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 研究課題名(和文) The development of productive knowledge of collocations and overall English proficiency  
 研究課題名(英文) The development of productive knowledge of collocations and overall English proficiency  
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研究成果の概要(和文)：このプロジェクトでは、作成したテストを用いて、日本人英語学習者のコロケーション(連語)(例：heavy rain)に関する知識を調査した。高校生と大学生を対象に4つの研究が行われた。それぞれの研究において、学習者は学年をまたいでテストを受けたり、期間にわたって繰り返しテストを受けたり、留学の前後にテストを受けたりした。主な結果：連語を作り出す能力の発達は非常に遅い。場合によっては、生産的な連語知識の進歩が見られない。学習者が作り出す連語の質の変化は、作り出す連語の量の変化よりも先に起こる。英語に興味がある学習者ほど、連語知識の上達が早い。英語に対する動機づけが重要であることを示唆している。

#### 研究成果の学術的意義や社会的意義

研究者にとって、このプロジェクトで得られた知見は、第二言語学習者のコロケーション知識の発達に関する豊かな示唆を提供する。また、研究結果の解釈を模索する中で、さらなる研究の方向性についてもいくつかの示唆を与えている。教育者にとっては、このプロジェクトは、学習者のコロケーション知識の速やかな進歩を期待すべきではないこと、したがって、短期間で明確な進歩がないことを否定的にとらえるべきではないことを示唆している。同時に、このプロジェクトは、コロケーション知識の進歩は可能であることを示している。これからの課題は、この進歩をよりよく理解することである。

研究成果の概要(英文)：This project used a collocations test created by the first researcher to investigate Japanese English learners' knowledge of collocations (e.g. heavy rain). Collocations are essential for successful language use, but how learners acquire them is as yet unclear. We conducted four studies involving high school and university learners. There were various conditions under which different groups of learners were tested: across school years, repeatedly over time, or before and after study abroad. The project's main findings were that: (1) The ability to produce collocations develops very slowly. In some cases, no progress in productive collocation knowledge was seen. (2) Changes in the quality of the collocations learners produce take place before changes in the quantity of collocations they produce. (3) Learners with an interest in English show faster development in collocation knowledge. This suggests motivation for English may be important.

研究分野：Applied linguistics

キーワード：collocations productive knowledge English proficiency second language learning

## 1 . 研究開始当初の背景

Vocabulary is central to second language (L2) proficiency and one fundamental aspect of this is how words are used together in combination. Collocations, pairs of words that frequently co-occur, are ubiquitous in language use. They comprise around 30% of speech (Foster, 2001) and are crucial in enabling fluency and accuracy. Collocations are, however, “notoriously difficult for learners” (Paquot & Granger, 2012, p. 130) and “pose considerable difficulties, even for the advanced learner” (Nesselhauf, 2005, p. 2). In particular, productive use of collocations is a major challenge for second language learners since collocations are often unpredictable.

Intuitively, it might be anticipated that there should be a relationship between productive collocations knowledge and overall L2 proficiency. That is, a beginner would be expected to have very little knowledge of collocations, an advanced learner to have much more, and there must be progression between these two points. As yet, however, the evidence is mixed: Barfield (2009), González Fernández and Schmitt (2015), and Revier (2009) found a clear, positive relationship; Howarth (1998) and Nesselhauf (2005) did not. Moreover, methodological issues raise some doubts about these previous findings. In learner corpus studies, which tabulate and evaluate collocation use in samples of learner language, there are problems with obtaining appropriate samples so as to enable reliable analyses and fair comparisons with a reference corpus. For elicitation studies, which use test-like tasks to elicit learners’ knowledge of particular collocations (e.g. through translation tasks), task design is a major challenge with many tasks being either too constrained or too open and having questionable validity with respect to ordinary language use. In addition, for studies of both types there are issues with how collocations were identified and with the possibility that knowledge of individual words may have confounded the measurement of collocation knowledge.

A new tool for measuring productive knowledge of collocations was developed by this project’s principal investigator (Brown, 2018) and addresses some of the above issues. a, Named *LexCombi 2*, the new tool was an extension of work by Barfield (2009) and was developed through a series of studies in which a new task format, new scoring procedures and new cues were trialled and evaluated. Brown found that *LexCombi 2* appears to be a measure of a single construct, produces data with high reliability and can be used with learners across a wide range of abilities. *LexCombi 2* presents 30 high-frequency noun as cues and asks learners to produce three collocates for each cue, with a 30-second time limit per cue (e.g. for the cue QUESTION, responses might be “ask”, “answer” or “mark”). Learners’ responses (articles and other determiners are ignored) are then scored against a list of canonical collocates (created especially for this research) for each cue. Thus *LexCombi 2* allows a considerable number of collocations to be elicited from learners in a short time period.

Brown's (2018) initial findings using *LexCombi 2* (with 146 undergraduates from four universities in Japan) revealed no relationship between productive knowledge of collocations and overall L2 proficiency. *LexCombi 2* scores and Yes/No vocabulary size test scores (vocabulary size having a strong correlation with L2 proficiency) had a correlation of .05,  $p > .05$ . Furthermore, correlations between *LexCombi 2* scores and proficiency test scores (when available) were also very weak:  $n = 29$ ,  $r = .14$ ,  $p > .05$  for TOEIC scores and  $n = 35$ ,  $r = -.02$ ,  $p > .05$  for TOEFL scores. Thus, proficiency as judged in three ways had only a weak correlation at best with the *LexCombi 2* scores.

One explanation for this finding may be that productive knowledge of collocations develops relatively quickly in the early stages of acquisition, but then stagnates even as overall proficiency further develops. Coulson (2014) found evidence of stagnation in implicit vocabulary knowledge which may be related to this. Such a process was not visible in Brown's (2018) data since, although the learners varied in proficiency, all were beyond beginner levels. A second possibility is that the findings stem from learners' concentration on receptive skills (and neglect of productive skills) due to the perceived demands of high-stakes examinations in the Japanese education system. This possibility could not be investigated in Brown (2018) as background information on the learners was lacking and due to the limited nature of the proficiency scores that were available.

## 2 . 研究の目的

The central objective of this project was to gain an improved understanding of how productive knowledge of collocations develops as overall English proficiency develops. In particular, with the English education context of Japanese learners in mind, the project aimed to go beyond Brown's (2018) focus on university learners to also include high school learners, and in addition to make use of a variety of research designs in order to gain a rich picture of learners' productive collocation knowledge and its development. Further, it was hoped that the project's findings may ultimately enable a better understanding of how teachers and teaching materials can more effectively facilitate the development of productive knowledge of collocations in learners.

## 3 . 研究の方法

Four separate studies were conducted in pursuit of the project's central objective.

- Study 1 was a cross-sectional study in which *LexCombi 2* was administered to an entire cohort of students ( $N = 579$ ) at a mid-ranking high school in central Japan. The rationale was that since English proficiency development can be expected for students in the three grades of high school, differences in productive collocation knowledge might be observable.
- Study 2 was a longitudinal study in which *LexCombi 2* was administered repeatedly

to a single class of high school learners ( $N = 29$ ) at a high-ranking high school in central Japan. The learners were enrolled in two different courses at the high school, 17 were in the high school's "English course" and 12 in the "Maths and Science" course. Data was collected three times: towards the end of first grade (December 2021), mid-way through second grade (summer 2022) and at the end of second grade (March 2023). The rationale was that the participants' English proficiency should progress over time and thus differences in productive collocation knowledge might be observable. Moreover, it was anticipated that there might be differences in productive collocation knowledge development between the "English course" participants and the "Maths and Science" course participants.

- Study 3 was an intervention study in which *LexCombi 2* was administered to a single class of high school learners ( $N = 33$ ) at an elite high school in central Japan before and after their participation in an 11-month study-abroad programme in Canada. Data was collected at the end of first grade (March 2022) shortly before departure and at the end of second grade (March 2023) shortly after their return. The rationale was that these learners would make clear gains in English proficiency and would likely be active in English use, and thus gains in productive collocation knowledge might be observable.
- Study 4 was a correlation study in which an online version of *LexCombi 2* was administered to learners from three universities in Japan ( $N = 32$ ) who had either valid IELTS scores or valid TOEFL scores. The rationale was that, as a test of productive collocation knowledge, *LexCombi 2* scores might show a higher correlation with the learners' writing and speaking skills scores than with their reading and listening skills scores.

#### 4 . 研究成果

Study 1 found that in a cross-section of three school grades, there was no statistical difference in the number of collocations produced. However, there were signs of vocabulary development for the third-grade students in that they gave significantly more responses to *LexCombi 2* and used significantly more words as responses. Hence, these third-grade students may have had a broader vocabulary, but were lacking in knowledge of word usage (i.e. collocations).

Study 2 found that, over a 15-month period, there was marginal longitudinal growth in the number of collocations produced. However, there was growth in the range of words used and in the range of words used successfully. Thus, these learners may have extended the range of their collocation knowledge even if they were unable to produce more collocations. Moreover, the results differed for the learners enrolled in the two different high school courses: the number of collocations produced improved over time for those in the "English course", but did not change for those in the "Maths and Science course".

Study 3 found that after an 11-month study-abroad experience, there was no statistical difference in the number of collocations produced. However, there was growth in the range of words used as responses and in the range of words used successfully. Moreover, these learners used significantly more words of lower frequency as responses after studying abroad. Thus, there were signs of development in the quality of their collocation knowledge even though there was no change in quantity.

Study 4 found that the number of collocations produced had medium-to-large correlations with scores for both reading and listening skills and small correlations with scores for writing and speaking skills. This might be explained by delayed development of these learners' productive skills or because writing and speaking skills are less central to academic English proficiency than reading and listening skills.

Drawing on the results of all four studies, the project's findings are interpreted as showing that:

- Productive collocation knowledge develops slowly. Vocabulary learning is believed to be an incremental process with different aspects of knowledge (e.g. spelling, meaning) acquired over time (Churchill, 2008; Fitzpatrick, 2012) and it may be that collocation knowledge is a later aspect to be acquired. This may particularly be the case as collocations receive relatively little instructional attention (Brown, 2011; Neary-Sundquist, 2015).
- The learning environment and the learners' orientation/attitude to English may be important. Regarding the former, the tendency for Japanese high school education to focus on receptive skills for academic screening purposes and on item-by-item learning (Nishino, 2012; Nishino & Watanabe, 2008; Sakai & Kikuchi, 2009; Silver & Steele, 2005) may be important. Regarding the latter, it might be hypothesized that for learners for whom English is only a means to success in exams (i.e. for academic progression), productive collocation learning may be especially slow; for those who see English as a tool for communication, collocation learning may be accelerated.
- Progress in productive collocation knowledge may be as much a matter of improving the quality of one's knowledge as improving the number of collocations known. This suggestion has similarities with the findings of Durrant and Schmitt's (2009) and Bestgen and Granger's (2014, 2018) learner corpus studies in which more proficient writers were found to not necessarily use more collocations in their writing but different types of collocations. How exactly developments in quantity and quality interact is as yet, however, unclear.

Thus, this project's findings suggest that educators should not expect obvious signs of progress in productive collocation knowledge in a short time period, but can also be assured that progress in collocation knowledge is possible. The challenge now is to understand the factors involved in this progress better, with one possibility being that the learning environment and/or individual differences between learners in their orientation or attitude to English are key.

5. 主な発表論文等

〔雑誌論文〕 計0件

〔学会発表〕 計5件（うち招待講演 1件 / うち国際学会 0件）

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2. 発表標題 The cross-sectional development of vocabulary skill in secondary schools in Japan
3. 学会等名 LET Kansai Fundamental Theory SIG
4. 発表年 2023年～2024年

1. 発表者名 Brown, D. & Coulson, D.
2. 発表標題 Three studies of L2 learners' productive knowledge of English collocations
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1. 発表者名 Brown, D. & Coulson, D.
2. 発表標題 The relationship between productive knowledge of L2 collocations and proficiency in listening, reading, speaking and writing
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3. 学会等名 BAAL 2023 Conference
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1. 発表者名 Dale Brown; David Coulson
2. 発表標題 High school learners' productive knowledge of English collocations: A cross-sectional investigation
3. 学会等名 Hiroshima Lexical Research Forum 2022
4. 発表年 2022年～2023年

〔図書〕 計0件

〔産業財産権〕

〔その他〕

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6. 研究組織

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7. 科研費を使用して開催した国際研究集会

〔国際研究集会〕 計0件

8. 本研究に関連して実施した国際共同研究の実施状況

共同研究相手国	相手方研究機関
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