



Automatization Process of Grammatical Encoding in Second Language Production of Japanese EFL Learners: Evidence from the Occurrence of Syntactic Priming as Interactive Alignment

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(別紙様式3)

論文要旨

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専攻 グローバル文化

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論文題目 (外国語の場合は日本語訳を併記すること)

Automatization Process of Grammatical Encoding in Second Language Production of Japanese EFL Learners: Evidence from the Occurrence of Syntactic Priming as Interactive Alignment

(日本人英語学習者の第二言語産出時における文法符号化の自動化プロセスの解明: 相互的同調機能としての統語的プライミング現象による検討)

論文要旨

It is essential to acquire productive language skills, such as speaking and writing skills, to express your opinions and get the message across to others efficiently in communication using foreign languages. Particularly, acquisition of speech communication skills is receiving increasing attention, and the automatization of lexical and syntactic processing is one of the significant factors. However, Japanese EFL learners often face difficulties in producing the language smoothly, and their production processes also lack automaticity. The present study attempted to explore some of the mechanisms of Japanese EFL learners' language production focusing on syntactic processing in terms of the learners' input and output. The previous studies showed that the occurrence of *alignment* at each linguistic level (e.g., sound, syntactic, semantic, etc.) plays an important role to achieve goals of communication (Pickering & Garrod, 2004), and the same structure tends to be repetitively used between interlocutors in the dialogue (*syntactic priming*). Therefore, the current study, first, specifically focused on the occurrence of a syntactic priming caused by an interactive alignment by hearing spoken output, and investigated how Japanese EFL learners operate their syntactic representations and magnitude of automatization of syntactic processing in language production. Next, the study also attempted to investigate how repeated exposure to specific syntactic structures promotes the occurrence of a syntactic priming effect to ease syntactic processing of Japanese EFL learners.

In Experiments 1a and 1b, a picture description task with spoken primes was conducted to investigate whether the differences of output modality (i.e., spoken or written) and verb (i.e., same or different between primes and targets) affect Japanese EFL learners' syntactic priming. The participants described pictures in either forms after listening to the primes with a Prepositional-Object (PO), Double-Object (DO), or filler. Three conditions were randomly assigned to the participants (i.e., presentation of primes: once, twice, and once with a question) to

determine whether focus on contents or repetition of a prime would enforce syntactic structures. The results showed that a priming effect was observed in both modalities with the PO primes and with repetition of verbs between the primes and targets in both spoken and written production. These results demonstrated that the participants of the present study had the same tendency as the previous study with higher priming rates for the PO sentence structure (Morishita, 2011a), indicating that the acquisition of PO knowledge and the sharing of a lexical item between a prime and a target promote more syntactic priming effect. Therefore, the results indicate that learners successfully heard and understood the controlled primes. By comparing results with spoken and written modalities, the priming rates were higher with PO primes compared to DO primes but it were lower when participants focused their attention on the contents in condition B in spoken production. The results indicate that PO knowledge was acquired by the participants and structure activation was inhibited when they focused on sentential meanings. Furthermore, the DO production was increased in written production, indicating increased production of the structure with lower preference. Therefore, the results indicate that learners transited the knowledge of the structure from declaratives to procedural knowledge when they heard spoken forms. Furthermore, a different output modality affects syntactic priming differently. Thus, it suggests that the occurrence of syntactic priming facilitates L2 development, and if Japanese EFL learners can hear and understand the given input properly, spoken input might promote their grammatical encoding which intervene with a smooth output production.

In Experiment 2, a picture description task with spoken primes was also conducted to investigate whether the differences of learners' proficiency levels (i.e., upper or lower) and output modality affect Japanese EFL learners' syntactic priming in three different conditions from Experiments 1a and 1b. The participants were divided to two proficiency groups according to the proficiency test scores, and described pictures in either forms after listening to the primes with a PO, DO, or filler. The results show that priming effect was observed with PO primes in both modalities regardless of proficiency levels, indicating that learners' syntactic representations are shared between comprehension and production (Branigan, Pickering, & Cleland, 2000). Priming effect with upper levels was higher than that of middle levels only with presentation of primes once. It shows that upper levels' activation of the structure was inhibited with attention to meanings, and middle levels' syntactic structures were enforced by repetition of primes. Therefore, the results indicate that upper level learners' operation of sentence structure knowledge is more automatized compared to lower level learners and learners' proficiency differences had effects on syntactic processing in different primes' presentation conditions.

In Experiment 3, a picture description task with spoken primes was conducted to investigate whether Japanese EFL learners' syntactic priming effect persists with filler sentences (lag) intervened between primes and targets. Thus, the study clarified whether observed syntactic priming effect was caused by the temporary occurrence of the residual activation or by acquisition of target structures by implicit learning. The participants attended 2 day experiment, and described pictures in either forms after listening to the primes with a PO, DO, or filler, and repeating it in the pretest, learning sessions, immediate posttest and delayed posttest. As a result, persistent syntactic priming effect was observed with the PO primes with lags intervened between primes and targets. By comparing the results in different lag condition, the proportion of the cumulative PO Priming in the immediate posttest in the long-lag condition was significantly larger than the proportions of cumulative PO Priming in the no-lag condition, indicating repeated exposure of the syntactic structures with spaced intervals is effective for learners to sustain and retrieve the knowledge.

However, there was no effects of lag conditions on the syntactic priming effect in the delayed posttest. The result showed that the acquisition of L2 syntactic structures needs more time compared to the L2 vocabulary acquisition. In sum, the results provide the evidence that the syntactic presentations were consolidated by repeated exposure to the sentence structures, and the consolidation of the representations eventually leads to the automatization of syntactic processing.

論文審査の結果の要旨

氏名	濱田 真由		
論文題目	Automatization Process of Grammatical Encoding in Second Language Production of Japanese EFL Learners: Evidence from the Occurrence of Syntactic Priming as Interactive Alignment (日本人英語学習者の第二言語産出時における文法符号化の自動化プロセスの解明: 相互的同調機能としての統語的プライミング現象による検討)		
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	委員		印
	委員		印
要 旨			
<p>1. 本論文の目的および考察対象</p> <p>本論文は、外国語学習者としての日本人英語学習者を対象に、心理言語学的実験を通して、第二言語産出時に統語情報がどのように表象されているのか、また、統語処理プロセスはどのように自動化し、統語産出能力はいかに学習されていくのかを解明することを目指したものである。</p> <p>2. 本論文の構成と内容</p> <p>Chapter 1. Introduction では、音声言語コミュニケーション力の育成のためには統語処理の自動化が前提となるとの認識のもと、文法符号化プロセスの自動化が第二言語産出プロセスに及ぼす影響の重要性、また、相互的同調機能として統語的プライミング効果発現の文法符号化プロセスに対する重要性が指摘される。</p> <p>Chapter 2. Literature review では、第一言語および第二言語における言語産出プロセスについて、心理言語学的側面から先行研究が検討され、相互的同調機能としての統語的プライミング効果の検討</p>			

によって話者の心内で統語情報がどのように表象されているのかが明らかにできること、話者の熟達度の違いが統語的プライミング効果の程度に大きく影響している可能性、統語構造への反復接触が統語処理の自動化に及ぼす影響などについて指摘される。

Chapter 3. Experiments 1a and 1b: Effects of modality differences on syntactic priming in the language production of Japanese EFL learners では、中級熟達度の日本人英語学習者を対象に、産出モダリティ（音声・文字）、動詞の異同を考慮したプライム音声提示による絵描写課題の結果、両モダリティにおいて統語表象は活性化し統語的プライミング現象が生じるが、日本人英語学習者の文構造知識の運用の程度は、音声産出・文字産出で異なることを明らかにした。

Chapter 4. Experiment 2: Effects of proficiency differences on syntactic priming in the language production of Japanese EFL learners では、初級および上級熟達度の日本人英語学習者を対象に、プライム文提示条件の違いによって絵描写課題における統語的プライミング現象の発現率が異なることから、学習者の熟達度によって文構造情報の表象が異なること、文構造知識の運用の自動化の程度が異なることなどを明らかにした。

Chapter 5. Experiment 3: Effects of syntactic priming training on the occurrence of interactive alignment in the language production of Japanese EFL learners では、中級熟達度の日本人英語学習者を対象に、特定の統語構造への反復接触による統語的プライミング効果の変容を探る実験を行い、統語処理の潜在学習の可能性について検証した。その結果、統語構造に反復接触することにより統語表象は定着し、統語処理の自動化に寄与することを明らかにした。

Chapter 6. General discussion では、3つの実験結果にもとづき総合考察が行われる。中級程度の日本人英語学習者の場合でも、聞き取り可能な音声インプットに対する統語表象の活性化が見られたが、この統語表象の運用程度は産出モダリティにより異なることが指摘される。第二言語産出時の統語処理の自動化は、学習者の熟達度の向上、統語構造への反復接触による統語表象の定着などにより、処理促進が起ると結論づけている。Chapter 7. Concluding remarks and further research では、本論文の結論および今後の課題について述べられている。

なお、本論文の内容の一部は、学術論文として公刊されている Hamada, M., & Yokokawa, H. (2017). Effects of Modality Differences on Syntactic Priming in the Language Production of Japanese EFL Learners. *Language Education & Technology*, 54, 55-82, 濱田真由・横川博一 (2017). 熟達度の違いが日本人英語学習者の第二言語産出時の統語的プライミング効果に及ぼす影響. 電子情報通信学会技術研究報告『信学技報』, 117(341), 55-60 を含めて7件、学会等発表11件（うち3件は英語での発表）、うち3件は国際学会で発表を行うなど精力的に発表を行っている。

3. 本論文の独創性と意義

本研究は、英語習得途上の日本人英語学習者における、第二言語産出時の統語処理プロセスにおける統語表象のありよう、また産出モダリティおよび学習者の熟達度の影響について心理言語学の観点から検討した点で新規であり、統語処理が関与する文法符号化プロセスとその自動化の過程を解明する上で大きく貢献するものである。また、第二言語学習者および外国語学習者の特定の統語構造への反復接触による統語産出能力の潜在学習の可能性について調査した研究は過去にほとんど例がなく、外国語教育の授業実践にも示唆に富んだ論文と認める。よって、学位申請者の濱田真由氏は、博士（学術）の学位を得る資格があると認める。