable awareness skills, as correlated in Table 6.

The students, as expected, showed good abilities in reading comprehension exams. Their abilities in the two exams appeared to vary much over time. This means that the percentage of success in Exam 2 (Mean = 14.07) was higher than that of Exam 1 (Mean = 11.39). As presented in Table 8, the mean difference was significant at the 0.05 level (Sig = .000, a < 0.05) in favor of Exam 2. This means that hypothesis 4 agrees with the results.

Conclusion

Students with reading disabilities can make use of general word and syllable awareness tasks and the DISSECT strategy in order to reduce oral reading errors in different content areas. This is achieved through much practice of the DISSECT strategy.

As hypothesized earlier in the present study, the results show that there was a statistical difference at the level of 0.05 between the average marks of the two exams and it was in favor of Exam 2. The scores obtained on the second exam were higher than those on the first exam. This is clear from the mean differences. This indicates that assessing some word and syllable awareness skills leads to progressive development in reading comprehension performance.

In accordance with the mean differences between the scores obtained on Exam 1 and word and syllable awareness tasks, the findings of the study confirm the existence of statistical difference at the level of 0.05. It was in favor of the tasks. Students demonstrated the highest scores on Task 4 (syllable blending) and Task 3 (syllable segmentation). These two tasks were helpful in dissecting multisyllabic words into their parts. However, the lowest scores were on Task 1 (word identification).

From the results obtained on the word awareness level, it is necessary to make a distinction between the awareness of content and function words. Students demonstrated a wider range of abilities and higher percentage of success in content words. Hence, further importance should be given to the assessment of skills that are devoted for function words. This proves that the findings did not support the hypothesis a casual relation exists between the scores obtained on identifying content and function words. All in all, it has been examined that there were statistical differences at the level of 0.05 between content and function words.

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Appendix I: Most Common Prefixes and Suffixes in English

The following table includes the most common prefixes and suffixes in English. They help students to add meaning to thousands of words.

Prefix	Meaning	Example
a-	without	apolitical, atypical
ante-	before	antecedent, antedate
anti-	against, opposing	anti-war, anti-bacterial
arch-	more extreme	arch-capitalist, arch-rebel
auto-	self	auto-dial, auto-rotate
bi-	two, twice	bilingual, bi-monthly
circum-	round	circumnavigate, circumvent
co-	with	co-author, co-edit
col-, com-, con-	with	collaborate, combine, connect
contra-, counter-	against, opposing	contraception, counter-claim
de-	opposite action	declassify, destroy
dia-	across	diagonal, diameter
dis-	not, opposite of	disagree, disbelief
dys-	abnormal	dysphemism, dysfunctional
e-	electronic	e-mail, e-book
eco-	environmental	eco-system, eco-disaster
en(m)-	cause to	encode, embrace
equi-	equal	equidistant, equilateral
ex-	previously	ex-friend, ex-student
extra-	very	extra-bright, extra-strong
extra-	outside	extra-curricular, extra-ordinary
fore-	before	forecast

hyper-	having too much	hypertension, hypersensitive
il-, im-, in-, ir-	not	illogical, impossible
in(m)-	in, movement to	input, import
inter-	between, connected	interrelated, interact
intra-	within	intra-generational, intramuscular
kilo-	thousand	kilogram, kilowatt
macro-	large in size or scope	macro-economics, macro-scale
mal-	badly	malfunction, malpractice
micro-	small in size or scope	micro-economics, micro-scale
mid-	middle	midway
mis-	wrongly	mistranslate, misunderstanding
mono-	one	mono-centric, monoculture
multi-	many	multicultural, multi-level
eo-	old but in new form	neo-classical
non-	not	non-believer, nonsense
out-	more	outnumber, outlive
over-	over/above/too much	overlook, overhead
post-	after	post-examination, post-modern
pre-	before	pre-industrial, preview
pro-	in favor of	pro-feminist, pro-liberal
pseudo-	false	pseudo-intellectual
quasi-	almost, not quite	quasi-academic, quasi-legal
re-	again	rediscover, rename
retro-	backwards	retrogressive, retrospective
semi-	half, partly	semicircle, semi-organic
sub-	under, part of something	submarine, subsection
super-	above, bigger	superpower, superstar
trans-	across	transcribe, transport
ultra-	extreme	ultra-sensitive, ultrasound
un-	not	unusual, unplug
under-	insufficient, beneath	underemployed, undersea
well-	useful, successful	well-designed, well-written

Suffix	**Meaning**	**Example**
-able, ible	can be done	reliable, audible
-al, ial	has property of	social, personal
-ant	having an effect	coolant, accelerant
-based	forming a major part of	computer-based, oil-based
-cy	state or quality	accuracy, literacy
-ed	past verb	Played
-ee	affected by something	interviewee, addressee
-en	made of	Wooden
-er	comparative	Higher
-er	one who	sailor , actor
-est	superlative	best, biggest
-free	without	debt-free, pain-free
-ful	full of	careful, joyful
-hood	state, condition, period	adulthood, motherhood

-ic	having property of	linguistic, photographic
-ics	study of	genetics, electronics
-ify	give something a quality	clarify, purify, solidify
-ing	present participle	speaking
-ism	belief, behavior	modernism, heroism
-ist	with specific beliefs	anarchist, optimist
-(t)ion	act, process	attention, sanction
-(i)ty	state of	cruelty, sanity
-(t)ive	adjective	motive, votive
-ize,	bring about a state	modernize, modernize
-less	without	childless, meaningless
-like	resembling	child-like, hook-like
-ly	having	sadly, quietly
-ment	action, process	enjoyment, payment
-ness	quality or state of	kindness, effectiveness
-ocracy	type of ruling body	meritocracy, bureaucracy
-ocrat	person ruling	technocrat, aristocrat
-ology, -ological	study of	geology, physiological
-ous	having	joyous, religious
-proof	protected, safe from	waterproof, dustproof
-s	more than one	books, maps
-ship	having a specific position	friendship, leadership
-y	having	happy, windy

Appendix II: Unfamiliar Words

The following words were not familiar or difficult to most of the first year students when reading texts from *Skills in English: Reading Resources* by Phillips (2004):

temperature	surrounded	influences	Equator	centigrade
surprised	meridian	longitude	peninsula	enormous
swamps	marshes	wadis	island	exhibition
jockeys	chariot	decorate	downhill	drumming
invention	fireworks	cannons	medieval	colleagues
gunpowder	missile	orbited	expensive	launched
aeroplane	tragedies	performances	theatre	opponent
checkmate	archaeologists	chessboard	diagonally	lunchtime
snacks	nutrients	complicated	assignment	starving
vegetables	unhealthy			

Appendix III: Word and Syllable Awareness Tasks and Instructions

Task 1: Word Identification

The following is a list of 10 words. You are required to decide how many lexical items are covered by each word. A word like *morph* covers lexical items including *morphs*, *morpheme*, *morphologic*, *morphological*, *morphologically*, and so on.

1. decorate
2. orbited

3. expensive
4. surrounded
5. starving
6. unhealthy
7. complicated
8. invention
9. exhibition
10. assignment

Task 2: Word Segmentation

You are provided with 10 phrases and sentences. I am going to read them to you three times and you will segment them into single words. In the first reading, you will count the total number of words in phrases and sentences. In the second reading, you will count the content words. In the third reading, function words are counted. Write down the number of words on answer sheets. The phrase *a good boy* has three words: *a, good* and *boy.*

1. You must have a secondary certificate.
2. Is the city on nice?
3. The objective is simple.
4. A new rule.
5. People played this game in India.
6. Don't eat so much.
7. The problems.
8. Starving makes you fat.
9. One day, he met three witches.
10. The first rocket hit London.

Task 3: Syllable Segmentation

You are provided with 10 words. I am going to read them to you and you will segment them into single syllables. Write down the number of syllables on answer sheets. The word *picture* has two syllables: *pic* and *ture.*

1. temperature
2. swamps
3. jockeys
4. gunpowder
5. surprised
6. aeroplane
7. vegetables
8. archaeologists
9. checkmate
10. invention

Task 4: Syllable Blending

I am going to read a list of 10 pairs and sets of syllables to you and you will form whole words from them. Write down the newly created words on your answer sheets. The syllables *sick-* and *-ness* can be blended to the word *sickness*.

1. E- qua- -tor
2. pe- nin- su- -la
3. down- -hill
4. is- land
5. ex- -pen -sive
6. op- po- nent
7. me- ri- dian
8. swamps
9. me- di- e- -val
10. di- -a -go -na -lly

Task 5: Syllable Deletion

You are provided with 10 multisyllabic words. I am going to read them to you and you will delete one syllable (initial, middle or final) according to instruction. Write down the remained syllable (s) after deletion. If we delete the syllable *ti-* from *ticket*, the remained syllable is *-cket*. Meaning is not important for the left syllable.

1. expensive (say it without *ex-*)
2. unhealthy (say it without *un-*)
3. nutrients (say it without *-rients*)
4. tragedies (say it without *-dies*)
5. missile (say it without *-sile*)
6. fireworks (say it without *-works*)
7. chariot (say it without *-iot*)
8. marshes (say it without *mar-*)
9. meridian (say it without *-ri*)
10. surrounded (say it without *su-*)