A dynamic approach to the development of lexicon and syntax in a second language
Chan, Belinda

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Summary

Language emerges from language use, where learners discover the regularities and patterns of the language. Through contact with the language, learners develop their lexicon and syntax. In order to account for the emergence of the second language, it should be investigated how that language is formed and influenced by input over time.

Taiwanese beginner learners of English have limited exposure to English in class. Their English lesson are mostly taught in Chinese, and the focus of the class is mainly on Chinese-English translation. As Taiwanese beginner learners of English have limited exposure to English in class, we made use of incidental input, movies and readings, to increase the chances for these learners to be exposed to English. By increasing the contact with the language, we would expect to see improvement on learners’ vocabulary knowledge.

In chapter 3, we investigated whether extra incidental input could enhance these learners’ contextual vocabulary knowledge (i.e. collocations and associations) and whether the sequence of giving extra incidental input would influence the vocabulary learning performances. The results showed that the amount of input did not necessarily lead to learning of contextual vocabulary knowledge. However, the results also showed that the moment at which extra incidental input is provided has an effect on learning contextual vocabulary knowledge. This may be due to the fact that the consolidation of the link between word form and meaning prior to the presence of extra incidental input leads to higher degree of comprehension. Thus, the comprehension of input at higher level (i.e. meaning level) improves the degree of turning input into intake. When they are able to comprehend the meaning of the input during the exposure, learners benefit more from the extra incidental input on learning contextual vocabulary knowledge than when they are not sufficiently able to comprehend the input.

In chapter 4, we intended to take a closer look at the processes of how input may shape learners’ habit of using words from their writing productions. As learners are exposed to extra incidental input, the contact with the language reconstructs their vocabulary knowledge. For instance, they may learn the word meaning of
the unknown words, learn the word use of the known words, or activate the word meaning of the known words. We would expect that the constantly changing reconstruction of the vocabulary may have an effect on the lexical performance of their writing. On the other hand, we would also expect that practising writing promotes the comprehension of the input, and thus strengthens the reconstruction of the vocabulary knowledge. Both input and output can be important resources for improving the lexical performance of the writing productions.

We investigated the lexical performance of 56 writing productions of four beginner learners of English, who received different degrees of quantitative input over five months. The results showed that each learner’s vocabulary learning process was variably dependent on input outside the classroom. When there was more input, there were more difficult words used in writing productions. When there was less input, there were fewer difficult words used in writing productions. We also used a dynamic mathematical model (logistic model) to explicitly investigate the three dynamically interacting factors that shaped the process of the lexical development: initial value, learning rate, and carrying capacity. Though the preliminary logistic model was not able to describe the lexical development of one participant, the trajectory of this participant indicated two possible variables to add in the equation of the logistic model: the amount of input and the degree to which learners absorb the vocabulary from the exposure. The results of these analyses showed that each individual has his/her particular way of discovering the regularities and patterns of language. It is has not been possible to find one common mathematical model which can describe each individual’s language development.

In chapter 5, we zoomed in the investigation on the writing and speaking productions of two identical twins. In contrast to L1 learners, L2 learners do not always develop writing and speaking in balance. Beginner learners of English in Taiwan, who are mostly exposed to written input and have very few opportunities to practise speaking English, usually have better performance in writing than in speaking. Moreover, writing allows more time for learners to select the words to use. We would therefore expect writing to show a more diverse and more advanced lexical performance than speaking.

We analyzed 100 writing and speaking productions of a pair of identical twins over eight months. We measured their writing and speaking in two lexical dimensions: lexical diversity (D) and lexical difficulty. In order to quantify the longitudinal observations, we used the hidden Markov model to define three language learning stages for each individual based on the lexical performances of writing and speaking. The results showed that the writing productions had higher lexical diversity than the speaking productions, but the writing productions did not necessarily demonstrate a higher lexical difficulty than the speaking productions. However, dynamic correlations of the two lexical dimensions between writing and speaking showed opposite directions amongst the twins over time: one from competitive to supportive; the other from supportive to competitive.

This chapter demonstrated the importance of time allowance on lexical diversity.
It also depicted the changing correlations between writing and speaking in lexical diversity and lexical difficulty. Writing and speaking can be supportive. For instance, learners who are not proficient in speaking can write down what they wish to say as a rehearsal to shape the habit of speaking. Writing and speaking can compete (trade-off effect) due to the limited resources available to learners (e.g., working memory, motivation). Lastly, this study again confirms the fact that each individual has his or her particular way of discovering the regularities and patterns of language. Even identical twins are no exceptions.

In chapter 6, we looked at the syntactical development of writing and speaking of the same pair of identical twins. Three syntactical complexity measures were calculated: mean length of T-unit (MLT), dependent clause per T-unit (DC/T), and coordinate phrase per T-unit (CP/T). Regardless of the fact that the main input the participants have received is mainly written input and that there is more online editing time for writing, speaking showed higher syntactical complexity than writing. This observation may be caused by the fact that beginner learners already tend to avoid redundancy in writing, but still circumscribe the words in speaking, resulting in longer sentences. Moreover, the dynamic correlations of writing and speaking in three dimensions of syntactical complexity showed opposite directions amongst the twins over time.

This chapter demonstrated that there is a need to explore in-depth syntactical complexity measures over time to reveal the qualitative change in syntax (e.g., particular sentence type). It appeared that the quantitative change in syntax (e.g., length) as the objective measures used in this study only seemed to reveal the quantitative change. The findings in this study also again emphasized the importance of observing individual development, as the lexical and syntactical developments in writing and speaking are not identical amongst the identical twins.