【論文】

The Beneficial Mnemonic Effect of Alliteration and Assonance in Recalling Lexical Chunks

Paul Horness (Atomi University)

Abstract

Designing and developing an EFL curriculum is a large task with many decisions involved. One criterion for selecting vocabulary into the curriculum is often based on frequency and utility in the form of word lists. Recently, there have been arguments to include lexical chunks that go beyond the word level. This study investigates the mnemonic effect of noticing phonological patterns, such as alliteration and assonance, in lexical chunks. This study seeks to rectify the methodological drawbacks in the previous studies and demonstrate that noticing phonological patterns are beneficial to recalling lexical chunks. In this study, 35 university students participated in determining whether alliterative or assonance phrases were more easily recalled than the control phrases. It was predicted that both alliterative and assonance phrases would have a greater mnemonic effect than the control phrases. The results indicated that the noticing activity increased the mnemonic effect for alliterative and assonance phrases when compared to the control group. These findings add to the argument that learning lexical chunks should be prioritized more highly in designing and developing an EFL curriculum.

Keywords: memory, recall, noticing, phonological patterns, lexical chunks

When learning a second language, learners and instructors often turn to vocabulary as an appropriate starting point. It is with good reason because as studies have indicated, lexical knowledge correlates well with L2 proficiency (Boers, Eyckmans, Kappel, Stengers, & Demecheleer, 2006; Ejzenberg, 2000; Wray, 2005). Although focusing on vocabulary is not

wrong, it should be placed within a larger context of learning a language. As Nation (2007) and Waring (2014) have pointed out, vocabulary activities need to be placed within the context of the course and curriculum offering suggestions such as the four strands or balanced curriculum. Both of these suggestions encourage vocabulary learning and activities to have a balanced approach. Figure 1 outlines Nation's four strands model that suggests a good balance of learning opportunities needs to be separated equally into four categories of meaning-focused input, meaning-focused output, language-focused learning, and fluency development. The meaning-focused input strand involves learning through listening and reading, i.e., using the language receptively. The meaning-focused output strand involves learning through speaking and writing, i.e., using the language productively. Language-focused learning involves the deliberate learning of language features such as pronunciation, spelling, vocabulary, grammar and discourse. The fluency development strand should include listening, speaking, reading and writing so that the learners can make the best use of what they already know.

The Four Strands	Examples of Activities
Meaning-focused input	Reading graded readers, listening to stories, or watching films.
Meaning-focused output	Conversing, presenting, or writing.
Language-focused learning	Deliberate learning such as vocabulary cards, dictation, or pronunciation practice.
Fluency development	Rehearsed tasks, repetitive tasks such as 4/3/2, or repeated readings.

Figure 1. Four Strands Model (Nation, 2007).

Waring's (2014) suggestion for a balanced curriculum differs from Nation's in several ways, but one of the biggest differences is that the four boxes are not divided equally for class

time. Figure 2 represents how Waring advocates vocabulary activities be incorporated into the course. In Box 1, it is the first stage of learning by getting the students to notice a particular language feature. For example, students are explicitly taught new vocabulary words. In Box 2, the students produce language that is controlled and checked by the instructor. For example, students complete a cloze exercise that checks vocabulary comprehension. The cloze exercise can limit the number of correct responses so that the instructor can focus on particular language features. The first two boxes usually focus on studying the language and having the instructor leading the language learning process. In Boxes 3 and 4, however, the focus shifts from learning about the language to using the language. The language is no longer presented in discrete items, but more holistically. In Box 3, the students get the chance to practice the language in more meaningful ways such as watching movies, listening to music, or being involved in extensive reading or listening. In Box 4, the students take charge of their language production completely. It is the opposite of Box 1 because the instructor has very little control over the language being produced.

	Input (Receptive)	Output (Productive)
Building Language	Box 1- The Formal Learning Box The focus is noticing language features. Explicit ideas and concepts are introduced.	Box 2- The "Getting Control" Box The focus is getting the students to produce language that is accurate. Explicit ideas and concepts are checked.
Building Fluency	Box 3 - The Fluency Input Box The focus is getting students to increase their proficiency level.	Box 4 - The Fluency Output Box The focus is getting the students to produce their own language.

Figure 2. Aspects of the Balanced Curriculum (Waring, 2014).

Although these models of incorporating vocabulary into a course reflect a starting point, they do not address the choices of which vocabulary items to incorporate. All second language learners need a large vocabulary as indicated by the previous studies about the positive correlation between vocabulary size and language proficiency. The difficulty

becomes in choosing which vocabulary items are necessary to cover in the curriculum or classroom. One of the most common ways of choosing vocabulary to study is through word lists, such as Coxhead's (2000) Academic Word List. Her word list indicates that a small number of words occur frequently. Therefore, word frequency is a powerful argument in selecting which vocabulary items to study. The cost-benefit ratio of selecting high-frequency words over low-frequency words will convince many learners to focus on them prior to focusing on low-frequency words. Although the benefits of word lists are persuasive, they should not be considered the only method. One drawback to a word list is that terms are listed discretely so that contextual clues are eliminated. There are other methods to increase vocabulary knowledge other than word lists.

There is a growing body of literature that suggests students should learn not only discrete vocabulary words, but also lexical chunks, or multiword units (Lewis, 2000; Nattinger & DeCarrico, 1992; Schmitt, 2004). Defining lexical chunks is even more difficult than single words. Presently, one common adopted method is from Grant and Bauer (2004) in which they classify multiword units into three groups: core idioms where the meaning of the parts has no clear relationship to the whole multiunit meaning; literals where the meaning of the multiword unit comes from the parts; figuratives which are a combination of core idioms and literals. Lexical chunks are broadly an umbrella term that includes various sets of continuous or discontinuous words such as formulaic phrases, phrasal verbs, idioms, or figurative speech.

The term *formulaic sequence* refers to lexical units that are holistically retained in memory where the retrieval process is similar to the retrieval process of a single word (Schmitt, 2004; Wood, 2010; Wray, 2005). The accurate use of formulaic sequences by L2 learners correlates significantly with language proficiency (Boers & Lindstromberg, 2012). Research from corpus linguistics indicates that some words prefer partnerships with words more than other words, and therefore a collocation like "a warm welcome" cannot be changed into "a hot welcome."

Swan (2006) and Waring (2014) have called for ways to prioritize lexical chunks into the curriculum and learning. One way of prioritizing lexical chunks is to examine the ease of memorability. Rubin (1995: 77-79) stated rhyming and alliteration were effective methods to memorability, but only if the mnemonic technique was introduced to the participants. Although Rubin was referring to L1 memorability, the statement supports broader teaching methods in second language acquisition (SLA), such as the *noticing hypothesis* (Schmidt, 1990) or *consciousness-raising* (Ellis, 2005). One of the challenges of L2 teaching methods is exposing features of the language so that students can readily incorporate those features into their own usage.

Frank Boers and Seth Lindstromberg have done much research on increasing lexical chunk awareness through rhyme and rhythm. Boers and Lindstrom (2005) argued that in addition to frequency and utility, the criteria of memorability should be included as a means of choosing vocabulary items. Phonological patterns among idioms were examined and they concluded that alliterative phrases in idioms were recalled more often than idioms without such patterns. Briefly, alliteration is two or more words in a group that share the same sound consonant (e.g., ***c***ut ***c***orners or ***s***pic and ***s***pan). This effect increased significantly when the participants had their attention drawn to the phonological pattern. Their results support the claim that alliteration helps foster recall and awareness of alliteration can allow students to become more native-like in their fluency. In addition to their stated drawbacks of varying idiom length and participants' background knowledge, there was an additional drawback to the study. The drawback was that alliteration was not compared to any other phrase form, such as assonance in which the vowel sound of a word is repeated across a group of words (e.g. b*e*st fr*ie*nd or r*i*ght s*i*ze). These drawbacks taken together might indicate that the participants knew more about alliterative idioms than other idioms, or that highlighting the phonological pattern is better than not highlighting it.

Lindstromberg and Boers (2008a) indicated that approximately 20 percent of all English idioms are forms of alliteration and or rhyme. In their study, they conducted three

experiments, but only the first two are directly related to this study. In the first one, they compared whether monosyllabic two-word alliterative phrases were more memorable than non-repetitive phrases. In the second one, they examined whether the alliterative phrases would be autonomously noticed. In the first experiment, their results indicated that alliterative phrases were more memorable than phonologically non-repetitive ones for both the immediate recall condition and the delayed recognition condition. In the second experiment, they found that the participants noticed alliterative pattern only when it was highlighted. If the alliterative pattern was not highlighted, then students did not notice the benefit of phonemic repetition in English. They concluded that noticing this phonemic repetition pattern is a beneficial mnemonic effect for building lexical chunks. The drawbacks of this study were similar to their previous study in that there was not a pre-test given or there were not multiple treatment conditions.

Lindstromberg and Boers (2008b) investigated whether assonance had a beneficial mnemonic effect. Similar to their previous study on alliteration, they focused on the beneficial mnemonic effect of assonance. They had 35 participants separate 24 lexical chunks into two groups: twelve assonant items and twelve non-repeating items. Thereafter, they had the participants recall freely any of the items in the activity. One week later, they had the participants do a recognition task by identifying the activity items from among 24 additional distractor lexical chunks. Their results indicated that assonant items were recalled better than non- assonant items in the immediate free recall condition and in the one-week post recognition recall condition. They concluded that the noticing task was beneficial for building lexical chunks. The drawbacks to this study were similar to their previous ones in that the number of participants was minimal and there were only two treatment conditions: control and assonance.

In all of the previous studies, the drawback was that noticing activity itself might have created a bias towards the mnemonic effect, and therefore might have created a false positive. This study examined whether the noticing activity created an artificial bias. Therefore the

purpose of this study was to examine whether learners would benefit from an approach to instructed second language acquisition (ISLA) that intentionally draws their attention to phonemic repetition, such as alliteration or assonance, in lexical phrases.

Research questions

1. Does the noticing activity of alliteration and assonance create a mnemonic effect?
2. How long does the mnemonic effect last?

Hypotheses

1. There will not be a noticing difference between the alliterative and assonance conditions.
2. Participants will need explicit instruction to notice the patterns.

Methods

Participants

Participants were 32 first-year Japanese students attending a national university studying modern languages. Their self-reported proficiency scores ranged from 80 to120 on the TOEFL iBT test. The participants were told that the activity was based on previous research in helping students remember phrases. They were participating in the activity as a means of feedback for future incorporation into the course and they were told that their grade would not be affected by participating or not participating in the activity.

Material

There were 30 target phrases broken down into three categories: alliterate phrases, assonance phrases, and non-salient phrases. Table 1 shows that all of the phrases were monosyllabic two-word units, except for the alliterate phrases of *back burner* and *double dare*. All of the phrases, shown in Table 1, were checked for current usage by checking the number of hits using Google search. All of the phrases had over 500,000 hits in less than .30 second

thus indicating a current usage.

Table 1.

Phrases used in the study

Assonant phrases	Alliterative phrases	No salient feature phrases
best friend	back burner	bath soap
bite size	cash cow	hair loss
cheap seat	day dream	key hole
day break	double dare	kind heart
fine line	fast food	phone call
high price	good guess	right hand
home phone	green grass	short nap
queen bee	lady luck	soft touch
right size	last laugh	well done
sea breeze	pet peeve	work place

Procedures

In the first step, the participants took a pre-test to check their familiarity with the phrases. Each participant marked each phrase with a check indicating that he or she either knew the phrase, was aware of the phrase, or did not know the phrase as seen in Table 2. These were collected prior to conducting the activity.

Table 2.

Expression pre-check

	表現 Expression	知っている I know it	何となく知っている I am aware of it, but not exactly	知らない I don't know it
1	back burner			
2	…			
30	work place			

In the second step, participants were randomly placed into groups of three. Each group was given an envelope with 30 shuffled cards placed inside it. Each card had either an

alliterate phrase, assonance phrase, or non-salient phrase.

In the third step, each group was asked to separate the cards into three distinct groups of 10 cards. After one group discovered the appropriate classification, the instructor announced it to the whole class verbally and wrote the category on the blackboard.

In the fourth step, the participants of a group checked the meaning of each phrase. The participants could explain the meaning to each other if they knew the phrase. When none of the group members knew the phrase, they were told not to guess the meaning. Rather, they could check their dictionary or ask the instructor.

In the fifth step, after each phrase had been checked for meaning comprehension, each group member took one stack of cards. Each participant was asked to check pronunciation by verbalizing the phrase out loud. After completing one stack of cards, the participants rotated the stacks of cards and repeated the process.

In the sixth step, the participants returned to their original desk. They were given a blank piece of paper and asked to write down in English all of the phrases they had just practiced. This task was done individually.

In the seventh step, two weeks later, the participants were asked to write down in English all of the phrases they remembered in a free-recall activity. The participants were not asked to classify the phrases, but encouraged to do so if it helped them recall phrases.

Thereafter in the eighth step, they were given a piece of paper that had a cue (the first word of the phrase) written and asked to complete the phrase by writing the remaining word phrase down as shown in the following example: back _____ (answer: back burner).

In the ninth step, three months later, they were given a recognition recall test in which they marked the phrases used in the sorting activity. Thirty additional two-word phrases (10 from each category) were added as distractors. The students were asked to mark ten phrases from each category and make sure only 30 phrases were marked in total.

Results

Based on previous research, it was predicted that both alliterative and assonance phrases would have a greater mnemonic effect than the non-salient phrases. However, the noticing benefit would disappear when alliterative and assonance phrases were compared to each other, i.e. the noticing should be just as beneficial for both types of phrases. The descriptive statistics are given in Table 3. Since the data did not have normal parametric distribution, the Wilcoxon Signed Ranks Test was used for all analyses with the alpha level set at .01.

Table 3.

Descriptive Statistics for each Condition

	Pretest	Immediate free recall	2-week free recall	2-week cued recall	3-month recognition
N	32	32	32	32	27
Alliteration	7.23 (1.57)	6.88 (1.76)	0.96 (1.17)	8.88 (1.14)	4.00 (2.37)
Assonance	4.05 (1.56)	6.66 (1.82)	0.78 (1.07)	8.78 (0.98)	3.70 (2.02)
Control	8.58 (1.85)	5.34 (1.56)	0.81 (0.86)	7.5 (1.13)	3.19 (1.24)

Note. Mean score with standard deviation in parenthesis.

Pre-test

The Wilcoxon Signed Ranks Test yielded significant differences between the control and alliterative conditions, $p < .01$, $T = 0$, $z = -4.51$, $r = .80$; between the control and assonance conditions, $p < .01$, $T = 2$, $z = -4.88$, $r = .86$; and between the alliterative and assonance conditions, $p < .01$, $T = 0$, $z = -4.95$, $r = .87$. As indicated in the mean scores, the participants knew the non-salient phrases and alliterative phrases better than the assonance phrases.

Immediate free recall

The Wilcoxon Signed Ranks Test yielded significant differences between the control and alliterative conditions, $p < .01$, $T = 5$, $z = -3.25$, $r = .57$; between the control and assonance conditions, $p < .01$, $T = 6$, $z = -3.03$, $r = .54$. However, there was no significant difference between the alliterative and assonance conditions, $p = .67$, $T = 11$, $z = -.42$, $r = .07$. The hypothesis that there would not be a noticing difference between the alliterative and assonance conditions was confirmed.

Two-week post free recall

The Wilcoxon Signed Ranks Test yielded no significant differences between the control and alliterative conditions, $p = .56$, $T = 9$, $z = -.59$, $r = .10$; between the control and assonance conditions, $p = .73$, $T = 7$, $z = -.35$, $r = .06$; or between the alliterative and assonance conditions, $p = .29$, $T = 5$, $z = 1.06$, $r = .19$. Therefore the hypothesis that there would not be a noticing difference between the alliterative and assonance conditions was confirmed. However, there was no significant difference between either the control condition and the alliterative condition, or the control condition and the assonance condition. As a result, the noticing activity did not last more than two weeks in free recall.

Two-week post cued recall

The Wilcoxon Signed Ranks Test yielded significant differences between the control and alliterative conditions, $p < .01$, $T = 4$, $z = -3.65$, $r = .65$; between the control and assonance conditions, $p < .01$, $T = 4$, $z = -3.94$, $r = .70$. However, there was no significant difference between the alliterative and assonance conditions, $p = .64$, $T = 11$, $z = -.47$, $r = .08$. The hypothesis that there would not be a noticing difference between the alliterative and assonance conditions was confirmed. As a result, the noticing activity was still effective for cued recall but not free recall after two weeks.

Three-month post recognition recall

The Wilcoxon Signed Ranks Test yielded no significant differences between the control and alliterative conditions, $p = .10$, $T = 6$, $z = -1.66$, $r = .32$; between the control and assonance conditions, $p = .15$, $T = 8$, $z = -1.45$, $r = .19$; or between the alliterative and assonance conditions, $p = .45$, $T = 10$, $z = .76$, $r = .15$. The hypothesis that there would not be a noticing difference between the alliterative and assonance conditions was confirmed. However, there was no significant difference between the control condition and the alliterative and assonance conditions, so the strength of the noticing activity diminished over time.

Discussion

The first research question asked whether the noticing activity had a mnemonic effect. The results indicated that the noticing activity indeed increased the mnemonic effect for alliterative and assonance phrases when compared to the non-salient phrases. These results support the findings in the previous studies of Boers and Lindstromberg (2005) and Lindstromberg and Boers (2008a, 2008b). In addition, the noticing effect is equal when the alliterative and assonance phrases are compared to one another.

The second research question asked how long the mnemonic effect lasts. The results indicate that mnemonic effect is strong in the immediate recall, but it diminishes over time. For example, after two weeks the participants could not freely recall any of the phrases better than another. However, when given a cue, the noticing effect became effective again. This indicates that recall is possible when something additional is provided for recall. Nevertheless, after three months, the participants could not recognize items from the activity any better than the newly introduced items.

Although it was not explicitly examined in this study, during the sorting activity the participants came up with unique classification categories. For example, the patterns of alliteration and assonance are not self-evident. The participants' reaction was similar to Lindstromberg and Boers (2008a) participants' reaction in that alliteration and assonance

categories were not clearly evident. This further supports Rubin's (1995) finding that participants need explicit instruction for the mnemonic effect to be effective. After one category was announced, the remaining categories were easily identified. Although explicit instruction does not need to be lengthy, it appears to be necessary.

Conclusion

The results of this study indicated that the noticing activity had a beneficial mnemonic effect. Although the alliterative and assonance patterns are not self-evident, and effect is limited, the results do support the idea that selecting multi-word items based on sounds should be incorporated into the curriculum. Frequency and utility are still the main criterion, but like previous studies, this study also demonstrates that phonological aspects have value as well. By including explicit phonological instruction into the curriculum for learning multi-word phrases, it would satisfy one element of Nation's four strands and Waring's balanced curriculum. Further steps are necessary to insure that multi-word units continue to garner learners' attention. As learners' language awareness progressively develops, multi-word units can be placed into the curriculum for greater usage.

The limitations of the study do dampen the results slightly. First, one phrase had to be used in the post-tests as an example. For instance, in this study, the phrase *back burner* was used as the example and thus gave the participants an additional cue for recall and recognition. Second, the phrase *back burner* was also not monosyllabic so the extra syllables could have had a mnemonic effect. The phrase *double dare* was also not monosyllabic. A follow-up examination of frequency counts indicated that this phrase was not recalled any better or worse than the other alliterative phrases, so it did not have an adverse effect. The phrase *back burner,* however, was the least recalled item in the free recall conditions, but the most recalled item when a cue was given.

These findings add to the argument that learning lexical chunks should be prioritized more highly in the field of second language acquisition. In the future, learners at lower

proficiency levels could also be included to examine whether the activity has the same beneficial effect. Another research avenue would be to examine noticing lexical chunks related to other cognitive skills such as listening or speaking. As lexical chunks are prefabricated, they could be used to increase speaking fluency and native-like discourse. In addition, the use of lexical chunks may aid to make a conversation more predictable and thereby enhance listening comprehension. Finally, the length of the alliterate phrase or assonate phrase could also be compared to see if the mnemonic effect is the same for longer phrases as it is for monosyllabic phrases.

References

Boers, F., Eyckmans, J., Kappel, J., Stengers, H., & Demecheleer, M. (2006). Formulaic sequences and perceived oral proficiency: putting a lexical approach to the test. *Language Teaching Research 10*, 245-261. doi: 10.1191/1362168806lr195oa

Boers, F., & Lindstromberg, S. (2005). Finding ways to make phrase–learning feasible: the mnemonic effect of alliteration. *System 33,* 225-238. doi:10.1016/j.system.2004.12.007

Boers, F., & Lindstromberg, S. (2012). Experimental and intervention studies on formulaic sequences in a second language. *Annual Review of Applied Linguistics, 32,* 83-110.

Coxhead, A. (2000). A new academic word list. *TESOL Quarterly, 34,* 213-238. doi:10.2307/3587951

Ellis, R. (2005). Principles of instructed language learning. *System, 33,* 209-224. doi:10.1016/j.system.2004.12.006

Ejzenberg, R. (2000). The juggling act of oral fluency: A psycho-sociolinguistic metaphor. In H. Riggenbach, (Ed.), *Perspectives on fluency* (pp. 287-314). Ann Arbor: The University of Michigan Press.

Grant, L., & Bauer, L. (2004). Defining idioms: Are we barking up the wrong tree? *Applied Linguistics 25,* 38-61. doi:10.1093/applin/25.1.38.

Lewis, M. (2000). *Teaching collocation.* Hove, UK: LTP.

Lindstromberg, S., & Boers, F. (2008a). The mnemonic effect of noticing alliteration in lexical chunks.

Applied Linguistics 29, 200-222. doi: 10.1093/applin/amn007

Lindstromberg, S., & Boers, F. (2008b). Phonemic repetition and the learning of lexical chunks: The mnemonic power of assonance. *System 36, 423-36.*

Nation, I.S.P. (2007). The four strands. *Innovation in Language Learning and Teaching 1,* 1-12. http://dx.doi.org/10.2167/illt039.0

Nattinger, J., & DeCarrico, J. (1992). *Lexical phrases and language teaching.* Oxford: Oxford University Press.

Rubin, D. (1995). *Memory in oral traditions: The cognitive psychology of epic, ballads, and counting–out rhymes.* Oxford: Oxford University Press.

Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics, 11,* 129-158. doi:10.1093/applin/11.2.129

Schmitt, N. (2004). *Formulaic sequences: Acquisition, processing and use.* Amsterdam/Philadelphia: John Benjamins.

Swan, M. (2006). Chunks in the classroom: Let's not go overboard. *Teacher Trainer 20,* 5-6.

Waring, R. (2014). *The balanced curriculum.* Retrieved from http://www.robwaring.org/classes/seminar_class/tbc/tbc.htm

Wray, A. (2005). *Formulaic language and the lexicon.* Cambridge: Cambridge University Press.

Wood, D. (2010). *Formulaic language and second language speech fluency: Background, evidence and classroom applications.* New York: Continuum.