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Discipline - Related Satellite Programs for Learning Specialized Vocabulary of University Course books

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Abstract: This presented study aimed at investigating the effect of discipline-related satellite programs for subsidiary learning of specialized vocabulary used in university course books. First, an Engineering Spoken Word List (ESWL) of 795 specialized word types was developed from a 546,043-word corpus of engineering course books based on corpus-driven analysis and specialized dictionary checking. Then, a 12,046,179-word corpus of 29 engineering satellite programs was developed and analyzed to scrutinize the extent to which the ESWL words were faced in these programs. This study adopted four cutoff points at which incidental learning may happen, i.e., 5 encounters or more, 10 encounters or more, 15 encounters or more, and 20 encounters or more and found that the number of ESWL words that met these cutoff points increased as the number of episodes, seasons, and programs increased. This specifies that discipline-related satellite programs are perfect sources for incidental learning of specialized vocabulary used in engineering course books as long as these programs are watched frequently and in a consecutive order.

1. Introduction

It was always a debating issue whether satellite programs are useful resources for learning educational materials or not? In the field of vocabulary learning Vocabulary is one of the language elements that embrace the fundamental language skills. It plays a great role for learners in acquiring and mastering a language. “Vocabulary could be a core part of language proficiency and provides a lot of the ideas for the way well learners speak, listen, read and write” (Richard & Renandya, as cited in Akil, 2019, p.62).

In the field of vocabulary learning, we have a challenging matter for both SL academic learners to learn and use English specialized vocabulary of their disciplines and for researchers and practitioners to help EAP/ESP (EAP: English for academic purpose and ESP: English for specific purposes) learners improve their knowledge of particular vocabularies .Nation, (2013) as cited in Dang, (2019) has calculated that second language (L2) learners require much more vocabulary than the others and other researchers have advocated the potential of extensive reading to boost learners

’vocabulary knowledge and found that L2 learners would be unlikely to learn the most frequent 3,000 words needed through extensive reading. This level is far beyond the highest graded reader, and would be difficult to explicitly teach (Sánchez & Schmitt, 2010). In response to this call, researchers have done some affairs such as providing some specialized word lists from corpora that represent the genres that learners engage in their studies but actually mostly based on the written materials not the oral ones. It is crucial for EAP/ESP students to understand the academic spoken discourse of a specific discipline as much as the written forms. Furthermore, the way to teach these vocabularies is of great importance to practitioners. Deliberate learning alone is not sufficient, for it has some defects such as the amount of vocabulary that can be taught in classroom and probable insufficient background knowledge of some EAP/ESP teachers to teach specialized vocabulary and incremental process of learning. Incidental learning of specialized vocabulary through being exposed to the target language input outside the classroom is a valuable supplementary resource for L2 vocabulary learning but it is important to identify potential resources for incidental learning of specialized vocabulary used in university course books. Also investigating other factors affecting the process of learning vocabulary would seem necessary .Different studies have indicated that incidental vocabulary learning can happen through watching Some programs but the extent to which how and how much satellite Programs can be affective is less transparent.by considering the entertaining nature of satellite programs opposed to almost formal nature of academic course books, discipline related satellite programs may offer more opportunities for incidental vocabulary learning. The present study is going to take a look at different studies done in the field of engineering vocabulary learning specially vocabularies of course books through watching satellite discipline related programs.

It is important to investigate specialized vocabulary in academic speech of engineering. Dang and Webb (2014), found that engineering and life vocabulary of academic speech is more challenging than that of arts and humanities, physical sciences, and social sciences. According to what has been mentioned above satellite programs may be potential instrumentations for learning specialized vocabulary of engineering course books incidentally.

1.1 Specialized Vocabulary in the Field of Engineering

Specialized vocabularies in general are those vocabularies used in certain fields. The words that are specifically recognized for topics, fields, or disciplines. Obtaining a particular lexicon is vital for learners to comprehend scholastic education and to do their share of preferred academic discourse communities. Studies on vocabulary have facilitated to define exactly what defines whether a word is specialized and how much-specialized vocabulary is found in textbooks (Ansur et al., 2019, p.6). In fact, entire dictionaries are devoted to the field of engineering vocabulary and to understanding what the names of devices and equipment, engineering and conditions mean. However, most of these complex engineering words are not necessary when teaching engineering vocabulary to EAP/ESP. Instead, focus on fundamental engineering concepts that a discipline related person needs to know. Such words are looked upon with 2 points of view; the narrow view considers common words in a specific discipline or a group of disciplines as specialized vocabulary and the broad view think specialized words as those that are closely related to a particular discipline. In the broad view the words that are used constantly in every day speech but have special meanings in a particular discipline deserve to be classified as specialized vocabulary. Learning specialized vocabulary is crucial for an EAP/ESP learner because it may have a large proportion in understanding a text or a discourse. So, it may be a huge learning burden for L2 learners at English _medium universities. As cited by some

researchers specialized words accounts for 12.24%_31.75% of the words in engineering texts. (Dang, 2019).

Most attempts in the field of helping EAP/ESP learners to overcome difficulties of understanding a particular discipline related text focused on preparing word lists from specialized corpora. All of which are written word lists. In addition, available specialized spoken word lists are common between engineering and other disciplines. Vocabulary in spoken discourse may be different from written one so here the need to develop a spoken specialized engineering word list is felt. It has been recommended by some researchers that consultation with specialists in a specific field and working with specialized dictionaries, developing rating scales, and employing techniques from corpus linguistics can be useful ways of finding the specialized vocabulary (Ansur et al., 2019).

1.2 Corpus-based studies

A corpus is a body of texts of written or spoken language. Corpus Linguistics is the study of language using a sample language that comes naturally. Corpus studies have given a contribution to the students to identify and understand more about specialized vocabulary (Asnur et al., 2019). Corpus-based studies allow for larger-scale investigation of the word in context. They should be relatively easy to replicate. The benefit of a corpus-based approach is that it allows for more reliable and empirical linguistic investigations, and can provide more generalizable and valid research results (Biber, 2012 as cited in Asnur et al., 2019). They have been particularly useful for developing word lists to be used in language classrooms and for independent study.

1.3 Viewing satellite and incidental learning

Researches on incidental learning has focused on learning from reading and listening (Dang, 2019). However as mentioned by Peters & Webb (2018) One of the first studies investigating foreign language vocabulary learning through satellite viewing was Neuman & Koskinen (1992), in which bilingual children (grade 7 and 8) watched three short clips from a children's program about science. Their findings revealed that there were large vocabulary learning gains for children who had watched the clips compared to a control group. Neuman and Koskinen were among the first to emphasize the potential of satellite viewing for vocabulary learning. In recent years also new sources of learning is attracting learners all over the world. Satellite is one of the sources, European and American people watch satellite almost 5 time more than their reading books (Peters & Webb, 2018). This important issue sheds light on the possibility of educational resources inclusion in Satellite programs. Lindgren & Muñoz (2013) found that satellite viewing had a greater influence on reading and listening proficiency in young learners than other types of out-of-class exposure.

The wide access to satellite English language programs DVDs, cable Satellite, and online media websites are valuable sources of L2 spoken input in many EFL contexts, where there may be limited opportunities for L2 listening also Researches show that watching L2 satellite programs is a useful and more outstanding way of exposure to L2 than reading books (Dang, 2019). There are scientific reasons why one can learn for example language vocabularies by watching satellite. These reasons are related to both what we know about brain process in acquiring a language and what is our knowledge of the nature of language itself.

A few reasons mentioned by practitioners of why watching satellite is useful in learning language; first, one is engaged in the discourse and culture of a language by witnessing it. Second one's getting to observe without participating. This means that you can notice how a person can use

a phrase or word differently and learn new words in context. Third, learning with the help of satellite is multimodal. By engaging various senses, one has more tools to make connection between words and their meanings. Fourth, it is entertaining that when an activity is enjoyable for someone, he/she is more motivated to do it more and in the case of learning is going to better retain what has learnt. satellite programs also have the advantage that low-frequency words occur repeatedly in a relatively small amount of viewing time (Webb & Rodgers, 2009). In corpus–driven studies, investigations on incidental learning are considered from two dimensions (a) the number of words needed to comprehend a satellite program and (b) the frequency of reoccurrence of words. The first line of research draws on studies investigating the effect of lexical coverage on comprehension (Dang, 2019).

Lexical coverage is an essential measure, for it allows the calculation of estimates of the vocabulary size necessary for comprehension of written and spoken texts. Most researches on lexical coverage show the level of learners' ability to comprehend and incidentally learn a text. Lexical coverage is different in various discourses. A coverage of 95% is needed in the case of listening but in the case of satellite programs generally 3000-word family, proper nouns and marginal words is necessary for incidental vocabulary learning to happen. It means 95%. However, this amount may vary according to different genres and programs. The second line of research is about how often words reoccurred in these programs (Rodgers & Webb, 2011). Because this line of research is directly related to the purpose of the current study, it is discussed in more details. Based on empirical evidence it is assumed that there is a direct relationship between the number of encounters to words and the rate of learning. Previous studies have focused on incidental learning of low frequency words. Webb and Rodgers (2009) analyzed vocabulary in a 264,384-word corpus drawn from 88 Satellite programs of various genres. They found that 69.15% of the low-frequency words in their corpus occurred only once or twice, and 15.6% were encountered five or more times. This indicates that incidental learning for less frequent words in different genres hardly occurs.

Webb and Rodger expressed people more watch satellite in their first language and the number of programs in their studies was relatively small. They concluded that by regular watching of Satellite programs for a long time the potential for learning would increase. They also suggested that watching Satellite programs from subgenres with similar topics and storylines may be an effective way to increase vocabulary learning through viewing. After a few studies they found that lower vocabulary loads are in episodes from related programs in comparison to episode from unrelated programs. And low frequency words are more in related programs. During the next studies of Rodgers & Webb's (2011) it was determined that episodes of programs within the same genres may have greater potential for incidental vocabulary learning than episodes of unrelated programs. However, it should be noted that in Rodgers and Webb's (2011) and Webb's (2011) studies, each program consisted of only one season and each genre was represented by only two programs' episodes of programs within the same genres may have greater potential for incidental vocabulary learning than episodes of unrelated programs. However, it should be noted that in Rodgers and Webb's (2011) studies, each program consisted of only one season and each genre was represented by only two programs (Dang ,2019). another study investigated the potential for incidental learning through watching discipline related satellite programs as cited in Dang (2019), was Csomay and Petrovıc's (2012) study.

They produced a specialized word list from among 128,897-word corpus of seven law-related movies and a five-episode law-related Satellite program. Then, they examined the occurrences of these words in corpus and found that words with 10 or more encounters accounted for 73.8%1of the specialized vocabulary in the corpus. Csomay and Petrovıc provided useful findings and highlight an area of incidental vocabulary learning that merits investigation, but they did not work on specialized vocabulary of academic course books. According to the whole of the above studies and

the review of previous corpus-driven researches it is essential to investigate the occurrences of specialized vocabulary used in academic course books in discipline-related Satellite programs, and only one research has been conducted to address this need. Such research is based on the analysis of vocabulary in a large corpus of academic course books and a large corpus of multiple discipline-related Satellite programs. More elaboration on such study is going to be conveyed in the present study.

1.4 Frequency of Occurrence and Number of Encounters Necessary for Incidental Learning

Repeated encounters to new words in written context leads to vocabulary learning (Peters & Webb, 2018). Rodgers (2013) found a small correlation between frequency of occurrence and word learning during a longitudinal study. Comparing to reading, the influence of frequency of occurrence through listening and satellite viewing is less obvious. Most reading studies also indicate that after 8 to 10 encounters significant learning achievement may occur. For example, some researchers suggested that the minimum numbers of repetitions for words to be learnt in a reader should be somewhere around 10. (Chao & Hu, 2013) but the number of encounters necessary to learn in other aspects of language such as meaning recognition is different (Xiaoning & Feng, 2017). Studies mentioned above did not answer the question on what is the frequency threshold at which incidental vocabulary learning through viewing happens. Learning words through Satellite Imagery is much easier but because of on-line nature of viewing, the learner may face difficulties. Another important factor that affects the process of incidental learning through watching Satellite learning is the age of learner. Young children are notoriously tolerant of repeated exposure to the same content but adult learners may be bored by repeated exposures (Nichols et al, 2013).

According to what Webb and Feng (2019), have declared in their research on what is the effective mode on vocabulary learning from among reading, listening, and viewing; it is not truly clear whether viewing requires more encounters for incidental learning than reading. to make clear the insights in to the potential for incidental learning specialized vocabulary through viewing the present study introduces a range of cutoff points rather than relying on a specific frequency cutoff point. For instance, we have (a) 5 or more encounters, (b) 10 or more encounters, (c) 15 or more encounters, and (d) 20 or more encounters. Words less than four encounter have the least chance of being learnt. 5 encounter and 10 encounter and 15 encounter were chosen because they were used by previous corpus-driven researches on incidental vocabulary learning through viewing. van Zeeland and Schmitt (2013) found that at least 15 encounters are needed for incidental learning from listening. In the viewing condition, students use their audiovisual senses so they may have more chance to learn faster and indeed less need for more encounters. Fifteen or more encounters, thus, is a useful cutoff point to examine the potential for incidental learning through viewing. Because of some previous studies that revealed up to around 20 encounters is prominent in incidental vocabulary learning, the 20-encounter cutoff was chosen. (Dang, 2019)

1.5 Cognates

Cognates are words that have a common etymological, formal and semantic origin in two languages. However, the definition that is often adopted is words that are formally and semantically related, e.g., the English word house and the German word Haus, or the English word cat and the Dutch word kat (Rogers, Webb & Nakata, 2015 as cited in Peters & Webb, 2018).

After some psycholinguistic researches, it was clear that learning cognate words is much easier than non-cognate words. This issue was criticized for the lack of ecological validity, there has been made a comparison between Japanese EFL learning loan words (is a word as adopted from one language (the donor language) and incorporated into another language without translation) and non-

cognates by Rogers, Webb, and Nakata (2015) . Learning results were measured in two tests, a cloze test and a translation test, the gains showed greater learning of loanwords than the non-cognates in the immediate and delayed translation test, and however, learning gains were greater for the non-cognates in a cloze test. The facilitative effect of cognates was only partially confirmed (Peters& Webb, 2018).

1.6 Word Relevance

Word relevance from various points of views has different definitions. One definition is task-induced word relevance, which means words necessary to answer the reading comprehension questions. Some researches show that words that were more relevant to completing a task were better learnt than non-relevant ones.

Word relevance can also be defined as words necessary to understand a text. Some other researchers had considered the role that Different types of words such as technical, academic, low frequency words play on listening and reading. Technical words were defined as words that have specific meanings in informational texts such as science, mathematics, or social studies' books and closely related to the topic of the texts and essential to understanding the Course books. With this definition, we can also consider technical words to be included in specialized word category. Some scholars revealed that the type of word is the second-best predictor of word learning through listening. Furthermore, technical words were found to be the best words learnt to understand the gist of course books (Peters & Webb, 2018).

2. Rationale and Research Questions

The present study seeks to investigate whether watching engineering Satellite programs is a suitable source for learning specialized vocabulary of course books or not. It is important to study the potential of watching discipline related satellite programs because satellite provides learners with authentic, spoken input and creates opportunities for incidental vocabulary learning. This research wants to consider the potential for incidental learning of items in engineering spoken word list through watching engineering Satellite programs. In some previous studies there has been lists of specialized vocabulary from engineering Satellite programs but the focus in the present study is on specialized vocabulary of engineering Course books. It uses a range of frequency cutoff points to examine the potential for incidental vocabulary learning.

The following research questions were addressed:

1. What are the specialized words in Engineering Course books?
2. To what extent can these words be faced in engineering Satellite programs?
3. Methodology

2.1 Identifying Specialized Vocabulary in Engineering Course books

There are some methods to identify specialized vocabulary in engineering Course books but in order to have a comprehensive look upon them, a mixed method had been suggested by researchers that consists of corpus-driven analysis, specialized dictionary checking and expert rating (Dang, 2019) the corpus-driven analysis focuses on the most wide-ranging, frequent and distinct lexical items in engineering course books. Some high frequency words with general meanings have also specialized meanings maybe related to engineering fields, so dictionary checking and expert ratings had been taken in to account. The words chosen for the list should have some characteristics, it must be a

content word with relative frequency of at least 9.4 times per million in engineering spoken corpus furthermore, as Dang (2019) asserts, it should exist in at least five transcripts and have the keyness of 28.7 when comparing their frequency in engineering speech (represented by the engineering spoken corpus) with their frequency in general conversation (represented by Loveet al.'s 2017 Spoken BNC2014). These cutoff points were selected because they ensured that the ESWL (engineering spoken word list) consisted of a relatively small number of items (fewer than 900 words). Here is what has been done by Dang (2019, p.11):

Dictionary of Engineering (Second Edition) second Edition by McGraw-Hill (Author) was checked for the items selected in the corpus–driven analysis by researchers and words exiting in none of the dictionaries were omitted. Two experts with related knowledge were chosen to investigate the degree of technicality of items. A semantic scale was used in the rating adapted from the scales used in previous research on developing specialized wordlists When the experts were not sure which points to give to a certain word, concordance lines of that word in the engineering spoken corpus were provided to help them make the decision. Words rated as 1 by both experts (e.g., cent, fashion, chart) were removed from the list.

2.2 Evaluating Satellite Engineering Vocabulary Programs

Beside undefined word knowledge framework, prior knowledge, which was found to influence the effect of vocabulary acquisition, has been neglected in many studies. (Tang,2020) it seems that learners with more rich vocabulary backgrounds tend to understand reading and listening texts better than those with poor vocabulary backgrounds.it has been certificated that prior vocabulary knowledge also takes an important part in incidental vocabulary acquisition. Some researchers proved the positive correlation between prior knowledge and learning gains. Other researchers revealed that higher-level students learned significantly more words than lower-level participants. The role of prior vocabulary knowledge had been investigated in a few numbers of satellite-viewing studies. Some researches show that the learner's level of linguistic ability affects learning gains (Peters& Webb, 2018).

In order to have a trustworthy analysis of engineering vocabulary in satellite programs, researchers conducted some investigations. The method they chose allowed them to systematically find out the relationship between the length of discipline related satellite program and the possible amount of learning. They first ran the transcripts in the engineering satellite program corpus through the range program with the engineering spoken world list and then the occurrence of the ESWL (engineering spoken world list) were examined from 5 aspects. Through a series of programs, the words were examined: (a) in episode 1 of season 1 of each program, (b) in season 1 of each program, (c) in each program, (d) in each group of programs that have the similar lexical demand, and (e) in all 41 programs together.

The cutoff points in the level of encounters were:

(a) 1—4 encounters, (b) 5 or more encounters, (c) 10 or more encounters, (d) 15 or more encounters, and (e) 20 or more encounters (Dang, 2019).

According to Van Zeeland and Schmitt (2013), for listening to be a valuable source of vocabulary learning, it appears that considerably more than 15 exposures are needed. To determine the lexical demands of each program some other investigation was accomplished. Twenty-five 1000_word family lists were used to show the 1,000-word levels (1,000–25,000) at which the word families in the engineering-related drama program occurred. Words that do not belong to the most frequent 25,000-word families were classified as proper nouns, marginal words, compounds, abbreviations, and not in the lists. Proper nouns and marginal words were included in the total

coverage at 1000-word levels because it was assumed that they are more easily learnt and understood in context (Dang, 2019).

In the present study, the lexical demands were represented by the number of word families together with proper nouns and marginal words needed to reach 95% coverage of the program. The 95% coverage figure is commonly accepted as the point at which L2 learners may achieve reasonable comprehension of spoken texts (van Zeeland & Schmitt, 2013).

3. Results

3.1 Specialized Vocabulary in Engineering course books

795-word types were chosen for the ESWL. Most of which were general high frequency words. The 1,000, 2,000, and 3,000 BNC/COCA word levels represent high-frequency words, whereas those outside the most frequent 3,000 BNC (British National Corpus)/COCA (Corpus of Contemporary American English) word levels are mid- and low-frequency words. 26.16% of the words appearing at the first 1,000-word level, 26.5% at the second 1,000-word level, and 23.37% at the third 1,000-word level. Words at lower 1,000-word levels accounted for 21.48% of the list. The coverage of the list across general spoken, academic, and engineering spoken corpora was calculated in previous researches to ensure the validity of ESWL. The ESWL covered 14.14% of the engineering spoken corpus. This coverage is higher than 9.25% coverage in the academic spoken corpus and 4.37% of the general spoken corpus (Dang, 2019).

Table 1. *Distribution of the engineering spoken word list across the BNC/COCA levels according to Dang (2019, p.13)*

BNC/COCA levels	Number of word types	examples
1000	143	Balance, Battery, Bearing, Blueprint, Building
2000	247	Lever, Lift, Liquid, Load
3000	219	Vacuum, Valve, Vertical, Vibration
Outside the most frequent 3,000 words	186	Hardware, Heat, Hoist, Horizontal, Hydraulic
total	795	

3.2 Potential for Incidental Learning from Engineering-Related Satellite Programs

Van Zeeland & Schmitt (2012) have stated in their studies on Lexical Coverage in L1 and L2 Listening Comprehension; “Results showed that most native and non-native participants could adequately comprehend the spoken texts with only 90 percent coverage, although the non-natives showed considerable variation at this level. At 95 percent coverage, non-native participants also demonstrated relatively good comprehension”. However, the vocabulary size needed to reach 95% of coverage of each program varied.

Dang (2019), taking a look at the occurrence of the ESWL words in the engineering-related satellite programs revealed that only a small number of ESWL word types being learnt through viewing a single episode. The results of the analysis of vocabulary in a single season, a single program, each group of programs that have the same lexical demand, and all 41 programs, indicates that there is a direct relationship between the increase in the number of episodes and the rose in the percentage of ESWL word types. a similar trend is seen with the number of times the word types were encountered. The percentage of ESWL word types encountered fewer than 5 times decreased

from 77.66% (a single episode) to 56.40% (a single season), 40.68% (a single program), and 12.55% (each group of programs that have the same lexical demand). In contrast, the percentage of ESWL words encountered more than 5 times increased from 11.14% (a single episode) to 23.40% (a single season), 39.12% (a single program), and 66.16% (each group of programs that have the same lexical demand). Similar patterns were seen with those encountered more than 10 times, more than 15 times, and more than 20 times. The percentage of ESWL word types encountered 10 times went up from 4.13% (a single episode) to 16.27% (a single season), 21.41% (a single program), and 56.53% (each group of programs that have the same lexical demand). The percentage of ESWL word types encountered 15 times rose from 1.81% (a single episode) to 10.11 % (a single season), 12.89% (a single program), and 50.63% (each group of programs that have the same lexical demand). Likewise, there was an increase in the percentage of ESWL word types encountered 20 times from 0.80% (a single episode) to 7.08% (a single season), 17.51% (a single program), and 46.64% (a group of programs). When the vocabulary in all 41 programs was analyzed, 98.43% of the ESWL word types appeared at least 20 times, three-word types (cellular, females, particles) appeared 18 times, one-word type (molecules) appeared 6 times, and one-word type (molecule) appeared 7 times in these programs. (Dang, 2019, p.15)

Table 2. *Encounters with the ESWL Word Types in a Single Episode, a Single Season, and a Single Program*

Number of encounters	Mean	SD
1-4		
A single episode	77.66	6.45
A single season	56.40	15.42
A single program	40.68	24.41
A group of programs with the same lexical demand	12.55	34.48
5 or more		
A single episode	11.14	6.45
A single season	23.40	145.74
A single program	39.12	242.41
A group of programs with the same lexical demand	66.16	34.84
10 or more		
A single episode	4.13	7.44
A single season	16.27	14.43
A single program	21.41	24.64
A group of programs with the same lexical demand	56.53	44.03
15 or more		
A single episode	1.81	4.41
A single season	10.11	6.45
A single program	12.89	14.44
A group of programs with the same lexical demand	50.63	44.08
20 or more		
A single episode	0.80	0.49
A single season	7.08	4.40
A single program	17.51	14.94
A group of programs with the same lexical demand	46.64	44.54

4. Discussion

The current study builds on previous research on specialized and incidental vocabulary acquired by television viewing in two ways. First, it examines the impact of watching engineering-related satellite programs on acquiring specific engineering terms from course books. Second, it sheds light on the possibility of these words being learned by accident in engineering Satellite programs. To answer the first research question, 795-word types were chosen for the ESWL. Most of which were general high frequency words. To determine if there is a link between the length of a discipline-related satellite program and the amount of learning these vocabularies, the transcripts from the engineering satellite program corpus were run through the range program with the engineering spoken world list, and the occurrence of the ESWL was then examined from five perspectives. The findings of a vocabulary study of a single season, a single program, each group of programs with the same lexical demand, and all 41 programs show that there is a direct correlation between the number of episodes and the percentage of ESWL word categories and if discipline-related television shows are seen frequently and in a sequential manner, they can provide opportunities for incidental learning of specialist vocabulary used in engineering course books. Neuman and Koskinen (1992) conducted one of the first studies on foreign language vocabulary learning through satellite viewing, in which bilingual children (grades 7 and 8) watched three short clips from a children's science program. In addition, this study backs up the claim that children who watched the clips made significant gains in vocabulary learning when compared to a control group. To answer the second research question, the majority of ESWL words were encountered fewer than 5 times in a single episode, so it is unlikely that many will be learned by chance while watching a single episode. As a result, watching a single episode of an engineering-related satellite program will be of little use as a way to learn specialized words used in engineering Course books by accident. However, the findings also suggest that long-term viewing of engineering-related satellite programs has a high potential for incidental learning of these terms. The number of ESWL words encountered in the programs increased significantly as the number of episodes increased. In a single group of programs with the same lexical demand, the percentage of ESWL words encountered 10 or more times increased from 4% in a single episode to nearly 57%. Similarly, the percentage of ESWL words encountered 15 or more times enhanced from 1.81% in a single episode to more than 50% in a single group of programs with the same lexical demand, and the percentage of ESWL words encountered 20 or more times increased from less than 1% to nearly 47% in the same group of programs. When all 41 programs were considered together, 98.43 % of the ESWL words appeared at least 20 times. Although words with 10 or more encounters, 15 or more encounters, and 20 or more encounters may have a higher likelihood of being learned than words with fewer encounters, there is a significant increase in the number of ESWL words encountered (from 11.14% in a single episode to 66.16% in a single group of programs that have the same lexical demand) if we consider the previous research's cutoff point of 5 times or more as the boundary where partial knowledge of known words is gained (Csomay & Petrov c, 2012; Rodgers & Webb, 2011; Webb, 2011). This suggests that discipline-related programs may be potential sources for incidental learning of partial knowledge of known vocabulary, and that if these programs are watched on a regular basis over a long period of time, there may be a possibility for incidental learning of specialized vocabulary from engineering course books in terms of both breadth and depth. This is significant because it implies that simply watching discipline-specific television programs for entertainment may provide opportunities for EAP/ESP learners to learn specialized vocabulary used in academic lectures, seminars, and books by accident. The current study takes an interesting approach to looking into the possibility of learning vocabulary by watching satellite programs.

Although most previous corpus-driven research on incidental learning through viewing has focused on low-frequency words (e.g., Rodgers & Webb, 2011; Webb, 2011), this study concentrated on specialized vocabulary. Rather than a corpus of television programs, the specialized vocabulary used in the investigation of the potential for incidental learning through viewing was derived from a corpus of engineering course books. Furthermore, rather than relying on a single frequency cutoff point, this study investigated the potential for incidental learning from viewing using a variety of cutoff points. As a result, it can provide solid support for the importance of discipline-related television programs for EAP/ESP students learning specialized vocabulary that they will likely encounter frequently in their target disciplines. According to this study, a vocabulary size of the most common 3,000 word families is required on average to achieve 95% coverage of engineering-related satellite programs.. However, the vocabulary sizes required to achieve 95 percent coverage of each program differed. The current study's findings support previous findings that 3,000 word families are required to reach 95 percent coverage of television programs, but lexical demands are likely to differ significantly between programs (Rodgers & Webb, 2011; Webb, 2011; Webb & Rodgers, 2009).

5. Conclusion

As a whole, this study found that, to achieve the 95% coverage of engineering-related Satellite programs, 3000-word families are needed but for each program, this amount varies. This study also revealed that engineering-related Satellite programs may be potential resources for incidentally learning the words, it means that simply through regular watching of engineering-related Satellite programs, EAP/ESP students who plan to study engineering may learn the specialized vocabulary used in engineering course books, paying attention to the fact that learner's motivation to learn through watching Satellite programs is likely to depend on the extent to which they can understand the program . Therefore, learner's level and the prior vocabulary back ground should be considered for watching programs. They should watch programs that require a vocabulary size of 2,000word families before moving on to those requiring a vocabulary size of 3,000 words, then 4,000 words, and then 5,000 words.

It was discussed both incidental and deliberate learning is necessary in learning ESWL vocabulary studies. Furthermore, other factors such as word relevance, cognates and prior vocabulary backgrounds are partially effective in learning specialized vocabulary of course books and technical words were found to be the best words learnt to understand the gist of course books.

References

[1]Akil, M., Maharani, S., Atmowardoyo, H., Halim, A. (2019). A Corpus-Based Study: Specialized Vocabulary of English for Islamic Studies for Indonesian Islamic Students. Asian EFL Journal Research Article, .60-72. https://www.researchgate.net/publication/33901

[2] Chao, H., Hu, M. (2013). The Effects of Word Frequency and Contextual Types on Vocabulary Acquisition from Extensive Reading. Language Teaching and Research, 4(3), 487-495. www.researchgate.net

[3] Dang, T. (2019). The Potential for Learning Specialized Vocabulary of University Coursebooks through Watching Discipline-Related SATELLITE Programs: Insights from Engineering Corpora. TESOL Quarterly, 54(2), p.2. https://doi.org/10.1002/tesq.552

[4] Dang, T., Webb, S. (2014). The lexical profile of academic spoken English. English for Specific Purposes, 33, 66-76. https://eprints.whiterose.ac.uk

[5] Feng, Y., Webb, S. (2019). Learning Vocabulary through Reading, Listening, and Viewing: Which Mode of Input Is Most Effective? Studies in Second Language Acquisition, 42(3), 499- 523. https://eric.ed.gov/?id=EJ1263576

[6] Lindgren, E., Muñoz, C. (2012). The influence of exposure, parents, and linguistic distance on young European learners' foreign language comprehension.

[7] Nichols, D., Moses, A., Liebeskind, K., Mcmenamin, K. (2013). Learning Vocabulary from Satellite: Does Onscreen Print Have a Role? Educational Psychology, 105(3), 6. https://www.researchgate.net
[8] Peters, E., Webb, S. (2018). Incidental vocabulary acquisition through viewing L2 Satellite. Studies in Second Language Acquisition. https://www.researchgate.net
[9] Rodgers, M., Webb, S. (2011). Narrow viewing: The vocabulary in related Satellite programs. TESOL Quarterly, 45, 689–717. https://doi.org/10.5054/tq.2011.268062
[10] Sánchez, A., Schmitt, N. (2010). Incidental vocabulary acquisition from an authentic novel: Do Things Fall Apart?. Reading in a Foreign Language, 31–55. http://nflrc.hawaii.edu/rfl
[11] Tang, Z. (2020), A Review on Studies into Incidental Vocabulary Acquisition through Different Input. Canadian Center of Science and Education, 13(6). www.researchgate.net/publication/341491811
[12] Webb, S., Rodgers, M. (2009). Vocabulary demands of Satellite programs. Language Learning, 59, 335–366. https://doi.org/10.1111/j.1467-9922.2009.00509.x
[13] Van Zeeland, H., Schmitt, N. (2013), Incidental vocabulary acquisition through L2 listening: A dimension's approach. Science Direct, 609-624. www.sciencedirect.com
[14] Xiaoping, C., Feng, T. (2017). Assessing the Effects of Word Exposure Frequency on Incidental Vocabulary Acquisition from Reading and Listening. Chinese Journal of Applied Linguistics, 40(1), 56-73.https://doi.org/10.1515/cjal-2017-0004