

Journals -- A Quantitative Way to Measure Language Development

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Introduction

One must think carefully about vocabulary when learning a language for without vocabulary there would be no language. Thus, when approaching curricula design, teaching vocabulary is a priority. To discern how much instruction time is needed “investigating the progress of learners' vocabulary size can be of considerable value to language research and pedagogy” (Laufer, 1998). There are several ways academics classify the different types of vocabulary. Much attention has been given to lexical bundles or words that are often found together in communication both phrasal and clausal, to the point where analyses has indicated "up to 70% of everything we say, hear, read, or write is to be found in some form of fixed expression" (Hill, 2000). Furthermore, these phrases are added to our active lexicon faster than individual words. (Schmitt, Grandage, & Adolphs, 2004). In contrast, individual items that language learners use freely, or their active vocabulary has been found to have a slower retrieval rate and be smaller in size (Laufer, 1998). Therefore, it is easily conceivable that an increase in active vocabulary would be congruent with a language learner's advancement. This study will look further at active vocabulary, particularly the relationship between the use frequency of certain parts of speech within an active vocabulary and a language learner's advancement; essentially a correlation between a quantitative measure and the qualitative development.

Research Question

What is the relationship between the frequency of certain parts of speech and language learner's progress towards proficiency?

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Limitations

This study was designed as an exploratory work and is intended as a precursor to a larger study. It is a small experimental effort that seeks to analyze the relationship between progress of a language learner and the frequency of certain language patterns. Secondly, the number of students is small and thus can only provide a glimpse at possible correlations.

Setting and Subjects

Data was collected in the 2016-2017 academic year of the PIA Global intensive English program at Aichi Toho University in Nagoya, Japan and consists of 220 journals written by 11 international and Japanese freshmen students. Over two semesters, each student wrote 20 journals of 100 words each on a given topic with one week to complete each assignment. In the beginning of the study, at collection of journal number one the students' course would have placed them at the low end of A1 on the Common European Framework of Reference (CEFR) and reached to a mid A2 on the CEFR scale at the collection of the 20th journal. The journal collection is part of an on-going corpus being developed for various English as a Second Language research initiatives within PIA Global.

Adjectives used within each journal of the corpus were counted and recorded. (Appendix i) Adjectives were chosen as the quantitative measure over other language patterns because of the low level of the students.

Types of adjectives counted include:

- a . Descriptive Adjectives- adjectives that describe or modify a noun. Example: *He wore an **ugly, red** sweater.*
- b . Quantitative Adjectives- adjectives that show the quantity of a noun. Example: *He ate the **whole** cake.*
- c . Possessive Adjectives/Possessives- an adjective used to show ownership. Example: ***Her** book was left on the bus. The **Smith's** dog was barking.*

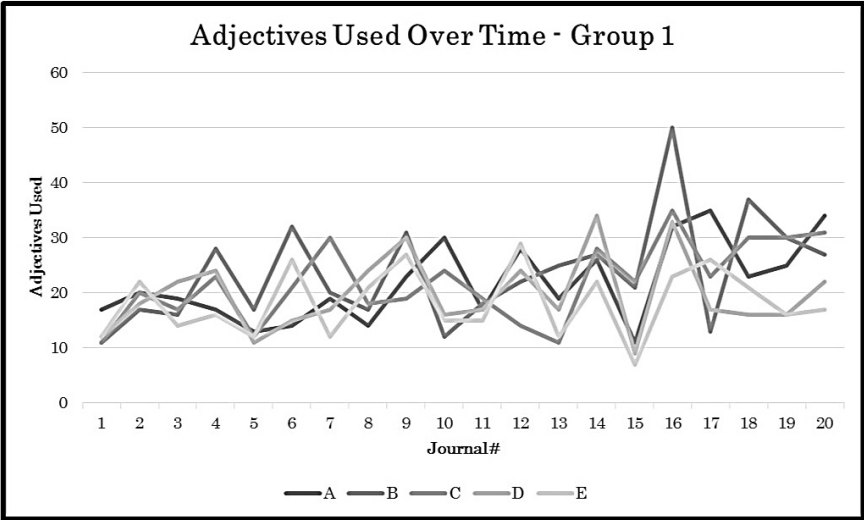
The journals are assigned on topics being covered in that week's lessons both in topic (Appendix ii) and paragraph structure. The students had one week to write the journal and had to show their pre-writing to their instructor at least two days before the journal was due. They were allowed to write drafts and have them checked by their instructor, but it was not a requirement of the assignments. Appropriate vocabulary was taught prior to the journal assignment. The journals were designed as a free production of the paragraph structure being taught.

The recorded frequency was analyzed and the change of frequency use from journal number one to the twentieth journal for each student was compared to the students' final grade for their Writing course in the second term, in effort to determine the relationship between the quantitative measure of adjective frequency and the qualitative measure of their actual course grade.

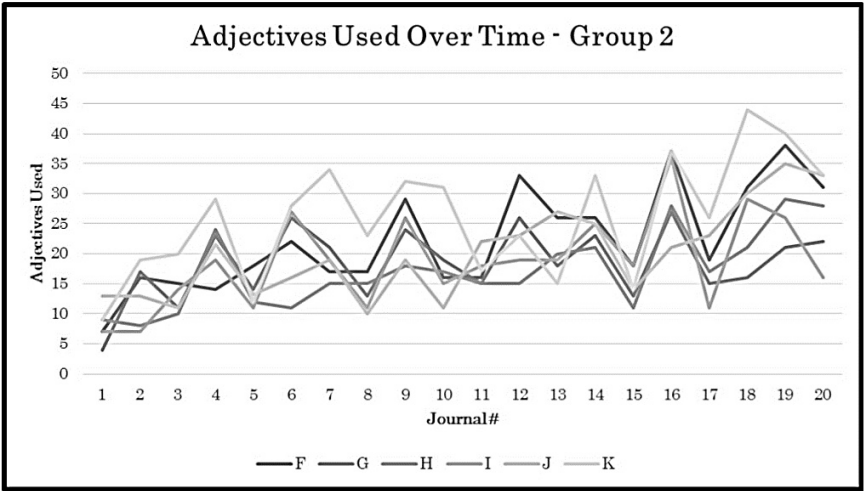
Results

Graph 1 and 2, broken into two for visual ease, show the frequency change over time per individual student. As you can see each student's overall frequency increased over the two terms.

Graph 1.



Graph 2.



Graph 3 shows the class average frequency use over the two terms. One important observation was the pattern trend the students showed in the dramatic declines in journal 5 and journal 15. These two journals introduced a new type of paragraph structure. Journals 1 to 4 were descriptive paragraphs with the same structure. Journal 5 changed to a structure that required the students to give reasons to support their topic sentences. Journal 15 introduced a how-to paragraph and was the only journal to utilize this structure. Both paragraph structures were new to the students. While they had to focus on a new structure their adjective frequency declined sharply.

Graph 3.

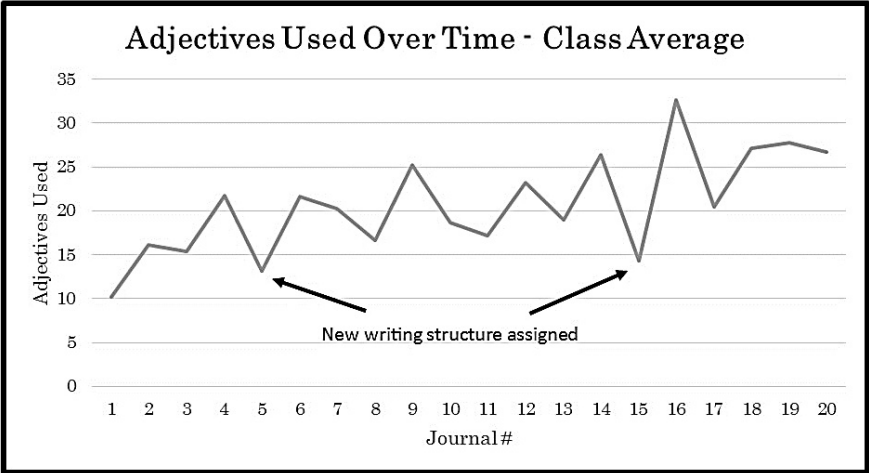


Table 1 compares the individual students' frequency of use change from journal 1 to journal 20 and their final grade for the Writing course. The table is placed in descending order of greatest increase to least increase and there appears to be a correlation to their final grades. The two students at the bottom, I and E did have the lowest writing skills for the class when measured in a qualitative rubric. While student C's final grade is the lowest overall, it was much suspected by the faculty that this student's poor performance was not the result of a lack of skill, but rather a lack of effort.

Table 1. Adjective frequency compared to final grade.

Student	Journal 1	Journal 20	Frequency of Adjective Use Increase from Journal 1 to Journal 20	Fall Final Grade
F	7	31	24	84
K	9	33	24	83
C	11	31	20	46
J	13	33	20	83
H	9	28	19	88
G	4	22	18	81
A	17	34	17	85
B	11	27	16	82
D	12	22	10	88
I	7	16	9	68
E	12	17	5	64

Conclusions

The study presented some clear trends in student learning behavior within the given educational environment. The ability for the students to continue the increase of adding detail in their writing with the frequency of adjectives decreases sharply when they are tasked with writing in a new format. It harbors the query if more time should be allocated to the structure prior to the free production assignment. The study was not meant to propose to count adjectives alone as a means to derive a score for a student's language development, but rather to identify the relationship of quantitative and qualitative elements. Due to the small nature of the study, no definitive conclusions can be made, but there is enough evidence to suggest this is plausible. It definitely suggests that further studies should be conducted, perhaps again not to create something as a means to assess students' actual progress, but rather a tool faculty can use to measure if adequate time of instruction was given on new material. Especially, with the advent of software that can quickly tabulate this data, it could be a valuable tool for curricula designers and faculty alike. As the corpus grows in size, further investigation beckons. It also raises one question most strikingly and unexpected, is it possible to create a quantitative measure to discern the difference between the lack of skill versus the

lack of effort? As this type of data could go far in convincing neglectful students that they are not living up to their potential. Additionally, are there other simple quantitative measures that correlate with qualitative assessments? Both measures offer insight into the inner workings of a language learner. While the corpus continues to grow there are other investigations underway and plans to discover what remains for it to divulge.

References

Hill, J. (2000). Revising priorities: From grammatical failure to collocational success. In M. Lewis (Ed.), *Teaching Collocation: Further Development in the Lexical Approach* (pp. 47-69). Hove: Language Teaching Publications.

Laufer, B. (1998). The development of passive and active vocabulary in a second language: Same or different? *Applied Linguistics*, 19(2), 255-271.

Schmitt, N., Grandage, S., & Adolphs, S. (2004). Are corpus-derived recurrent clusters psycholinguistically valid? In Schmitt, N. (ed.), *Formulaic Sequences: Acquisition, Processing and Use* (pp. 127-151). Amsterdam: Benjamins.

Appendix Table of contents

- i. Raw data showing adjective frequency per journal, per student
- ii. List of journal topics and dates

Appendix i :

Adjective Count — Raw Data

Student	Journals																			
	Spring										Fall									
	2016										2016-2017									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	17	20	19	17	13	14	19	14	23	30	17	28	19	26	11	32	35	23	25	34
B	11	17	16	28	17	32	20	17	31	12	18	22	25	27	21	50	13	37	30	27
C	11	20	17	23	12	21	30	18	19	24	19	14	11	28	22	35	23	30	30	31
D	12	18	22	24	11	15	17	24	30	16	17	24	17	34	9	33	17	16	16	22
E	12	22	14	16	12	26	12	21	27	15	15	29	12	22	7	23	26	21	16	17
F	7	16	15	14	18	22	17	17	29	16	16	33	26	26	18	37	19	31	38	31
G	4	17	11	23	14	26	21	13	24	19	15	26	18	23	13	27	15	16	21	22
H	9	8	10	24	12	11	15	15	18	17	15	15	20	21	11	28	17	21	29	28
I	7	7	14	19	11	27	19	11	26	15	18	19	19	25	18	36	11	29	26	16
J	13	13	11	21.7	13.2	16	19	10	19	11	22	23	27	25	14	21	23	30	35	33
K	9	19	20	29	12	28	34	23	32	31	17.2	23	15	33	14	37	26	44	40	33
Averages	10.18182	16.08081	15.36364	21.7	13.2	21.63636	20.27273	16.63636	25.27273	18.72727	17.2	23.27273	19	26.36364	14.36364	32.63636	20.45455	27.08081	27.81818	26.72727

Appendix ii :

Journal Topics

Journal #	Date	Topic
1	April 22, 2016	Monday routine
2	April 28, 2016	Someone you respect
3	May 13, 2016	The best day of your life
4	May 20, 2016	Your hometown
5	May 27, 2016	A person at work
6	June 17, 2016	Good luck
7	June 24, 2016	A memorable trip
8	July 1, 2016	Summer break plans
9	July 8, 2016	A dream party
10	July 15, 2016	Learning English at Aichi Toho University
11	Oct. 3, 2016	Your best friend
12	Oct. 14, 2016	A famous person
13	Oct. 21, 2016	The best job in the world
14	Oct. 28, 2016	Your high school experience
15	Nov. 4, 2016	How to make your favorite sandwich
16	Dec. 2, 2016	Your bedroom
17	Dec. 9, 2016	The best pet
18	Dec. 16, 2016	The best restaurant in Nagoya for a tourist
19	Dec. 22, 2016	Living in Nagoya
20	Jan. 20, 2017	The #1 quality of a good job

受理日 平成29年 3月31日