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Original Article

The Dynamic Trajectory of L2 Development in the Speech of Early Iranian Learners of English Based on Processability Theory

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Abstract

Adopting processability theory (Pienemann, 1989), the present study sought to trace the dynamic trajectory of the morphosyntactic development in the English speech of 24 Iranian learners. The participants recruited were interviewed in the initial experiment and the final experiment sessions. The data were obtained through some simple communicative tasks which mediated the interviews the participating learners gave. English speech fragments elicited were submitted to a distributional analysis and emergence criteria. They appeared to be collectively explained by the processability theory hierarchy, notwithstanding their idiosyncratic structures. While regularities speak to universal stages, individual variations are an indication of constraints imposed by the developing L2 system. The findings of the present study have pedagogical implications for syllabus designers and teachers alike, which are discussed in due space.

Keywords: Dynamic System, Processability Theory, Syntactic Development

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1. Introduction

Inspired by the findings of research studies that reported a fixed order to exist in first language (L1) acquisition (Brown, 1973; De Villiers & De Villiers, 1973), a line of research started to intimately explore the complexities associated with second language (L2) accuracy orders. Pioneered by Dulay and Burt (1973, 1974), these morpheme studies have presented ample evidence in favor of a fixed order to be traced in L2 development (e.g., Bailey et al., 1974; Baten, 2011; Côté, 2020; Ellis, 2015a; Larsen-Freeman, 1976; Lenzing, 2015; Spinner, 2013). Notwithstanding the contributions the morpheme studies have unanimously made to the field, they have been critiqued on varying grounds, not least of which is judging individual learning processes based on the mean scores computed for a group of learners heterogeneous in terms of their L2 proficiency and individual traits. In the early years of the 1980s, however, the research attention steered away from viewing L2 development as a linear process being a uniform experience on the part of all individual learners and individual variation as an indisputable component of L2 development.

It has to be underscored that this perspective did not downplay accuracy order achievements, rather it was integrated into it to give existence to a more comprehensive framework on L2 development to capture uniform processes and variations at the same time. Framed as the multidimensional model (Ellis, 1994; Meisel et al.,1981), this model was granted to account for uniform patterns and individual variations at different stages of learner language development. Downplaying linear orders as an inadequate measure of developmental processes, Meisel et al. argued for abandoning what they called the "uniformity hypothesis" and instead foregrounded an alternative perspective that orients our attention toward multi-dimensions of L2 acquisition.

With the developmental and variational sides combined, a point of emergence appears which is normally used for determining developmental stages accounting for the phase of producing a definite processing procedure (Meisel et al., 1981; Pienemann, 1998; Zhang, 2020). One of the outstanding tenets of the model was that developmental procedures are constituted in the fashion of an implicational scale. Implicational scale, plainly illustrated, denotes "that linguistic rules are successively added to the interlanguage system" (Lenzing, 2013, p. 63). It follows that mastering stage 1, for instance, sets the stage for the emergence of stage 2 and the development process continues in like manner. As such, if a learner happens to have one certain stage of grammatical hierarchy, he/she has already

mastered the preceding stages but not the following ones. Relatedly, learners might move to a new stage of developmental hierarchy before putting to use the rules already acquired in all relevant contexts (Meisel et al., 1981). This account of L2 development underlines the concept of the emergence of interlanguage forms which is taken to be one of the significant contributions of the multidimensional model to second language development (SLD) (Larsen-Freeman & Long, 1991). Informed by the multidimensional model, L2 data analysis methods skewed their attention from accuracy to emergence. So treated, the L2 development procedures were schematized by vertical and horizontal axes indicating development and variation, respectively.

Taking a cognitive perspective, Clahsen (1980) put forward the strategies approach to indicate that L2 development is primarily governed by a set of language processing strategies that are universal. Viewed this way, "the learner's ability to process certain structures is constrained by those strategies that are acquired at a particular point, in the learning process" (Lenzing, 2013, p. 64). Although the multidimensional model and the strategies approach enriched the SLD literature in significant ways, they received criticisms that could not be easily rebutted. The multidimensional model was not aptly subjected to falsification norms (Larsen-Freeman & Long, 1991). Also, it failed to extend beyond a mere description of L2 development.

The strategies approach in turn failed to spell out the function of grammar in L2 developmental processes (Pienemann, 1998). In addition, the generation of linguistic structures could not be adequately accounted for. The insights obtained from the multidimensional model and the strategies approach along with endeavors undertaken to overcome the shortcomings of these two perspectives led to the formulation of processability theory which is argued to meet the explanatory criterion and psychological plausibility (Lenzing, 2013).

To collapse, the existence of a universal sequence in acquiring L2 morphosyntactic structures is currently of significance in SLD studies (Felix, 1984; Hulstijn et al., 2015). There is now no dearth of research studies orienting spotlights on this specific arena of L2 development. The contributions are continually made from armchair speculations as well as evidence-based experimental studies. While morphosyntactic development of Iranian learners of English has been explored widely (e.g., Mobaraki & Vaghefi, 2015; Tabatabaee

et al., 2019; Tabatabaee-Yazdi et al., 2021) only a few of them (e.g., Jafarigohar et al., 2017; Khansir & Zaab, 2015) have based their experiments on processability theory.

It remains uncontroversial that there is no exhaustive pattern of L2 development to be portrayed of Iranian learners' morphosyntactic development at early stages of L2 learning informed by processability theory. To fill in this gap partially, we intend to report the findings of an empirical study primarily focused on the developmental stages of learners of English with Persian as their L1. Processability theory serves as a dynamic theoretical framework against which the data collected are closely scrutinized to construct a precise profile of learners' L2 morphosyntactic development. The following research question is formulated to give direction to the present study.

Do the early speech instances of Iranian learners of English follow the same deterministic and deterministic chaotic routes predicted by processability theory?

2. Literature Review

2.1. Processability Theory

As a powerful perspective on L2 development, processability theory (Pienemann, 1998) postulates that all learners possess comparable underlying processing mechanisms which come to operate when learners get engaged in developing their new linguistic system. As the underlying language processor is hypothesized to operate in congruence with a certain set of mechanisms in all learners it follows that learners would pass through the same route in the course of L2 development. As alluded to earlier, this theory has been significantly under the spell of its predecessors, namely the multidimensional model and the strategies approach but has successfully mitigated the weaknesses which continued to haunt them for years. By introducing hypothesis space, processability theory simultaneously attended to both the developmental and variational concerns of L2 development in a manner that can be subjected to falsification (Pienemann, 2005b; Tabatabaee et al., 2019). Moreover, it serves as an umbrella framework to cover morphosyntactic development at the same time transcending beyond being a descriptive account. On the other hand, whereas Clahsen's (1980) strategies approach had nothing to say about the L2 acquisition mechanism, Pienemann premised his processability theory on Levelt's (1989) model of L2 speech production and on lexical-functional grammar to enable his theory to account for this logical concern of L2 development.

Succinctly put, Levelt's model consists of the conceptualizer, the formulator, and the articulator. While the intention for a piece message is formed in the conceptualizer, the formulator converts the intention conceived in the conceptualizer to "a linguistic structure" (Levelt, 1989, p. 11). And finally, the articulator actualizes the intention conceived and formulated morphosyntactically as a piece of the verbal message. Incremental processing, an outstanding proposal of processability theory can be conveniently illustrated by making recourse to Levelt's model of language production.

Central to processability theory is a hierarchy that is primarily responsible for processing grammatical information. According to Pienemann (1989), there exist a group of procedures that "are arranged according to their sequence of activation in the language process" (p. 6). Implicational in nature, these procedures come to be activated in a stepwise manner. Simply stated, every stage of development is contingent upon the establishment of the preceding stage. When mature enough, L2 speakers are hypothesized to render L2 encoding incrementally. By way of illustration, incremental processing is the ability L2 learners with advanced proficiency gain to apply more than one single procedure in parallel (Pienemann, 2005b).

In an illustrative table (reproduced in Table 1)—adapted and modified from Pienemann (2005a)—Lenzing (2013, 2015) provides processing procedures predicted for English as an L2 which are hierarchical. Implicational in their development, these procedures are sequenced in six stages. These sequences represent the gradual assemblage of procedures to the underlying L2 processor. As Lenzing (2015) asserts, "[t]he processing procedures available to L2 learners at a given stage of development determine the range of morphosyntactic structures that they can process and thus produce" (p. 93).

Table 1

Processability Hierarchy in English (Reproduced from Lenzing, 2015, p. 94)

Processing procedures	Information exchange	Morphology	Syntax
6.subordinate clause-procedure	main and subordinate clause		cancel inversion I wonder what he wants
5. S-procedure	interphrasal information exchange	interphrasal morph. SV–agreement The mouse plays volleyball.	Neg/Aux-2nd-? Why doesn't he go home? Aux-2nd What is your number?

4. VP-procedure	interphrasal information exchange		Wh-copula S (x) What is your number? Copula S(x) Are there boots?
3.phrasal procedure	no information exchange	phrasal morphemes DET + N agreement two ears	Adverb-First Today he stay here. Wh-SV(O)-? What you like? Do-SV(O)-? Do you have a sun?
2.category procedure	no information exchange	lexical morphemes plural -s (pets) past –ed (played)	Canonical word order SVO The mouse play volleyball.
1.word/lemma access	no information exchange	invariant forms	formulae

Lemma information is argued to become accessible to L2 learners without calling for any grammatical information. More specifically, the learner can produce single words and formulaic chunks which are usually established as fixed units of the mental lexicon of every single learner. Differently phrased, the learner does not process the units at this stage for any grammatical processes. When the learner reaches stage 2 which corresponds with the category procedure, he/she can attach a syntactic category to lexical items. At the syntactic level, declarative sentences and question forms with the word order subject-verb-object are produced. Like stage 1, no grammatical information is exchanged at this stage. The phrasal procedure which is activated at stage 3 enables learners to produce noun phrases whose feature unification is also correctly accounted for. As far as syntax is concerned, this stage generates adverb-first structures and restricted question forms. The verb phrase procedure occurs at stage 4 of the hierarchy created. In this stage, the learner obtains the capacity to observe features unification within the verb phrase and constructs question forms with inversion. Rising to stage 5 entails acquiring the ability to observe the agreement between subject and verb at the interphrasal level. Finally, acquiring clause procedure in stage 6 enables the learner to produce structures with cancel inversion.

It is worth reiterating that unlike Chomsky (2011) who emphatically argued for the existence of underlying innate principles and parameters to govern our language acquisition, Pienemann (1998) hypothesized that the underlying processing procedures are assembled gradually by the underlying processor which is initially underdeveloped. Differently

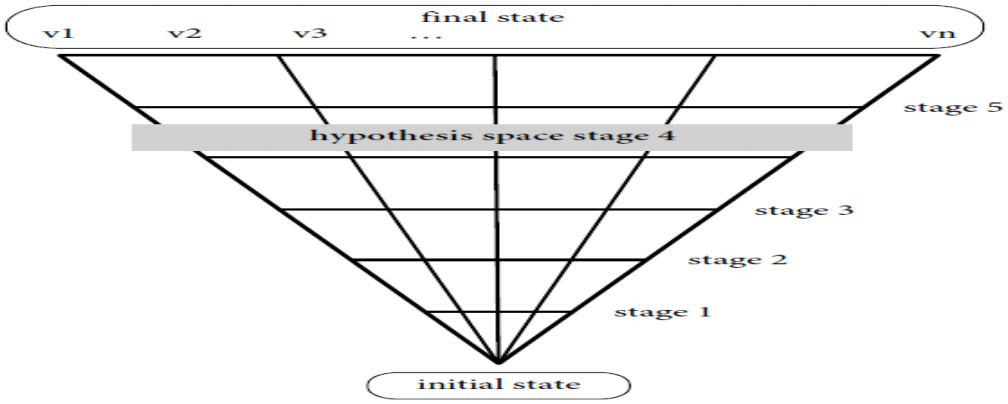
phrased, the underlying mechanisms which generate L2 morphosyntactic structures develop step by step downplaying the existence of any predetermined and fully developed system.

2. 2. Hypothesis Space and L2 Variation

To account for L2 learner variations Pienemann (1998) put forward hypothesis space. To illustrate how L2 variations are captured through this construct within processability theory, it is imperative to reproduce the figure Pienemann presented to this end. As clear in Figure 1, when the learner moves to a new stage of L2 development he/she is provided with modifications in the interlanguage system and a broader scope of hypothesis space. In this figure, the vertical lines stand for L2 developmental stages and the horizontal lines represent the scope of variation in each of the corresponding developmental stages.

Figure 1

Deterministic and Chaotic Elements in L2 (Pienemann, 1998, p. 232)



2.3. L2 Development as a Dynamic System

Dynamic systems theory considers language as a complex system rejecting innatism and instead taking sides with the L2 system as an emerging system in which the learner's context is prioritized over the learner as a cognitive processor. As such, L2 development is viewed as a result of the "exemplars people are exposed to in social interaction, which is processed by domain-general cognitive mechanisms" (R. Ellis, 2015b, p. 194).

The multiple constraints hypothesis as a component of processability theory postulates that the "grammatical memory store" (Pienemann, 2011) is not well developed in the initial state. Granted, attempts for getting meaning across will present a serious challenge to L2 production. Consequently, variations in L2 production have to be granted as an indisputable linguistic reality and difficult to predict. Furthermore, as dynamic systems theory holds that language is an adaptive system subject to change in the face of different

interactions among different co-active components, accurate predictions become a demanding task to be conveniently accomplished.

At first blush, it might seem counterintuitive to style dynamic systems as deterministic (Mullin, 1993). The term, however, does not purport to mean a closed system with a set of absolute traces to be followed, rather it implies, as Mullin put it, the degree of prediction to be made about the future state of a system based on its present state. On the other hand, there exist some underlying regularities which legitimize using deterministic in dynamic systems which are dubbed as chaotic (Williams, 1997). In her endeavor to relate dynamic systems theory to predictability, Lenzing (2015) highlights the distinction drawn between linear deterministic and chaotic deterministic systems. In the former systems, any cause in the initial state of the systems would entail a comparable degree of change in the future states while in the latter huge changes might result from small causes.

Succinctly, different points of L2 development spelled out by processability theory speaks to the fact that processing devices of a language operate like a complex system in which deterministic and deterministic chaotic processes co-exist. While the vertical development structures are postulated to be systematic, deterministic, and predictable, the horizontal scope of variational structures is chaotic but not random. That is to say, variations are not precisely predictable but follow some underlying regularities which make them be called deterministic.

Figure 2

Deterministic and Chaotic Elements in a Dynamic System (Reproduced from Lenzing, 2015, p. 101)

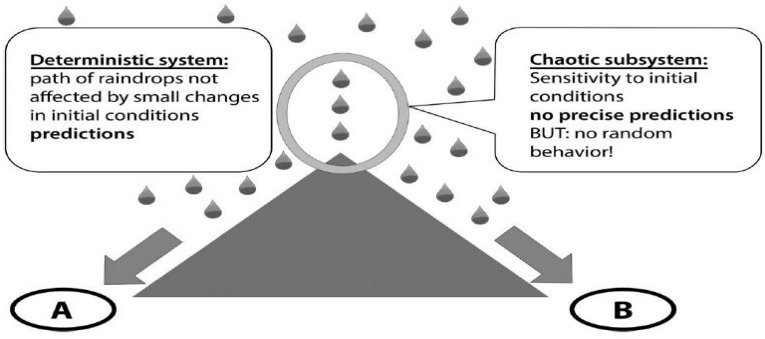


Figure 2 provides a comparison of a predictable dynamic system and an unpredictable deterministic chaotic system schematically. Raindrops on the left and right sides of the figure are not supposed to experience any big change as a result of small changes

in their initial states. Differently stated, raindrops on the left side would end in point A and those on the right side would be attracted to point B. The raindrops over the peak of the triangle represent a deterministic chaotic system as their resting point is not precisely predictable. There are chances that these raindrops be attracted toward A or B.

To examine the claims made by processability theory regarding L2 development, the present study sought to see to what extent early Iranian learners of English follow the same L2 developmental procedures.

3. Methodology

3.1. Research Design

This descriptive research study which is part of a larger research project reports the developmental stages revealing the deterministic and chaotic elements which are to emerge at the early stages of L2 development. As speech fragments under real-time pressure were of essence to the present study the participants were required to engage in communicative tasks with the first author serving as a guide on the side. Measures were taken to make sure that the participants were intimately engaged in communicative tasks in dyads. An interview was conducted initially to check their proficiency levels while the final-experiment interview was conducted to collect the data for analysis.

3. 2. Participants

All beginner learners of English at Tarlak Language Institute totaling 32 volunteered to take part in the present study. Over the experiment, eight of them were excluded from the study and finally, 24 early learners of English met the criteria of the study. These participants ranged from 11 to 15 in age and spoke Gilaki and Azari-Turkish fluently in addition to their instructional language, Persian. As the institute was a co-ed one, 14 of the participants whose data was submitted to analysis were female and 10 were male learners of English. An overview of the demographic background of the participants has been sketched out in Table 2.

Table 2
Demographic Background of the Participants

Number of participants	Age range	Mother tongue	Male	Female	Level of proficiency
24	11–15	Persian	10	14	Early learners

3.3.Interview

In this study, the data collection was carried out at different branches of the Tarlak Language Institute in Bandar Anzali, Iran. In the first interview, 32 Persian-speaking L2 English learners, 18 of whom were girls and 14 of whom were boys, were recruited to participate in the study. They showed full competence in Persian, Gilaki, and Turkish. Some participants were excluded from the study as they failed to be in the experiment to its end for a variety of excuses. Finally, the data obtained from 24 participants were submitted to the intended analyses and interpretations.

3.4. Data Analysis Procedure

Altogether, the participants' English and sociocultural backgrounds were homogenous as they came from the same town and attended the same language institute. Born into families residing in the same town, they had reportedly no earlier access to any English materials other than what they came to be exposed to at the English language institute they collectively attended. In line with the participants' institute syllabus, they all took part in three English language sessions each for 1.45 hr weekly. All of the participants were taught by two teachers. Both of these teachers had relevant teaching qualifications. That is, both had studied teaching English as a foreign language (TEFL) at Gilan University and had attended the same teacher training course (TTC) program held at Tarlak institute. They both had over five years of experience, so they were considered experienced and qualified enough to run the program. They had to teach the same books and materials to all students and used the same teaching techniques. They were observed by the first author.

3.5. Instruments

The instruments of this study consisted of two series of communicative tasks, each containing three parts to obtain natural spoken utterances at each of the interviews conducted. The tasks designed to serve as the mediating tools for conducting the interviews have been represented in Table 3. In designing the tasks an attempt was to take into account different definitions put forward by different researchers (e.g., MacIntyre, 2020; Ellis, 1994; Nunan, 1989; Peker & Toprak-Celen, 2020). More specifically, interactional activity and communicational goal as central features were in focus in designing the tasks.

Table 3
Designed Tasks to Obtain Spoken Utterances at the Final Session of Pre-intermediate 2

1. Acting out	2. Daily events	3. Habitual differences
Structures in focus *Questions* *Declarative* *Negations*	Structures in focus *Declarative* *Third person*	Structures in focus *Questions* *Declarative*
- A set of pictures were given to every single learner to play the role of a member of a family, talk about his/her hobbies, etc. and pose questions to his/her partner.	- Pictures of different well-known people were given to one learner in each dyad and the partner was inspired to ask questions.	- Each dyad was given two pictures that were alike except for 5 differences which were supposed to be described within each dyad.

In Pienemann's (1998) view, to examine early L2 production against processability criteria, the data obtained must represent the participants' potential to utilize their interlanguage grammar under real-time pressure during which the learner has no time to focus on his/her declarative knowledge. This way, the researcher is placed in a position to delve into the interlanguage system in progress and operational in generating structures based on the hierarchy of L2 development. Given the fact that the present study aimed to trace the dynamic trajectory of L2 morphosyntactic development of early learners of English, communicative tasks were opted for. By way of illustration, learners should engage in communicative tasks in a way that they use their procedural knowledge to produce L2 oral fragments which represent automatic speech. In so doing, a wide variety of morphological and syntactic structures can be subjected to analysis within the framework of processability theory (Lenzing, 2013).

To make communicative tasks a more reliable tool for eliciting spoken language from early learners, it is rather imperative to cut them to the cognitive size of learners, otherwise, the data obtained would be contaminated, and finding a precise profile of learners' L2 development would not be met (Roos, as cited in Lenzing, 2013). It is safe to argue that tasks with simple structures and familiar topics to talk about will be appropriate for children who are in the early stages of L2 development. Keeping the criteria referred to in perspective, the communicative tasks were prepared for the current study. First, the textbook assigned by the institute was skimmed to find suitable topics, vocabulary items, as well as grammar points to be covered. Later on, with the institute supervisors' guidance, the issues that seemed

interesting for the learners to inspire them to produce spontaneous oral speech were chosen and the related images were downloaded from the Internet. Finally, the design of tasks was adapted gaining insights from Lenzing (2013). As the tasks used in Lenzing (2013, 2015) have been reported to be empirically tested and suitable for data collection within the processability theory framework they were preferred over other criteria presented in the extant literature. A pilot study was conducted to get assurance as to the quality of the tasks in eliciting the data to examine early learners' L2 development against processability theory. The results obtained lent support to the potential of tasks to cater to the requirements of the present study.

4. Results

The data obtained from the first interview were submitted to the distributional analysis of the early learners' speech production, a common measure of early L2 development in processability theory. All participants were at the baseline of this implicational scale. Having access to an underdeveloped system of implicit knowledge of English they failed to reach beyond stage one where learners can only produce single words and formulae, if any at all, directly retrieved from their underdeveloped lexicon. It has to be pointed out that some idiosyncratic utterances were meaningless. Based on these pieces of linguistic information all individuals were taken to be homogeneous in terms of the outcome variable which was in focus in the present study.

The distributional analysis applied to the data obtained from the interviews which the participants gave after six months of instruction came to lend some further support to the predictions made by processability theory in terms of early learners of English in the Iranian context. Still underdeveloped, the underlying processing system appeared to be restricted severely by multiple constraints. More akin to the first interview, participants produced single words and formulaic chunks without any feature unification for their communicative intentions. As expected, all participants used single words and formulaic pieces of language to convey their communicative intentions. Viewed against the processability theory framework represented in six stages, these pieces of language extracted from the data in the interview lie in the first stage of the hierarchy which presented no challenge to these early learners of English as their production necessitated no exchange of structural information. Significantly, the frequency of formulae produced was significantly higher than that of single

words being arguably indicative of the underlying L2 system operation for distancing from single words and inching toward producing some extended length of language.

The structures produced are lexically and structurally restricted as a result of the fundamental procedural restrictions hypothesized to exist in the underlying interlanguage system. A very limited number of structurally and lexically question structures occurred in the learners' speech that possessed the Do-SVO-? the structure which emerges at stage 3. As an example, the Do-SVO-? sequences occurred primarily with *you* and *me* following the verbs *play* and *like.*

There were a limited number of utterances in the participants' speech production that could not be classified in the processability theory's prediction which seems that their processing requirements overpass the previously mentioned structures to specify specific participants' expanding order. At first, there is an order gap in the acquisition procedure. A deeper analysis, however, clarifies that most of the utterances that could not be classified in processability theory's order have the normal formation of formulaic norms (e.g., *what's she* ...). Since these structures were produced just once or twice in each participant's utterances, they were not considered an exemplar in our analysis. This speech production can be accounted for as lexically ordered formulaic forms because of their inner construction (question identifier + tied argument). Given the patterns of L2 development accumulated from the production of the early learners of English who participated in the present study, it can be concluded that the predictions of processability theory regarding the restrictions which are exercised on early L2 production hold about Iranian learners of English. The numbers given in Table 4 denote how often a particular feature occurred in a given individual learner's speech sample.

At first glance, it seems that the speech produced by learners is at stages 3, 4, or 5 of the PT hierarchy (Table 4), but a closer look reveals that most of the higher stage structures that occur in the data are classified as formulaic sequences and they only appear in an invariant form.

Table 4

Quantitative Analysis of Syntax (the Second Interview)

DS	Events	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24
6	**a**																								
5	**b**			2	3																				
	c				3	2																			
4	**d**					1	1					3									1		1	2	
	e	1											3	2	2	1									
	f	2														3									
	g																								
3	**h**						1	4	3	3								1			1				
	i	2																					3	1	
	j		1		1								1	3	2	3									
	k						1	1		2	3					1		3					2	2	
	l						2	1	1	1															1
	m	3		3	2	5		2	2			1	1	3	2		1	2	5			1	2		
2	**n**																			1					
	o	3	7	3	2	1	3	1	1	1	1	1	2	4	2	3	2	1	1	23	1	4	3	2	1
	p																								
1	**q**	12	24	11	16	17	23	12	11	12	17	15	12	18	12	14	14	13	17	15	13	18	12	12	13
	r	5	2	4	2	5	1	1	3	2	5	3	2	1	3	2	1	1	5	3	2	2	2	1	1

a = Cancel AUX-2nd, b = NEG/AUX-2nd-?, c = AUX-2nd- ?, d = Copula S(x), e = Wh-copula S(x), f = V-particle, g = Verb –first, h = Adverb –first, i = AUX SV(O)-?, j = Wh-SV-(O)-?, k = Do-SV(O)-?, l = Verb, m = other verbs, n = Have-fronting, o = S neg V(O), p = SVO, q = SVO-Question, r = Words

Note: total number of words 870

All of the learners have reached stage 2, that is to say, in addition to generating single words, formulaic sequences, and individual strategies that belong to stage 1 they also generate SVO structures at this stage of development. As it appears to be the case the category procedure is now in operation. Differently phrased, the lexical items are annotated for their lexical category and the learners possess the capacity to generate utterances that are in line with canonical word order.

5. Discussion and Conclusion

The current study was an attempt to see if early Iranian language learners' syntactic development, who started at the elementary level and were reassessed after six months of instruction, commonly proceeded in line with the processability theory hierarchy. Previous studies have shown a definite developmental trajectory in the process of language learning in young participants. This study aimed to see whether the same hypothesized patterns of early L2 development hold about the Iranian learners of English.

The qualitative analysis of the gathered data showed that the pre-intermediate participants could process many correct and suitable features at the syntactic level. The structures seen in the data consisted of stage 1 and stage 2 of the processability theory hierarchy. Nonetheless, some of them could produce systems at higher locations or ranks. There were some structures at the third, fourth, or fifth stages. However, it was also seen that even though some structures were at stage four or beyond, they were primarily individual occurrences and were often only produced once or twice by the respective participants.

In the second interview, it became clear that the participants were able to produce more utterances, even in sentence form, in comparison with the first interview. These utterances lay in the first four processability theory grading. They also could construct a greater quantity of words. It was also observed that two of the participants were as yet at the first phase of the processability theory grading, implying that each of them could articulate one-word, formulaic orders, as well as individual strategies.

As was pointed out earlier, the current study intended to focus on developmental lines and individual participants' dissimilarity in the early second language developmental process. It applied the processability theory-based dynamic view proposed by Lenzing (2015), in which the learner language is held to have both developmental orders, which are general and predictable, and individual participant differences which are not subject to hypothetical prediction. Granted, variational as well as developmental aspects of the development in beginner learners are supposed to be restricted by the construction of the human language processor and the learners' L2 production dissimilarity arises within the restrictions of the second language developmental orders as proposed by processability theory.

Future studies can explore the developmental stages of L2 with differing levels of proficiency. L2 development at early stages might follow more systematic patterns than in later stages. Technically put, when more proficient, learners might evince an incremental pattern of L2 development during which different stages might emerge and proceed simultaneously. Against such a backdrop, a complicated profile of L2 development is likely to be constructed which calls for thorough analysis. Future studies can also recruit adults with early L2 proficiency to see to what extent their utterances produced under real-time pressure correspond with the predictions of processability theory.

The hierarchy of L2 development hypothesized by different versions of processability theory which came to be supported by the data gleaned in the present study offers useful insights to syllabus designers and L2 practitioners. In preparing instructional materials, given the processing procedures to which L2 learners are assumed to have access, appropriate units of language can be presented. As such, some correspondence may be established between L2 learners' capacity and the materials instructed. Such correspondence is likely to enhance learners' confidence and generate more motivation.

As well, L2 practitioners informed by the findings of the present study might gain insights into their profession in gearing the input as a base for learners' output. Informed practice affords opportunities for L2 learners to invest due efforts in classroom participation and has higher levels of willingness to communicate.

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