

## **Validity of “Negation” and “Interrogatives” in Processability Theory for Iranian EFL Learners**

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### ***Abstract***

Processability Theory (PT), which organizes the knowledge base of Second Language Acquisition (SLA), offers an explanation of acquisition sequences. The aim of this paper is to investigate validation of PT for Iranian EFL learners for the acquisition of “negation” and “interrogative” structures across five proficiency levels and compared it with the morpho-syntactic structures model suggested by Pienemann. From the 160 participants having distinct proficiency, the needed data was gathered. They were wanted to produce example of oral performance in semi-structured interview and picture description tasks. The Kruskal-Wallis test pointed that both “negation” and “interrogative” emerge in agreement with the order of acquisition forecasted by Pienemann. In other words, as the participants’ level of proficiency level grew, so did their correct use of interrogatives and negation. Thus, PT is validated for EFL students, too.

Keywords: Higher Education, Second Language Acquisition, Processability Theory, Sequence of Acquisition, Negation, Interrogatives

## **1. Introduction**

Processability Theory in the study of L2 learning is a theory which tries to determine the sequences of development in the field of L2 acquisition (Pienemann, 1998a). The purpose of the research was twofold. On one hand, an attempt was made to illustrate how language learners get a language from the language evidence they have access to; on the other hand, it was devoted to describing different patterns to find any systematic progress in L2 acquisition and performance (Ellis, 2008). One can find a plethora of signs supporting the assertion that all speakers, whether first or second language, learn it in a systematic way (Hartshorne, 2018; Heinsch, 1994; Larsen-Freeman & Long, 1991).

The idea that languages are learned systematically is not new. Sharab et al, for instance, suggested an order for L2 acquisition (Sharab et al, 2023). Some other researchers such as Pinker & Alen, (1988); Tarone, (1997); Swain, (2005); asserted that, except for some amount of variation, language is learned in sequences. To predict the sequence in second language acquisition Giazitzidou et al. used the Multidimensional Model relying on further learning of the morpheme. In his model, two major sides of L2 development were emphasized: a consistent growth order, which is not influenced by the learner and situational variations- and some features which reply to the individual and environmental differences (Giazitzidou et al, 2023).

The problem with these studies is that they are descriptive and do not provide any answer to the question of why there is a systematicity in L2 acquisition. PT presented by Pienemann (1998a) taking an explanatory-adequacy perspective issues the SLA problem from a processing view. Schipolowski et al, investigated the attainment of German through a dozen of adult immigrant workers who had either negligible L2 learning whatsoever (Schipolowski et al., 2021). To describe the stages of growing orders in their producing of both easy and difficult utterances, they analyzed large samples of their speech. They found that the sequence of development with regard to aspects of syntax and morphemes were affected by one very important factor. This factor was ease of processability, that is, how easily these were processed. They maintained that, to a large part, this ease in processing, depends upon the location of them in an utterance. More specifically, aspects that usually are at the beginning or end of an utterance were processed a great deal easier (and learned) than the features in the middle position. They also claimed that all students embark on learning these aspects in the same order, albeit at different rates.

The other point it declares is that several processing operations are at work to explain more on the development of second language grammar usage no matter what language is under scrutiny. It is an attempt to offer a psycholinguistic clarification for sequences and stages language learners experience to grapple with the L2 morpho-syntactic compositions. In so doing, PT claims that language learners at any developmental stage are capable of producing only L2 linguistic structures which can be used by their current condition of language processor. In other words, language learning is compelled by human language processing capacity in such a way that learners can achieve only the linguistic functions and figures they can process (Pienemann, 2011).

One very vital point of PT is that it makes an effort to integrate developmental sequences with the influence of L1. The theory tries to explain that at early stages of learning a language, they do not simply transfer L1 features. Instead, they need to reach a point from which they construct a second language. In other words, they must reach a level to process certain base of process before being able to utilize L1 features.

Reliability of PT has been studied in some languages. These languages include French (Agren, 2009), Scandinavian, Italian, Arabic, Swedish, Chinese and Japanese (Hakansson, 2013; Bettoni et al., 2009 ; Husseinali, 2006, Mansouri, 2005). Besides, there exist in the literature a number of studies both in naturalistic and classroom contexts (Taki & Hamzehian, 2016; Khansir & Zaab, 2015). The findings of these studies indicate that morpho-syntactic forms are got in the fixed sequence which was predicted by PT. In conformity with the previous studies, the present research attempts to clarify this model order in the enhancement of second language in context in which language is formally taught and students rarely have the opportunity to use the language they are learning experimentally outside their classes.

More specifically, it cross-sectionally validates the theory by investigating the learning of interrogatives, negation and word order within five levels of proficiency and then compares it with the stages of progress of morphology and syntax suggested in PT. It also tries to find as there is any considerable variation among the means of the interrogatives frequency, and negation in the inter-language of learners in 5 different levels of proficiency.

A number of studies have also been devoted to investigating the learning of English morphemes within trainee of various-L1-background including Turkish, Greek, Japanese, Arabic, Chinese, and so on. In their study Bailey et al. (1974) investigated the acquisition order among 73 adult speakers from numerous L1 backgrounds including Spanish, Turkish, Greek, Chinese,

Japanese, Italian, and Arabic and confirmed Dulay and Burt's (1973) findings. These morpheme studies, however, have been methodologically criticized. In other words, they only describe in what order English morphemes are acquired without offering any explanation on why there is such an acquisition order (Gregg 2005).

Later, Mehrdad and Ahghar in their Multidimensional Model presented two features of second language expansion: a fixed developmental sequence not changed by the individual and environmental differences and a set of features on which are influenced by individual and environmental differences (Mehrdad and Ahghar, 2015). A few years later Pienemann (1984, 1988) applied Multidimensional Mode to German language and came up with the Teachability Hypothesis according to which instruction cannot change L2 trainee's learning sequence of grammatical forms in that L2 learner cannot skip any of the growth steps proposed in the Multidimensional Model.

However, to account for the implicational order of SLA came up with a novel model to predict based on a speech capacity. This theoretical framework which was called Processability Theory (PT) suggested that language-processing operations put a limit on the course of L2 development and asserted that language learning takes place when these processing constraints are eliminated (Pienemann, 1998b). In addition, a universal psycholinguistic matrix, i.e., a language processability hierarchy – can be used to determine the current condition of trainee's second language development (Pienemann 1988, 2005).

PT, according to Pienemann (1998b), asserts that there exist specific obligatory procedural skills for production and processing of sentences in L2. In the first step, language learners have to learn vocabulary which is necessary for all kinds of processing in subsequent steps. To create free morphemes which occur in the following phase, they make use of bound morphemes. During the next step, they are able to combine disconnected phrases by intra-phrasal components like connectors. However, learners at this stage are not equipped with syntactic-structures knowledge to line lexicon; instead they rely on pragmatics to order words.

Gradually in the fourth and fifth stages syntactic knowledge appears which they use to provide lexical features to phrases. Only in the last stage can learners automatically use subordinate clauses. At any stage of development, Pienemann (1988, 2005) states, students are able to learn new items only if they have mastered the previous stages. So, the course for the enhancement of L2 items in producing and comprehending can be anticipated. When the course of L2 development

is identified, light is shed on what L2 learners are prepared to acquire at any given stage. Thus, L2 learning could be enhanced in classroom and natural settings (Hismanoglu, 2012, Kessler 2007).

## **2. Literature Review**

### **2.1 LEXICAL FUNCTIONAL GRAMMAR**

LFG is the abbreviation of Lexical Functional Grammar was developed according to the generative grammar (Pienemann & Håkansson, 1999), a very important aspect of which is feature unification. The feature unification guarantees that the different components which form a sentence are properly put together (Pienemann, 1998). The early version of LFG which was released by Kaplan and Bresnan in 1982 had three components. The primary component is a constituent structure as short as shortly (c-structure) part which creates ‘surface structure’ components and c-structure correlations. The secondary component is a lexicon which contains syntactic and data related to the sentence production. The final one is a functional part that assembles for each sentence all the grammatical data required to be semantically interpreted.

The original model is subsequently modified in 2001 by Bresnan is composed of extra features which are needed to hold the concepts of typological plausibility. The primary model dealt with the constituent structure; however, Bresnan added two more dimensions, namely, an argument and functional structure. These added structures, of course, only occur in the widened version of PT. It is because the earlier model (1998a) was developed with an eye on the original LFG. Pienemann opted for Lexical Functional Grammar for a host of reasons. Most importantly, the processability of PT rests on the opinion of unification which is indispensable in LFG.

LFG is in conformity with PT since this grammar is typologically possible. Also, PT could be applied to any given language. Last but not least, according to LFG language acquisition is a process which is heavily dependent on lexicon; thus, it presents a lexical method to grammar. More specifically, in a grammar which is primarily based on lexicon, lexical parts can possess grammatical data which means that the vocabularies of a language are viewed as building blocks of the syntactic construction (Pienemann & Hakansson, 1999).

PT is popular partly because it is applicable to acquiring any L2, and partly because it can be used in the comparison of L1 vs., L2. Once the course of enhancement of a language was determined with PT, this will act as a good blueprint for study and will be applied to learnability, L2 syllabus design, evaluations and methods in teaching.

## **2.2 PREVIOUS STUDIES**

Since the introduction of PT, many empirical studies have been done to confirm its validity. They include Mansouri (2000); Fetter (1996); Dewaele & Veronique (2001); Hakansson et al. (2003); Iwasaki (2003), Ellis, (2008); Kawaguchi,( 2005); Zhang & Lantolf ( 2015); Zhang (2005). All have confirmed that most structures in English and other languages are acquired in line with the schedule predicted by PT.

Besides, some other studies have targeted the validity of PT in production as well as reception including Baten (2011); Dyson (2009); Kawaguchi (2009); Buyl and Housen (2015); Spinner (2013). Again, all these studies have proposed an identical mechanism for L2 learners in both production and reception. Regarding production, Hakansson and Norby (2006) investigated Swedish trainees' writing efficiency. To test the predictions made by PT, they applied writing and translating tasks to extract the targeted structures from the participants. The findings indicated that the subjects created syntactic constructions in conformity with PT in writing and speaking. As several subjects; however, the composition that let them plan helped create some target structures that they were not able to construct in translation.

Regarding the studies done on the validity of PT for Iranian EFL learners, one can refer to the study by Rahnama et al (2020) who the validity of PT within Iranian EFL learners' oral efficiency. They reported that the sentences constructed by Iranian students were in conformity with the procedural stages suggested in PT. In the other research, the effect of PT on EFL trainees' speaking skill is studied (Khansir and Zaab, 2015). Using two production tasks, they investigated the speaking capability of Iranian students in producing morpheme structures. The findings showed that the two tasks could efficiently help the subjects create the targeted structures in the way foreseen by PT. Yet, the feasible link between learners' ability to produce 3rd person singular -s and instruction was investigated in elementary, intermediate, and advanced by (Mohammadkhani et al, 2011). They reported that the elementary group possessed lower levels of development and the advanced and intermediate learners could construct the targeted sentences with higher levels of processing capacity.

Following the previous research, this study is to test PT's validity with regard to Iranian EFL learners having different language proficiency levels using negation, and interrogative structures.

### 2.3 A CROSS-LINGUISTIC CONSIDERATION OF “NEGATION” AND “INTERROGATIVE”

The morphological and syntactic variables selected in this study were “negation” and “interrogative”. Verbs in English are negated with different morphemes depending on their tenses, but they are negated uniformly in Farsi. In other words, regardless of their tense, verbs in Farsi are negated by using only one morpheme. The second morpho-syntactic aspect in this work was “interrogative”. Linguistically speaking, Persian is an in situ language in which no movement occurs in main clauses to make interrogatives. Unlike Farsi, except for questioning subject, a movement is needed to form interrogatives in English. Thus, several dissimilarities between English and Persian are extremely effective in the attainment of English negation and interrogatives. Table 1 shows the developmental hierarchy of processability theory.

*Table 1: Hierarchy of Developmental in PT*

Stage	Processing procedures	Target structures		
		Interrogatives		negation
6	Subordinate clause			
5	Sentence	Auxiliary-2 <sup>nd</sup>		Do-2 <sup>nd</sup>
4	Verb phrase	Pseudo-Inversion/Y/N-Inversion		
3	Noun phrase method	Do-Fronting/WH formation	Adverb-fronting	Don't +V
2	Category method	Subj-Verb-Obj	Subj-V-O	No/No+X
1	No procedure	Vocab	Vocab	vocab

### **3. Methodology**

In order to discover the order of the emergence of “negation” and “interrogatives” in the oral performance of Iranian EFL learners was compatible with the order claimed through Pienemann, a descriptive model and a post-hoc plan were adopted. Concerning second language development in Pienemann’s PT model, “negation” emerges at the second and third stages and “interrogatives” happens at stage five. Adopting a non-random sampling model, 160 male and female language learners with different language proficiency from Nosrat Language School in Kermanshah, Iran were selected.

The participants included (33 elementary, 32 pre-intermediate, 35 intermediate, 30 upper intermediate, and 30 advanced). The ages ranged from 18 - 40 and native language of them was Farsi. They learned English through the Four Corners series from primary to advanced levels. The Nosrat Placement Test was applied to determine their proficiency in English.

In order to elicit the participants’ oral performance two tasks were employed: a semi-structured interview plus a picture description task. In the semi-structured interview task, the students are required to respond some questions purposefully designed to elicit negation and interrogatives. The picture description task was similarly designed to have them use the targeted structures.

In the study, the steps below were taken: First, the needed data were gathered by the tasks mentioned before. To count the occurrences of the targeted structures, the data were audio-recorded. Next, the frequency and the correctness of the targeted morpho-syntactic structures on the basis of Pienemann’s model (1988, 2005) were recorded. Finally, the data analysis was carried out.

### **4. Results and Discussion**

This study was carried out to explore the enhancement of morphology and syntax in Iranian EFL learners’ oral actions at various levels of English proficiency. Both qualitative and quantitative analyses were used. The former was used to classify and identify the kind and order of the morpho-syntactic compositions; the latter which was done by SPSS, and analysis was done by cross-tabulation as well as normality test and Kruskal-Wallis to see whether the result could be generalized to the population. In what follows the findings of the analysis a data are presented:

**4.1 THE RESULTS FOR “NEGATION”**

The processability of “negation” was the first morpho-syntactic variable investigated through five proficiency levels in this study.

**Table 2**  
*Cross tabulation for negation*

		.00	1.00	2.00	3.00	4.00	5.00	6.00	8.00	9.00	10.00	13.00	21.00	22.00	Total
Level	Elementary	5													3
	Pre-intermediate	4													2
	Intermediate	7		0											5
	Upper-intermediate	0													0
	Advanced	2		1	1	0									0
Total		8	5	8	3	6									60

Table 2 presents the lowest and the highest scores and the frequency scores concerning the participants’ performances for the correct use of “negation” are shown. The means for each level were compared to see whether there was any considerable difference with regard to the distributions of “negation” in five levels. To do so, first the normal distributions of the groups were checked.

**Table 3**  
*The Normality Tests of negation*

Level	Kolmogorov- Smirnov <sup>A</sup>			Shapiro- Wilk		
	Static	df	Significance.	Static	df	Significance.

Elementary	.288	60	.000	.556	63	.000
Pre-intermediate	.279	46	.000	.625	45	.000
Intermediate	.254	44	.000	.664	44	.000
Intermediate	.315	100	.000	.621	100	.000
Advanced	.180	100	.000	.622	100	.000

As shown in Table 3, since the data has no normal distribution (sig. < 05), Kruskal-Wallis Test was used in order to make a comparison in the mean distributions of “negation” at every level.

**Table 4**

*Ranks for negation Level*

	Level	N	Mean Rank
<b>Singular s</b>	Elementary	63	167.67
	Pre-intermediate	47	156.47
	Intermediate	44	164.23
	Upper-intermediate	101	148.53
	Advanced	102	232.07
	Total	357	

Table 4 represents the mean rank of the subjects’ performance for “negation”, albeit at different proficiency levels.

**Table 5**

*Kruskal Wallis Test for negation*

<i>Chi-Squqre</i>	52.424
<i>Df</i>	3
<i>Asymp.Sig.</i>	.000

As shown in Table 5, there is a considerable variation among the 5 proficiency levels.

#### 4.2 THE RESULTS FOR “INTERROGATIVES”

The processability of “interrogative” was the second morpho-syntactic variable investigated through five levels from primary to advanced level in this study.

**Table 6**  
*Cross tabulation for interrogatives*

		.00	1.00	2.00	3.00	4.00	5.00	Total
<b>Level</b>	Elementary	42	0	0	0	0	0	33
	Intermediate	35	2	0	0	0	0	32
	Upperintermediate	28	2	3	0	0	0	35
	Advanced	66	10	11	2	0	0	30
	Adv.	40	18	13	7	4	1	30
<b>Total</b>		211	32	27	9	4	1	160

Table 6 presents the lowest and the highest scores and in addition the scores frequency concerning the participants’ correct use of “interrogatives”. Next, the graphic depiction of the distribution of “interrogatives” at 5 levels is shown. A means comparison for each level was carried out to see whether there was any considerable difference in the distributions of “interrogatives” across the levels. To do so, first the normal distributions of the groups were checked.

**Table 7**  
*Tests of Normality<sup>b</sup> of interrogatives*

Level	Smirnov Kologorov <sup>a</sup>			Shapiro- Wilk		
	Statistic	df	Significance.	Static	df	Significance.
Pre-intermediate	.530	46	.000	.222	46	.000
Intermediate	.527	44	.000	.366	44	.000
Upper-intermediate	.453	100	.000	.554	100	.000

Advanced	.296	100	.000	.769	100	.000
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a. Lilliefors Significance Correction

b. cancel is fixed when Level = Elementary. It has been omitted

As shown in Table 7 since the results show no normal distribution (sig. < 05), Kruskal-Wallis Test is used in order to check the mean distributions of “interrogatives” at every level.

**Table 8**

*Ranks of interrogatives*

	Level	N	average Rank
Interrogatives	Elementary	33	136.00
	Pre-intermediate	32	142.80
	Intermediate	35	156.13
	Upper-intermediate	30	177.12
	Advanced	30	224.92
	Total	160	

Table 8 represents the mean rank of the subjects’ performance for “interrogatives”, albeit for different proficiency levels.

**Table 9.**

*Kruskal Wallis Test of interrogative*

Chi-Square	73.713
Df	4
Asymp. Sig.	.000

Table 9 shows that there is a considerable variation among the 5 proficiency levels.

Before discussing the findings it should be noted that although an effort was made to make sure that the necessary linguistic contexts are provided to make the targeted structures appear, in some circumstances, they were absent. The fact that the subjects did not successfully apply some

rules and structures in their speech could be explained on the grounds that they preferred to select other structures. Consequently, it is not in conflict with the processability model proposed in PT.

Stage 1: Based on the prediction of PT, the learners can create one word at a time, say “book” or “pencil”, or formulas like “what time is it”, or “I think”. As shown, the results showed that all the subjects used words and fixed phrases or unanalyzed chunks. PT’s predictions for the first stage of L2 development are confirmed with regard to the Iranian subjects.

Step 2: Based on PT’s prediction, learners get the common order of word in language. This is the only vocabulary order which the acquirers know, they do not contain any other vocabulary orders according to movement like questions. Therefore, they place negatives in the front of the sentence such as in “no I live here” and create questions with ascending intonation like “you like football?”, two sentences have the basic English vocabulary order without any movement. It is in the following stage that they begin to know how to move components about, especially to the start and ends of the sentences. In this study both sentences based on SVO order and question formation based using intonation were observed.

Stage 3: According to PT’s prediction the learners begin to move components to the start of their sentences. Therefore, they place adverbials at the start – on Friday, I played football”; they employ Wh- at the start with no change- “who loves pizza?” as well as they put auxiliaries to obtain yes/no questions – “can you help me?” common sentences which are usually found at this step are “yesterday, I tired” and “pizza I like” in the primary elements has been moved around as later. In this study, examples of these kinds abounded but what is important here is just their ability to put these elements in the proper place. That is to say, the relationship between these elements and other constituents of the phrase was not attended to. Therefore, the utterance ‘Do she buy it?’ is considered to be a valid example of Do-Fronting. Some learners did not show the use of ‘Do-Fronting’ in this study. Instead, as mentioned before, they opted for other interrogative forms. Language learners at this stage or verb phrase procedure were able to understand other constituents of an utterance, so they put these elements in the proper position in a sentence. The common structures at this stage are inverting the subject and the auxiliary to come up with yes/no questions in direct questions, e.g., are you busy?). This was also observed in the subjects’ production.

Stage 4: According to PT’s prediction at this stage learners start to discern how the preposition is displaced from its phrases, “the book she was looking for” rather than “the book for

she was looking”. They can also use the “-ing” ending. This was also seen in this study as the learners produced utterances like “the man I talked to was angry’ and I’m reading a good story”.

Stage 5: According to PT’s predictions learners at this step learners also start using question-words such as “where are they going?”, the third one grammatical morpheme, “-s”, “he cooks” and the dative with “to”, “she gave the book to me”. At this step the language learners are beginning to work in the construction of the sentence, that is to say, they do not just move elements to the beginning or the end. This phenomenon was also observed in this study as the learners made utterances like ‘my father bought a bicycle for me’ and “what do you do on Fridays?”

Stage 6: According to PT’s predictions acquiring the order of subordinate clauses occurs at the final stage. In English, there is sometimes a difference between this order and that of in the major clause. The order of question is “will he come?”, although the question is “Mary asked if he would come.” Not “\*Mary requested if would he come”. Not many of the subjects in this study could distinguish main clauses from subordinate ones. More specifically, no case of correct inversion was seen here. They tried to embed questions into a main clause, but with no required inversion.

To interpret the findings, it could be said that this study was first an effort to see whether any regularity and systematic production in the speech of Iranians learning English could be seen in different proficiency levels. The second goal was to compare these collected data with the model proposed by Pienemann (1998a). To do so, they were required to provide samples of their oral performances through semi-structured interviews and picture description tasks. The learning of “negation” and “interrogatives” in the participants were investigated. First, the use of “negation” in the participants’ speech of participants was detected. The results presented considerable differences in the distribution of “negation” among the learners. The results showed that “negation” was the feature which emerged a lot earlier than predicted in their inter-languages probably as a formulaic feature. Since in Persian negation is manifested differently, its emergence in the inter-language is not attributable to transfer from the participants’ mother tongue. Furthermore, those participants who were more proficient used it less frequently and then significantly gained strength in the inter-languages. This can be as another evidence for the claim that negation appeared just as a formulaic structure. As a whole, the finding indicated that, with regard to this structure, the learners’ competence grew stronger as the participants’ proficiency increased. This result, which is in agreement with Taki and Hamzehian’s (2016) findings confirms

Pienemann’s predictions which asserted that this structure appears in the second and third steps of second language development.

This again is in line with other research findings like that of Chidi-Onwuta (2022) who found that “primary level participants are less valid in recognizing and providing the appropriate construction, are less improved and in low levels of Inter-language growth; whereas intermediate students are more improved”. They also reported that there was no considerable difference in the order of attainment and using language via instruction.

The processability of “interrogatives” was the second variable which was investigated in the present study. The findings indicated that there is a considerable variation in the distribution of “interrogatives” through various levels. Using “interrogatives” was noticed in the participants’ oral performance at all levels except for the elementary level. This is not surprising since, considering language competence; this feature emerges in higher levels more often and not in elementary levels. Furthermore, it was observed that as the participants’ level of proficiency level grew, so did their correct use of interrogatives and negation. The results conform to those reported by Johnston (1993). His findings greatly confirmed the existence of a certain sequence in the acquisition of morphology and syntax in English. In addition, the results of the study are in conformity with Pienemann’s assertions that this construction appears at the third step of second language growth.

As a whole, the results of this study indicated that learners of English cumulatively go through certain steps in their acquisition, showing a hierarchically advanced development. These steps are in conformity with the predictions made by PT, confirming that the assumptions on which PT rests face no counterevidence. All these mean that the Processability Theory is validated for Iranian learners of English too.

## **5. Conclusion and Implication**

The results indicated that the present models which account for the step-to-step development of morphology and syntax in the growth of an L2 can be used in order to predict L2 learners’ progress. In other words, Iranian learners of English proceed through certain and pre-determined stages in processing foreign language and their development showed a hierarchical progress. These stages were cumulatively acquired which was predicted by Processability Theory. Wholly, concluding

from the findings of this research, it could be claimed, that Pienemann's Processability is also valid for Iranians who learn English.

This study also contains a number of implications for those engaged in second language professions such as language teachers, material improvement and students. Teachers can use its results in order to present input which is in line with learners' language development. They are supposed to analyze the syllabi to see if they conform to the stages of development in English as an L2 for example a study by the same by Gholami et al (2022) with regard to EFL textbooks in Iranian public schools not only detected some deviations from PT in these books but also offered some justifications. Their analysis indicated that they were fairly successful at stage 1 of PT, showing that they were more concerned with presenting words and phrases but when it came to other stages of the PT three major deviations were seen. The first kind of deviation from the developmental sequence stipulated by PT was the early presentation of question forms before SVO structure is established. This was especially observed in Vision 1 where in presenting future tense a great deal of emphasis was placed on question formation. Obviously, it was an overt deviation from the principles of PT according to which textbooks must focus on the major word order of subject-verb-object abbreviated as (SVO) in the early stages. That is to say structures like "birds like worms" had to be taught and language learners should not have been expected to know the order of word questions, "What do birds like?". This was because question formation in English necessitates movement of the question words which is a lot more difficult to process than mere statements.

The second obvious deviation from PT seen in Vision Series was mixing the stages of PT. Vision 2, for example, in presenting subordinate clauses collapsed two L2 stages into one. These stages in PT are scattered across stages 3 to 6. In other words, although the PT emphatically asserts that subordinate clauses are mastered last of all, the authors of Vision 2 had thought, wrongly of course, that these structures were not particularly difficult and devoted an entire grammar section of Vision 2 to subordinate clauses, especially time clauses. Considering the processing capacity of language learners, these complex structures are by far the hardest of all which are acquired at stage 6. To the despair of EFL students.

The third deviation from PT in the Vision series was the omission of some intermediate stages. This was mostly seen in Unit 1 of Vision 1 and Unit 2 of Vision 2. As an example, one way to facilitate question formation by language learners is introducing sentence-initial adverbials

before presenting question forms which involves the movement of some elements to the beginning of the initial position of sentences. Sentences containing adverbs like “In the summer I play tennis”, it is argued, pave the way to help students grasp the concept of movement involved in questions and had the authors of the Vision series used them, they might have gained better results.

Here the thing that language teachers must be wary of is the justifications for these obvious deviations. With regard to the early introduction of language forms, they may look to Vivian Cook’s reasoning (2001): he argues that “when people attempt postponing questions for the first year of teaching, this made a lot practical difficulties in the classroom, in which questions are the life-blood” (p.32). Similarly, Swain and Lapkin (2002) suggested that learners be exposed to structures which are a little beyond their present processing capacity for their frequency in the input. In other words, some structures, they argue, are so prevalent in the input that students need to become familiar with them even at the early stages of language development.

Regarding the second deviation, DeKeyser’s reasoning (2015) might be used. He suggested automaticity as a factor leading material developers to deviations from the guidelines of PT. He proposed that some structures might appear at earlier stages because they could lead to automaticity. Gerunds, for instance, seem quite complicated for beginners; nevertheless, they are basic structures in sentences like “I like swimming”. If students, it is argued, are frequently exposed to such structures, they can use and understand them more easily in later stages. It should be noted that the need for these early introductions of structures has been allowed in PT by letting formulas appear at stage one.

Language learners can also benefit from the findings of this study. If they are informed about the right time when certain L2 morphological and syntactic features appear, they will be encouraged to form a lot more logical expectations and study their enhancement course more knowledgeably which might lead to building more confidence in the course of L2 acquisition.

Material developers can find the results, useful to enhance more standard materials according to the language development order. It is due to if the stages of L2 enhancement are better understood, more useful insights are gained into what learners are prepared to acquire at each stage. These can help both instructional and natural settings.

Another problem concerns the definition of acquisition in PT: two rather different operational definitions are provided here: at the beginning, it was defined as being able to produce a structure in all obligatory contexts, in its latter version it was defined in terms when a

grammatical feature appears for the first time. This had led to the lack of rigor in most studies done to test PT's claims.

Finally, it is worth mentioning that PT tries to account for L2 learning acquisition from the learner production point of view. It does not tell us about how learners comprehend the grammatical structures. Nor does it say anything about the possible interaction between comprehension and production. How intake gained from the input is used to reconstruct inter-language remains unanswered in this theory. Based on these inherent problems of PT, one possible line of research could be devoted to such aspects of PT. That is to say, some reasonable criteria need to be developed to clearly distinguish variational utterances from developmental ones. Another line could be providing a reasonable explanation on how learners get intake and how they use this to construct inter-language.

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## References

- Agren, M. (2009). Morphological development in Swedish learners of French: Discussing the processability perspective. In J. U. Keßler & D. Keatinge (Eds.), *Research in second language acquisition: Empirical evidence across languages* (pp. 121-152). Cambridge, Scholars Publishing. <https://portal.research.lu.se/en/publications/morphological-development-in-swedish-learners-of-french-discussin>
- Bailey, N., Madden, C., & Krashen, S. (1974). Is there a "natural sequence" in adult second language learning? *Language Learning*, 21(2), 235-243. <https://doi.org/10.1111/j.1467-1770.1974.tb00505.x>.
- Baten, K. (2011). Processability theory and German case acquisition. *Language Learning*, 61(2), 455-505. <https://doi.org/10.1111/j.1467-9922.2010.00615.x>
- Bettoni, C., Di Biase, B., & Nuzzo, E. (2009). Post-verbal subject in Italian L2: A processability theory approach. In J. U. Keßler & D. Keatinge (Eds.), *Research in second language acquisition: Empirical evidence across languages* (pp. 153-173). Cambridge Scholars Publishing

- Buyl, A., & Housen, A. (2015). Developmental stages in receptive grammar acquisition: A processability theory account. *Second language Research*, 31(4), 523-550.  
<https://doi.org/10.1177/0267658315585905>
- Chidi-Onwuta, G. (2022). Analysis of the Interlanguage of Second Language Learners: Implications for the Classroom.
- Clahsen, H., Meisel, J., & Pienemann, M. (1981). On determining developmental stages in natural second language acquisition. *Studies in second language acquisition*, 3(2), 109-135.
- Cook, Vivian. (2001). *Second Language Learning and Language Teaching (3<sup>rd</sup> ed.)*. oxford University Press.
- DeKeyser, Robert. (2015). Skill Acquisition Theory. *Theories in Second Language Acquisition: Introduction*, edited by Bill Van Patten, and Jessica Williams, Rout ledge, 94-112.
- Dewaele, J. M., & Véronique, D. (2001). Gender assignment and gender agreement in advanced French inter-language: A cross-sectional study. *Bilingualism, Language and Cognition*, 4(3), 275-297.
- Dulay, H., & Burt, M. (1973). Should we teach children syntax? *Language Learning*, 23(2), 245-258.
- Dulay, H., & Burt, M. (1974). Natural sequence in child language acquisition. *TESOL Quarterly*, 8(2), 129-136.
- Ellis, R. (2008). *The study of second language acquisition*. Oxford University Press.
- Evans, M., & Cloutier, L. M. (2023). Integrating higher degree education with practice: exploring the value proposition of executive MBA apprenticeships. *Higher Education, Skills and Work-Based Learning*, 13(2), 283-298.  
<https://www.emerald.com/insight/content/doi/10.1108/HESWBL-10-2022-0207/full/html>

- Giazitzidou, S., Mouzaki, A., & Padeliadu, S. (2023). Pathways from morphological awareness to reading fluency: the mediating role of phonological awareness and vocabulary. *Reading and Writing*, 1-23.
- Glahn, E., Hakansson, G., Hammarberg, B., Holmen, A., Hvenekilde, A., & Lund, K. (2001). Processability in Scandinavian second language acquisition. *Studies in Second Language Acquisition*, 23(3), 389-416.
- Gregg, K. R. (2005). SLA theory: Construction and assessment. In C. J. Doughty & M. H. Long (Eds.), *the handbook of second language acquisition* (pp. 831-865). Black-well Publishing.
- Hartshorne, J. K., Tenenbaum, J. B., & Pinker, S. (2018). A critical period for second language acquisition: Evidence from 2/3 million English speakers. *Cognition*, 177, 263-277.
- Hakansson, G. (2013). Processability theory. Explaining developmental sequences. In M. Garcia Mayo, M. Junkal Gutierrez Mangado, & M. Martinez Adrian (Eds.), *Contemporary approaches to second language acquisition* (pp. 111-129). John Benjamins Publishing Company.
- Hakansson, G., & Norby, C. (2006). Processability theory applied to written and oral Swedish. In F. Mansouri (Ed.), *Second language acquisition research: Theory-construction and testing* (pp. 81-94). Cambridge Scholars Publishing.
- Hakansson, G., Salameh, E., & Nettelbladt, U. (2003). Measuring language development in bilingual children: Swedish-Arabic children with and without language impairment. *Linguistics*, 41(2), 255-288. <https://doi.org/10.1515/ling.2003.009>
- Husseinali, G. T. A. (2006). *Processability and development of syntax and agreement in the inter-language of learners of Arabic as a foreign language* (Unpublished doctoral dissertation). University of Texas, Austin.
- Iwasaki, J. (2003). *The acquisition of verbal morpho-syntax in JSL by a child learner*. Paper presented at 13th Biennial Conference of the JSAA, Brisbane, and July 2-4.

- Kawaguchi, S. (2005). Argument structure and syntactic development in Japanese as a second language. In M. Pienemann (Ed), *Cross-linguistic aspects of processability theory* (pp. 253-299). John Benjamins Publishing Company.
- Kawaguchi, S. (2009). Acquiring causative constructions in Japanese as a second language. *Japanese Studies*, 29(2), 273-291.
- Kessler, J., (2008). *Processability approaches to second language development and second language learning*. Cambridge Scholars Publishing.
- Khansir, A. A., & Zaab, M. (2015). The impact of processability theory on the speaking abilities of Iranian EFL learners. *Journal of Language Teaching and Research*, 6(2), 343-349. <http://dx.doi.org/10.17507/jltr.0602.14>
- MacQueen, H., & Aiken, F. J. (2020). Supporting distance-taught students in the workplace. *Higher Education, Skills and Work-Based Learning*, 10(1), 49-60.
- Mansouri, F. (2000). *Grammatical markedness and information processing in the acquisition of Arabic as a second language*. Lincom Europa.
- Mehrdad, A. G., & Ahghar, M. R. (2015). Markedness and syllabus design in SLA. *Procedia - Social and Behavioral Sciences*, 177, 104-108.
- Mohammadkhani, A., Eslamdoost, S., & Gholamreza'i, S. (2011). An investigation of the role of instruction in second language production: A case of third person singular –s. *Procedia - Social and Behavioral Sciences*, 29, 910-916.
- Pienemann, M. (1984). Psychological constraints on the teachability of languages. *Studies in Second Language Acquisition*, 6(2), 186-214.
- Pienemann, M. (1988). Determining the influence of instruction on L2 speech processing. In G. Kasper (Ed.) *AILA Review 5: Classroom research* (pp. 40-72). Association Internationale de Linguistique Appliquée.
- Pienemann, M. (1995). *Second language acquisition: A first introduction*. Manuscript. Australian Studies in Language Acquisition.

- Pienemann, M. (1998a). Language processing and second language development: Processability theory. John Benjamins.
- Pienemann, M. (1998b). *Language processing and second language development: Processability theory*. John Benjamins Publishing Company.
- Pienemann, M. (2003). Language processing capacity. In C. J. Doughty & M. H. Long (Eds). *The handbook of second language acquisition* (pp. 679-714). Blackwell.
- Pienemann, M. (2011). Learner variation. In M. Pienemann & J. U. Keßler (Eds), *Studying processability theory: An introductory textbook* (pp. 50-63). John Benjamins.
- Pienemann, M., Di Biase, B., & Kawaguchi, S. (2005). Extending processability theory. In M. Pienemann (Ed.) *Cross-linguistic aspects of processability theory*. (pp. 199-251). John Benjamins.
- Pienemann, M., & Hakansson, G. (1999). A unified approach towards the developmental of Swedish as L2: A processability account. *SSLA*. 21(3), 383-420.
- Pienemann, M., & Johnston, M. (1987a). *A predictive framework of SLA*. Manuscript: University of Sydney.
- Pienemann, M., & Johnston, M. (1987b). Factors influencing the development of language proficiency. In D. Nunan (Ed.), *Applying second language acquisition research* (pp. 45-141). National Curriculum Research Centre, Adult Migrant Education Program.
- Pienemann, M., & Kessler, J. (2007). Measuring bilingualism. In P. Auer & W. Li (Eds.), *Handbook of applied linguistics, Vol. 5: Multilingualism*, (pp. 247-274). Mouton de Gruyter.
- Sangwan, K. S., & Singh, R. (2022). An experiential learning-integrated framework to improve problem-solving skills of engineering graduates. *Higher Education, Skills and Work-Based Learning*, 12(2), 241-255.  
<https://www.emerald.com/insight/content/doi/10.1108/HESWBL-02-2021-0033/full/html>

- Schipolowski, S., Edele, A., Mahler, N., and Stanat, P. (2021). Mathematics and science proficiency of young refugees in secondary schools in Germany. *J. Educ. Res. Online* 13, 78–104. <https://doi.org/10.25656/01:22066>
- Sharab, M., Rayyan, M., Al-Duweiri, H. (2023). The Autumn and Winter Months in Jordanian and Palestinian Proverbs: Compilation, Analysis and Translation into Spanish. *Jordan Journal of Modern Languages and Literatures*, 15(1), 147-163. <https://doi.org/10.47012/jjml.15.1.8>
- Spinner, P. (2013). Language production and reception: A processability theory study. *Language Learning*, 63(4), 704-739.
- Swain, M. (2005). The output hypothesis: Theory and research. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning*, (pp. 471–484). Lawrence Erlbaum Associates.
- Swain, Merrill, & Sharon Lapkin. (2002). “Talking it Through: Two French Immersion Learners’ Response to Reformulation.” *International Journal of Educational Research*, 37. 285-304. [https://doi.org/10.1016/S0883-0355\(03\)00006-5](https://doi.org/10.1016/S0883-0355(03)00006-5)
- Rahnama, M., Ahmadi, A., Razmjoo, S. A., & Mazandarani, O. (2020). The Effect of Oral Feedback on Iranian EFL Learners’ Complexity and Accuracy in Speaking. *Journal of Modern Research in English Language Studies*, 7(1), 105-131. <https://doi.org/10.30479/jmrels.2019.10362.1291>
- Tarone, E. (1997). Analyzing IL in natural settings: A sociolinguistic perspective of second language acquisition. *Communication and Cognition*, 30, 137-150.
- Zhang, Y. Y. (2004). Processing constraints, categorical analysis, and the second language acquisition of the Chinese adjective suffix –de (ADJ). *Language Learning*. 54(3), 437-468.
- Zhang, X., & Lantolf, J.P. (2015). Natural or artificial: Is the route of L2 development teachable? *Language Learning*, 65(1), 152-180.