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## THE DEVELOPMENT OF LEXICAL, PHRASAL AND INTER-PHRASAL MORPHEMES IN WRITTEN ENGLISH AS L2: A PROCESSABILITY PERSPECTIVE

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### Abstract

*This present study aims to investigate development of morphological structures, which focuses on lexical morpheme (i.e. past –ed marking), phrasal morpheme (i.e. plural –s marking on nouns in contexts with quantifiers) and inter-phrasal morpheme (i.e. 3sg –s marking on verbs with the 3<sup>rd</sup> person singular subject in the present tense), in written English as L2 based on Processability Theory. The data was in the form of written essays produced by two university students learning English in an instructional context and was collected at three points in time during the period of eight months. Based on the data, a distributional analysis of individual subjects was conducted. Then, the findings were analysed by using the implicational scaling according to the emergence criterion to determine the acquisition points of the target structures in individual subjects. The results show that the developmental stages of the morphological structures under scrutiny of the two subjects (i.e. Learner 1 and Learner 2) generally follow the PT predictions – that is, lexical morpheme emerges before phrasal morpheme and phrasal morpheme emerges before inter-phrasal morpheme. Furthermore, the predictions of PT are followed in the written production of English as L2, which indicates its capacity to account for development of L2 morphological structures in both written and oral language production.*

**Keywords:** Processability Theory, L2 development, written language.

### INTRODUCTION

The past four decades have seen the expansion and development of the field of second language acquisition (SLA) as an independent and autonomous field of study, in which systematic approaches informed by a variety of disciplines such as linguistics, psychology and education have been formulated to account for second language acquisition (Saville-Troike, 2006). One SLA theory which has currently attracted attention among SLA researchers is Processability Theory (PT). This theory was developed by Manfred Pienemann in the late 1990s (VanPatten & Williams, 2007), and a number of researchers in the field have conducted empirical studies in order to test interlanguage (IL) developmental trajectory of various morpho-syntactic phenomena as predicted by PT to a range of typologically distant languages such as Chinese, English, French and Japanese (e.g. Zhang, 2005; Yamaguchi, 2009; Agren, 2009).

PT was originally developed for spontaneous oral data; as a result most studies so far have been speech-oriented (Rahkonen & Håkansson, 2008). In later extensions of PT, however, written language production has started to be taken into account in the PT framework; and following this, a

few recent studies with a particular focus on the analysis of written L2 production so far have been carried out (see e.g. Rahkonen & Håkansson, 2008; Ågren, 2009), the results of which in general indicate the PT's capacity to account for L2 morphological development in both spoken and written language production. This present study is, thus, another attempt to investigate written data produced by L2 learners of English.

## **METHODS**

This study intends to investigate the main research question, i.e. *“Does the development of lexical morpheme, phrasal morpheme and inter-phrasal morpheme in the written L2 production by Indonesian learners of English follow the sequence predicted in Processability Theory?”*

This research is a longitudinal case study of two Indonesian learners learning English in an instructional context. The research participants were first year undergraduate students majoring in English Education. They formally started learning English when they were in the fourth grade of primary school, and therefore they had in general been exposed to English for a relatively similar length of time when they continued their study at university.

The data was in the form of written essays and was collected longitudinally at three points in time with approximately four months interval – i.e. month 1 of the participants' first year at university, month 4 and month 8. There were two different text types assigned to the participants at each point in time – i.e. argumentative and narrative. It was expected that the two different text types would provide adequate, relevant data of the grammatical structures which the research would examine.

Topics were provided for each text type; they were general topics and related to the subjects' life and field of study. Considering that they were not used to writing essays in English in their real life except in particular occasions such as in their writing class, the familiar topics were expected to give them motivation to write and avoid the risk that they were unable to produce the assigned essays due to the unfamiliarity of topics.

After the texts written by the participants were collected, they were transferred into an electronic version by typing them into the .txt file format. This file format was chosen because it is the type of file normally accessible by most current corpus software tools, including the UAM CorpusTool which was used in this research.

In the field of SLA research, the formulation of acquisition criteria is seen as crucial in order for researchers to “be able to make replicable and falsifiable claims about the order in which different linguistic structures appear in an interlanguage” (Pallotti, 2007, p. 361). According to Pienemann (1984), the formulation of acquisition criteria should not be on the basis of accuracy measures, but should instead be based on the first emergence of a structure, that is, the first systematic uses of the linguistic structure. The emergence criterion, developed by Meisel, Clahsen, and Pienemann (1981), is an important concept within PT. This is because it serves as a basis of the methodological operation in PT (Kersten, 2009). Following previous PT-based studies, the analysis of L2 morphology in this research was also based on the emergence criterion.

The emergence criterion adopted in this project was based on Zhang (2005) and Rahkonen and Håkansson (2008) – that is, the evidence for the emergence of the grammatical structures in the learner's developing IL system can be derived from the presence of at least three tokens in lexically varied contexts. According to Zhang (2005), the use of such a criterion would result in a reduction of chances of mistaking morphemic chunks for productive occurrences.

The method of data analysis to test the predictions proposed by PT on learning sequence of the grammatical structures under scrutiny is laid out below. After the raw data were coded by means of the CorpusTool based on the established coding schemes, the results were then summarised in distribution tables of individual learners. At the next stage, the quantitative data were analysed by using the implicational scale based on the emergence criterion in order to determine individual learner's IL developmental sequences of the linguistic features in question according to the processability hierarchy hypothesised in PT. In this study, the coding system used in the implicational tables to indicate whether a structure is acquired follows that of Pienemann (2005): the plus sign (+) indicates emergence of a structure in the learner's IL; the minus sign (-) shows no emergence; and the slash sign (/) indicates that it is not possible to decide whether or not a structure has been

acquired due to the insufficient number of contexts created by the subject for that particular structure in the text.

## RESULTS AND DISCUSSION

The results of the distributional analyses of the examined morphological structures, i.e. past –ed, NP plural agreement with quantifiers (phrasal agreement), and 3<sup>rd</sup> person singular –s (interphrasal agreement) are presented in the table below.

**Table 1.** Occurrences of structures out of obligatory contexts from the participants.

	Learner 1			Learner 2		
	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
Category procedure (past –ed marker)	17 / 18 .94	11 / 14 .78	8 / 9 .88	7 / 13 .53	11 / 14 .78	10 / 12 .83
Phrasal procedure (NP plural phrasal agreement)	1 / 9 .11	2 / 8 .25	4 / 8 .50	0 / 11 0	2 / 9 .22	2 / 10 .20
Interphrasal procedure (3sg –s marker SV agreement)	0 / 6 0	0 / 12 0	2 / 10 .20	0 / 5 0	0 / 7 0	1 / 7 .14

The results of the distributional analyses indicate that the past –ed marker has emerged in both Learner 1 and Learner 2 since Time 1 of data collection, and it has since been used productively by the two subjects in the subsequent points of time, which meant that as there were more than three tokens produced by each subject in lexically varied contexts, both of them appear to have acquired the structure prior to the first time of data collection. Based on the observation from the two subjects' written production, most obligatory contexts for past –ed were found to have occurred when they talked about their personal experiences in the narrative essay writing.

Concerning development of NP plural phrasal agreement in Learner 1, despite the finding that the structure started to develop in Learner 1 in the first two points in time of data collection, positive instances of the structure were still insufficient with only one occurrence at Time 1 and two occurrences at Time 2. Time 3 is considered as the emergence point of NP plural phrasal agreement in Learner 1's IL system, in which she supplied four positive instances (i.e. *5 close friends, many things, 3 years, 24 hours, all the things*). With regard to development of NP plural phrasal agreement in Learner 2, it can be seen in the table above that she did not supply the plural –s marker on any single nouns in contexts with quantifiers at Time 1 despite the occurrences of more than ten obligatory contexts for this structure. Time 2 and 3 indicate development of this structure in Learner 2, in which she started to regularly supply the plural –s marker on nouns. However, as there were only two occurrences of suppliance with lexically varied contexts in each point of time, the evidence was considered insufficient to determine that Learner 2 has acquired this grammatical structure.

As shown in Table 1 above, 3sg –s marker SV agreement does not appear to have emerged in the IL system of the two subjects in all the three points of time. At Time 1 and 2, both Learner 1 and Learner 2 did not supply the 3sg –s marker on any single verbs with the 3<sup>rd</sup> person singular subject in the present tense despite there being 6 and 12 obligatory contexts in the English written production of Learner 1 and 5 and 7 contexts in that of Learner 2. At Time 3, however, Learner 1 has shown development of this structure in which she started to supply the 3sg –s marker successfully on two verbs. Development of this structure was also observed in Learner 2 with one positive instance produced by the subject.

The findings indicate that the developmental stages of the three grammatical forms in the two subjects are implicational as illustrated in Table 2 below. That is, they follow the stages predicted in Processability Theory. According to Hatch and Lazaraton (1991, p. 210), for the scale to be considered 'valid', the coefficient score should be at least .90. The calculation of the scalability (or reproducibility) of the implicational scale following Pienemann (2011) shows that the coefficient score of both participants in this research is 1 (i.e. no cell in the table deviates from the prediction), which means that the implicational scaling table is a valid implicational table.

**Table 2.** Implicational scaling of the subjects' acquisition of three structures.

	Learner 1			Learner 2		
	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
Category procedure (past –ed marker)	+	+	+	+	+	+
Phrasal procedure (NP plural phrasal agreement)	-	-	+	-	-	-
Interphrasal procedure (3sg –s marker SV agreement)	-	-	-	-	-	-

As shown in Table 2, the past –*ed* marking, which requires category procedure, emerged in Learner 1 prior to the plural –*s* marking on nouns with quantifiers, which requires phrasal procedure. In the case of the 3sg –*s* marking, while it did not emerge in Learner 1 at any points of time, the subject started to show gradual development of the structure in which she supplied two positive instances successfully at Time 3.

Comparable patterns of developmental sequence were also observed in Learner 2. The past –*ed* marking emerged at Time 1 and it was used productively in the subsequent points in time. The other two structures were not found to have been acquired by the subject according to the emergence criterion; yet gradual development of the structures was observed in the L2 written production of Learner 2. Two positive instances of the plural –*s* marking were supplied at Time 2 and Time 3, and one instance of the 3sg –*s* marking was supplied at Time 3.

According to the results of this longitudinal study, it is arguable that the processability hierarchy for English L2 morphemes under scrutiny is supported by longitudinal, written data as well as longitudinal, oral data (Yamaguchi, 2008).

## CONCLUSION

The present study has demonstrated that the sequence of the past –*ed* marker (lexical morpheme), the plural –*s* marker on nouns with quantifiers (phrasal morpheme) and the 3sg –*s* marker (inter-phrasal morpheme) in the acquisition of English by two Indonesian learners of English in their L2 written production appears to be consistent with the predictions in PT, which is indicated by the implicational sequence of the structures without any gaps in the hierarchy. Moreover, the results of this research show that the PT predictions are followed in the English L2 written production as well as in the spoken production of English as L2 based on the results of previous studies on the morphological acquisition of English L2 within the PT framework.

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