Potential for Incidental Vocabulary Learning in Songs: A Corpus-based study

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Abstract: Listening to songs is one of the most casual activities we do, and in recent years there has been a push to incorporate this activity into the L2 classroom as a pedagogical tool. While other studies have focused on songs and their use in the L2 classroom, this corpus-based study examined the potential for L2 learners to incidentally learn vocabulary from casually listening to songs outside the classroom. Results showed great potential for incidental learning because of the high coverage of the high-frequency word families, the repeated encounter with both function and content words as well as the repetitive nature of songs themselves, and the rich informative context in song lyrics. However, songs might not offer great potential for incidental learning of low-frequency words. Nevertheless, teachers should encourage their students to listen to songs outside the classroom.

Keywords: incidental vocabulary learning, song lyrics, repeated-encounter, high-frequency words.

Introduction

With the advancement in computer technology over the past decade, corpus-based studies have become more and more popular. Second language (L2) research has benefited from the enormous objective data on authentic language use that corpus linguistics has generated, especially in L2 teaching and learning. One of these benefits is in the determination of the size of L2 vocabulary that learners need to know, in what order it should be known, and the optimal way to teach or learn it both inside and outside the classroom. There has been corpus-based studies on vocabulary learning through reading books (Webb, 2008), learning vocabulary through watching TV and

short videos (d'Ydewalle & Pavakanun, 1995), through watching movies (Webb S. , 2010), through L1 and L2 listening comprehension (Van Zeeland & Schmitt, 2013), listening to stories (Elley, 1989), as well as studies measuring the lexical coverage of spoken discourse (Adolph & Schmitt, 2003), and the vocabulary load of English song lyrics (Ozturk, 2017). However, there has been little or no published study on the potential for incidental vocabulary learning in songs. This study is an effort to address this gap in corpus-based study.

Incidental vocabulary learning

In L2 acquisition, incidental vocabulary learning is the implicit learning of vocabulary from casual engagement in such cognitive activities as reading or listening, in contrast to learning of vocabulary through explicit instruction (Hulstijn, 2001). Incidental vocabulary learning is an important part of L2 learning. In fact, there is a general consensus among researchers that beyond the first one thousand words that L2 learners acquire through explicit instruction, much of L2 vocabulary is acquired through incidental vocabulary learning. This is not a testament to the superiority of incidental vocabulary learning, conversely, studies have shown explicit vocabulary instruction to be more effective (Laufer, 2005; Nation, 2013), rather, it is because of the limited class time for explicit instruction. However, for incidental vocabulary learning to occur, certain conditions must be present. These are:

1. The degree of comprehension of the text. Learners must be able to understand a text in order to incidentally learn vocabulary from it (Gass, 1999), and this is determined by its vocabulary coverage. Studies have placed coverage at 95% and 98% for adequate L2 written and aural comprehension (Liu & Nation, 1985; Laufer, 1989; Hu & Nation, 2000; Bonk, 2000; Nation, 2006) and even less for L2 movie comprehension (Chapple & Curtis, 2000).

2. The quality of the context. Context refers to the information available to infer word meaning. Webb (2008) and Laufer & Shmueli (1997) found a positive effect of rich context on vocabulary learning because learners depend on it to correctly infer the

meaning of words. Words encountered in a rich and clear context are more likely to be learned than those in an unclear context.

3. The number of encounter of the words in the text. Repeated encounters facilitate incremental recognition of the various aspects of the word (e.g., spelling, class, and meaning). Various studies have found a positive effect of higher word exposure frequency on its incidental learning outcome (Waring & Takaki, 2003; Pigada & Schmitt, However, while there is a consensus on the effect of repeated encounter, there is no agreement on the number of encounters that are needed for incidental learning to occur. The numbers range from 5-20 encounters. 2006; Schmitt, 2010; Teng, 2014).

Songs in L2 Vocabulary Learning

One of the earliest examples of research on songs in L2 vocabulary acquisition was Murphey's (1992) "Discourse of pop songs." In a content and lexical analysis of songs, he found five things: (1) song lyrics were composed of very short text relative to other genres; (2) songs mainly had unspecific referents; (3) were composed of very simple and familiar vocabulary; (4) were highly repetitive in nature; and (5) had the effect of continuously replaying in one's head even after the music has stopped. This last point constituted the song din phenomenon or what Murphey himself tagged "the song-stuck-in-my-head phenomenon" (SSIMHP) (Murphey, 1990). He thus concluded that songs were effective vocabulary pedagogical devices. Since then, there has been only a handful of studies on songs in L2 and most of these have focused on songs as language teaching tools, namely; for vocabulary recall and retention (Salcedo, 2010), the benefits of song-based language teaching for vocabulary learning (Tegge, 2015), and the vocabulary size necessary for comprehension of songs and its teaching implications (Ozturk, 2017). None of the studies investigated the extent to which vocabulary can be learned from casual listening to songs outside of the classroom. This is surprising given the high popularity of English language songs among all ages everywhere in the world. Songs are a valuable source of L2 aural input in most English as a foreign language

(EFL) contexts, where there may be a limited chance for L2 listening. Songs can also be a source of L2 written input because smartphone apps and online services that can display song lyrics as they are listened to are quite common these days (e.g., *Musixmatch*, *Youtube*). Also, because of the sing-along effects of songs, they can be a valuable source of L2 aural output. Songs also aid in memorization of not just words, but also formulaic language. In fact, "the mnemonic value of songs, is, of course, one of the best reasons for using them in the classroom" (Arleo, 2000, p. 10).

Research questions

This study set out to investigate the following questions:

1. What is the potential for incidental vocabulary acquisition from casually listening to songs?

2. In which genre is the opportunity for incidental learning more apparent?

Method

For this study, the full lyrics of a total of 208 songs were analyzed. There was a total of 69,757 running words in the lyrics corpus. The songs were carefully selected and spanned various genres. The purpose of selecting the songs from different genres was to provide a more accurate representation of the popular music genres. In selecting the samples, a number of factors were put into consideration. For instance, the phrasing. Songs with longer and clearer lyrics were favored as well as songs with actual words rather than non-lexical vocables such as (*na, dah, shoobee, etc*) which often characterize songs, but do not carry any semantic meanings (Chambers, 1980). In addition, a wider variety of artists were selected to represent each genre. In fact, no artist appeared more than twice in the samples. This also was to avoid the bias of a single artist and to rather obtain a more accurate representation. As much as possible, the songs were taken from more recent releases, however, some songs from the 1980's and 1990's and quite a few from before those years were included. The classification of the songs was acquired from various online music sites such as *musicbeats.com*, *Napster U.S.A*, *Amazon music*,

and *iTunes*. The song lyrics were also obtained from various credible online sources, namely; *lyrics.com*, *genius.com*, *metrolyrics.com*, and *azlyrics.com*. In the analysis of the samples, forms that the program was not built to recognize were either removed or altered. For instance, non-English words, as well as marginal words and slang words were eliminated. Contractions were changed to their full forms, and hyphenated words were either separated when their meanings did not change significantly or completely removed.

The samples were analyzed using the RANGE program (Heatley, Nation, & Coxhead, 2002) with the British National Corpus (BNC) and the Corpus of Contemporary American English (COCA). This is a corpus of the most frequent 25,000 word families. It is comprised of 25 lists of 1,000 words per list ranked in the order of frequency from the most frequent to the least frequent words. Finally, the song lyrics corpus used in this study was divided into eight sets. Sets one to seven each consisted of an average of 29.7 short texts which are the song lyrics. Set 8, however, consisted of only a single long text. This set was a collation of the entire song lyrics into a single text. Table 1 shows the composition of the sets.

Table 1. The composition of the sets

Sets	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set 7	Set 8
Genre	Blues	Country	Disney	House/Dance	Pop/Contemporary	RnB/Soul	Rock/Indie	All Songs

Results

Set 8 which contained the entire corpus in one text was the first to be analyzed. Results showed a cumulative coverage of 95.49% of the running words in the lyrics corpus at the 2,000 level, and a coverage of 98% at the 8000 level. This means that a person with knowledge of the most frequent 2,000 word families will be able to comprehend up to 95% of the lyrics in the corpus. However, a much higher coverage would be attained if the proper nouns (PN) and marginal words (MW) that were excluded from the list are

taken into consideration. PNs and MWs are quite easy to learn (Nation I. , 2006). It is therefore fair to put the 98% coverage at the 5,000 word level. These results are presented in Table 2.

Table 2. Vocabulary coverage of Set 8 (Entire lyrics corpus)

WORD LIST	TOKENS	CUMULATIVE %
1,000	64607	92.62
2,000	1999	95.49 ♣
3,000	433	96.11
4,000	570	96.93
5,000	350	97.44
6,000	152	97.66
7,000	97	97.8
8,000	139	98 ♦
9,000	81	98.12
10,000	36	98.17
11,000	31	98.21
12,000	35	98.26
13,000	14	98.28
14,000	15	98.3
15,000	10	98.31
16,000	7	98.32
17,000	2	98.32
18,000	3	98.32
19,000	2	98.32
20,000 ~ 25,000	4	98.32
not on the list	1170	100
Total	69757	

♣ Indicates point where 95% coverage is reached ♦ Indicates point where 98% coverage is reached.

Next is the result of the analysis of the coverage in the individual sets, as shown in Table 3. Results showed a 95% coverage at the 2000 level in three out of the seven sets. Only in Set 3 did it require the 4000 level to reach 95% coverage. This is interesting since it was expected that Set 3 which was comprised of Disney songs would contain much more frequent words targeted towards kids. Also, the level at which 98% coverage is achieved varied considerably among the sets. It is unknown, as pointed out by Moore

(2001), if this could be attributed to the differences in the number of songs contained in each set or if it is a result of the differences in the subject matter of the genres (Moore, 2001).

Table 3. Cumulative vocabulary coverage data for sets 1-7

Word List	SET 1	SET 2	SET 3	SET 4	SET 5	SET 6	SET 7
1,000	93.12	93.08	90.54	94.49	92.45	91.98	91.29
2,000	96.43 ♣	96.21 ♣	94.14	97.01 ♣	94.86	94.64	94.67
3,000	97.23	96.84	94.73	97.46	95.34 ♣	95.4 ♣	95.45 ♣
4,000	97.66	97.56	96.09 ♣	97.81	96.16	96.31	96.86
5,000	98.03 ♦	97.98	96.65	98.12 ♦	96.63	97	97.51
6,000	98.29	98.29 ♦	96.96	98.33	96.8	97.24	97.64
7,000	98.35	98.48	97.33	98.38	96.89	97.31	97.94
8,000	98.39	98.51	97.44	98.41	97.61	97.38	97.98
9,000	98.41	98.58	97.51	98.46	97.78	97.64	98.03 ♦
10,000	98.41	98.64	97.6	98.51	97.83	97.71	98.05
11,000	98.41	98.68	97.67	98.53	97.87	97.78	98.12
12,000	98.43	98.79	97.9	98.56	97.9	97.79	98.13
13,000	98.43	98.81	97.97	98.56	97.93	97.82	98.14
14,000	98.43	98.85	98 ♦	98.56	97.94	97.87	98.14
15,000	98.47	98.87	98.02	98.58	97.95	97.87	98.15
16,000	98.49	98.9	98.05	98.58	97.96	97.88	98.15
17,000	98.49	98.9	98.05	98.59	97.96	97.89	98.15
18,000	98.49	98.9	98.05	98.59	97.97	97.89	98.16
19,000	98.49	98.91	98.08	98.59	97.97	97.89	98.17
20,000 ~ 25,000	98.49	98.92	98.11	98.59	97.97	97.9	98.17
Not in the list	100	100	100	100.01	100	100	100

♣ Indicates point where 95% coverage is reached ♦Indicates point where 98% coverage is reached.

To assess repeated encounters with the words in the text, the numbers and percentages of occurrence of the word families from the list were also analyzed. Word families rather than types or tokens were chosen as the unit of measurement because they are more appropriate for a reliable measurement of the vocabulary in songs (Webb S. , 2010). A learner is more likely to recognize the various forms (family) of a word even

though he or she might not actually be able to use it, so the learner can be said to know the word. Listening to songs requires the ability to recognize the words that are encountered rather than the ability to use them.

Results of the analysis of the occurrence of word families in the sets are shown in Tables 4, 5, and 6. The *occurrence* column shows the number of encounters with a word family while the *number* column shows the number of word families that were encountered. The *percentage* indicates the percentage of the total number of word families in the set. For example, the left side of the table shows that in the 1000-3000 level, 170 word families occurred just once, and these 170 word families make up 25% of the total word families in the set.

Table 4. Occurrence of 1k-25k level word families in Set 8

	1k-3k			4k			5k-25k	
Occurrence	**Number**	**Percentage**		**Number**	**Percentage**		**Number**	**Percentage**
1	170	25%		54	61%		136	69%
2	85	12%		15	17%		25	13%
3	57	8%		8	9%		14	7%
4	39	6%		2	2%		9	5%
5	34	5%		3	3%		4	2%
6	23	3%		0	0%		1	1%
7	18	3%		1	1%		1	1%
8	18	3%		0	0%		1	1%
9	14	2%		1	1%		0	0%
10~	223	33%		5	6%		6	3%

Table 5. Occurrence of 1k-25k level word families in Set 3

	1k-3k List			4k List			5k-25k List	
Occurrence	**Number**	**Percentage**		**Number**	**Percentage**		**Number**	**Percentage**
1	125	42%		8	62%		39	95%
2	47	16%		2	15%		0	0%
3	26	9%		1	8%		0	0%
4	25	8%		1	8%		2	5%
5	14	5%		0	0%		0	0%

6	6	2%		1	8%		1	2%
7	5	2%		0	0%		0	0%
8	6	2%		0	0%		1	2%
9	4	1%		0	0%		0	0%
10~	42	14%		0	0%		0	0%

Table 6. Occurrence of 1k-25k level word families in Set 4

	1k-3k List			4k List			5k-25k List	
Occurrence	**Number**	**Percentage**		**Number**	**Percentage**		**Number**	**Percentage**
1	34	30%		3	75%		5	45%
2	14	12%		1	25%		4	36%
3	8	7%		0	0%		0	0%
4	7	6%		0	0%		2	18%
5	3	3%		0	0%		0	0%
6	4	3%		0	0%		0	0%
7	3	3%		0	0%		0	0%
8	2	2%		0	0%		0	0%
9	3	3%		0	0%		0	0%
10~	37	32%		0	0%		0	0%

Discussion

The first research question asks the potential for incidental learning of vocabulary through listening to songs. As has been discussed in the literature review section, the potential for incidental vocabulary learning is determined by the vocabulary coverage of the text, the frequency of occurrence of the word families in the text, and by the availability of rich informative contexts. The high vocabulary coverage as shown in the result section ensures a greater degree of comprehension. A listener with knowledge of the most frequent 2000 word families is able to understand 95% of the words in the lyrics. With respect to context, the lyrics consisted mostly of short texts and the words were quite familiar. Take for instance this excerpt from the Beyonce song *If I were a boy*.

If I were a boy

Even just for a day

I'd roll outta bed in the morning

And throw on what I wanted and go

Drink beer with the guys

And chase after girls.…

The text corresponds to level four (most informative) of Webb's criteria of ranking rich informative contexts. According to Webb (2008), "[listeners] have a good chance of inferring the meaning correctly. There are few meanings that are logical apart from the correct meaning. [Listeners] should gain at least partial knowledge" (p. 236). Also, the high occurrence of words from particularly the 1000 – 3000 word lists in the whole lyrics corpus shows exactly why songs are more suited for incidental vocabulary learning. Table 4 shows that less than 38% of word families from the 1000 - 3000 level occurred only once or twice in the lyrics corpus. On the other hand, more than 45% from the same level occurred five or more times. This means that a listener is bound to encounter the same words many times at just one listening. This constitutes repeated encounters and increases the potential for incidental vocabulary learning. In addition, a very interesting fact about songs is that unlike watching movies or even reading books, people hardly ever listen to a song only once or twice. Rather, they tend to listen to a particular song or a set of songs over and over again. In this way, the number of encounters is multiplied. Thus, the potential for vocabulary learning is increased even more because of the tendency to listen to one song many times. Also, the opportunity for more encounters with word families in songs and invariably the potential for incidental vocabulary learning is increased by the song din phenomenon (Murphey T. , 1990) which is the tendency for songs to stick in the head and be rehearsed repeatedly.

The second research question asks in which set (genre) the potential for incidental vocabulary learning is more likely. Results showed that in the case of the high-frequency word families, 46% occurred five times or more in Set 4. Interestingly, a significant majority of these occurred more than 10 times. Set 4 has the highest number and percentage of all the sets. It can, therefore, be implied that the potential for incidental vocabulary learning is more apparent in Set 4. What is not apparent is why the potential for incidental vocabulary learning is higher in the House/Dance genre

than in the other genres. Additional study of the difference in the vocabulary of related songs (genres) in relation to other unrelated songs might provide valuable answers to this.

However, in the case of the lower frequency word families, the percentage of words that occurred five times or more were only in the single digits in the whole corpus. What this might suggest is that songs might not offer the potential for incidental learning of low-frequency words. This is in line with Murphey's (1992) comparison of songs to simple EFL graded reader books. However, this does not mean that low-frequency words cannot be incidentally learned from songs or that they are not useful for advanced learners. Rather, it means that very few low-frequency words can be learned and that other mediums might offer a better opportunity. Besides, with advanced learners, they can serve to consolidate already learned vocabulary.

One the limitations of this study is the size of the samples which, although is large compared to other studies on songs and incidental vocabulary acquisition, still is not a large enough corpus to determine with certainty the potential for incidental vocabulary learning in songs. Also, the limitation imposed by the RANGE program cannot be ignored. First, the program is only able to analyze individual words, so formulaic languages such as "see you later" and multi-word units which constitute a large percentage of our natural spoken and written discourse (Lewis, 1993) cannot be analyzed. In this researcher's view, a more appropriate test of songs value in second language acquisition would be how much learners can encounter these lexical chunks. Secondly, the use of word families as the unit of measurement is only based on the assumption that learners will automatically recognize the other forms of a known word. There is no way of ascertaining exactly what the learners know.

Conclusion

The main thrust of this study has been assessing the utility of songs as a medium for incidental vocabulary learning rather than classroom pedagogical medium. The high coverage of the high-frequency word families, the repeated encounter with both function and content words as well as the repetitive nature of songs themselves provide a huge potential for incidental vocabulary learning. Of no less significance is the discourse nature of songs and their rich meaningful context. When these are added to the sing-along nature of songs, passive vocabulary learning is automatically transformed into active vocabulary learning, albeit incidental. Teachers should, therefore, encourage their students to listen to English songs outside the classroom as a self-learning or vocabulary building activity.

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