

○ PROCESSABILITY APPROACH TO ARABIC L2 TEACHING AND SYLLABUS DESIGN

Ghassan Al Shatter Arabic Language Institute, King Saud University

Dr Al Shatter is an Associate Professor of Applied Linguistics at King Saud University in Saudi Arabia. Prior to this appointment he held a number of teaching and administrative positions at several universities including The Australian National University and The University of Melbourne in Australia. Dr Al Shatter has worked on the development of Arabic language curriculum and teaching materials. His main areas of research include teaching Arabic as a second language, language development, and curricula and teaching.

This study aims to identify the relationship between the developmental hierarchy in the acquisition of Arabic as a second language (Arabic L2) and formal classroom instruction. It provides a general presentation of the current debate on the influence of formal instruction in the acquisition of L2. Special attention is given to the subset of Processability Theory (PT) known as Teachability Theory, and its implications for teaching methods of L2 in general and Arabic L2 in particular. This study also provides descriptive information on teaching objectives and materials used by the participants to study Arabic L2. This information is presented in order to establish an explanation for the connection between the formal teaching of Arabic L2 and the processability hierarchy. Participants were nine students studying Arabic as a second language at the Australian National University (three Beginners, three Intermediates, and three Advanced). Interviews were conducted over a period of two teaching semesters during the year 2005. Both implicational and distributional analyses were conducted. The results of these analyses show that teachers and curriculum developers should consider the PT's predicted developmental stages for Arabic L2 structures when developing teaching materials and syllabus.

KEYWORDS: Applied Linguistics, Arabic L2, Curriculum Design, Teaching Methods, Language Development

According to Rivers (1991), linking learners' knowledge of a language and the actual production of that language is a task that can be achieved in the classroom environment. One role of this task is to 'develop skilled language users [and] guide their selection of productive options to convey what they really want to convey in pragmatically, culturally, syntactically, and semantically appropriate ways' (Rivers, 1991, p. 291).

Doughty (2003) argues that in regard to the impact of formal instruction on L2 teaching, researchers position themselves on two levels: (1) formal instruction has no influence on L2 acquisition, and (2) formal instruction is effective and sometimes even necessary in L2 acquisition. Support for the latter position is growing among researchers on L2 acquisition

(Doughty, 2003; Ellis, 1990, 1999; Larsen-Freeman & Long, 1991; Long, 1988; Macaro, 2003; McLaughlin, 1990; Pienemann, 1989; Rivers, 1991; Robinson, 2001).

However, some L2 researchers argue that the potential effectiveness of instruction on L2 acquisition is restrained by other factors such as: (1) the needs of the learners (Doughty, 2003); (2) what learners pay attention to and notice in the target language (“Noticing Hypothesis”; Schmidt, 2001, as cited in Doughty, 2003); (3) whether or not learners are developmentally ready to benefit from instruction (Doughty, 2003; Pienemann, 1998); (4) the role of input (“Krashen’s Input Hypothesis”, Gass & Selinker, 1994); (5) the role of retrieval, practice, and constant reactivation (“Automaticity and Restructuring”; McLaughlin, 1987, 1990), etc.

DeKeyser (2003) discussed several studies in order to establish an argument concerning the role that implicit and explicit learning mechanisms play in L2 learning. He reviewed two types of studies: (1) laboratory studies (studies conducted in a laboratory environment) and (2) classroom studies (studies conducted in a real classroom setting). These two types of studies tested the role of variable implicit and explicit mechanisms for instruction (input enhancement, rule presentation, meaning-oriented, rule-search, implicit, explicit information only, structural input only, regular processing instruction, etc.) on the learning of L2 rules (straightforward morphological form/function mapping, relative clauses, subject-verb inversion, relative pronouns and the subjunctive, etc.).

In both the laboratory studies (Alanen, 1995; DeKeyser, 1995; Doughty, 1991; Ellis, 1993; Robinson, 1996, all cited in DeKeyser, 2003), and the classroom studies (Scott, 1989, 1990; VanPatten & Oikkenon, 1996, as cited in DeKeyser, 2003), DeKeyser (2003) found that the evidence ‘[has] shown an advantage in explicit learning’ (2003, p. 326). DeKeyser argued that ‘cognitive psychologists have not been able to provide convincing evidence that people can learn abstract patterns without being aware of them’ (2003, p. 335). This may be a valid argument, and as shown below, awareness by itself is not sufficient for L2 learners to acquire the language.

PT claims that even if L2 learners are made aware of these abstract patterns, they only produce them if they are ready to do so (Pienemann, 1998). That is, they produce them according to a particular developmental hierarchy in which learners are unable to produce a structure belonging to a particular stage if they cannot produce structures belonging to a lower stage in the hierarchy. From this perspective, PT predicts that in L2 learning (1) stages of acquisition cannot be skipped through formal instruction, and (2) instruction will be beneficial if it focuses on structures from the next stage (Pienemann, 1998).

PT regards these predictions as a restraint on L2 learning, even if the teaching takes place within very short-term, explicitly focused instruction (Doughty, 2003) or if learners' memories are strengthened by intensive practice of the language or enriched by exposure to further experiences (Rivers, 1991). Lenzing's (2008) supported this argument in a study on teachability and learnability aimed to test PT's stages against two textbooks used to teach English as a second language. Lenzing (2008) found that PT's developmental sequences for English were not taken into consideration in the design of the textbooks for early English language teaching in Germany. She recommended that 'it is of vital importance that at least the teachers for early ELT are informed about the underlying processes in the language acquisition process' (Lenzing, 2008, pp. 238-239). The following section clarifies PT's understanding of L2 teachability.

PT'S APPROACH TO "TEACHABILITY" ISSUES

Pienemann argues that '*all* processing procedures underlying a structure are required for the processing of the structure' (1998, p. 250, emphasis in original), hence by "skipping stages" in formal instruction, the L2 learner misses out processing procedures needed for his or her language acquisition. This consequently disadvantages the learner's ability to process the structure.

PT's concept of "skipping stages" was tested in several studies conducted to account for PT's SLA processability hierarchy on a number of languages (Di Biase, 2002b; Håkansson, 2002; Kawaguchi, 2005; Mansouri, 1999b, 2005; Zhang, 2005). For example, in teaching Swedish L2 learners the rule which involves adding a lexical morpheme to a verb to form the past tense, Håkansson (2002, p. 14) found that 'there was a mismatch between the teacher's plan and the learners' capacities to answer to it'. Håkansson's findings showed that the teacher planned for the learners to use the correct morpheme for the past tense. One of the three learners was able to fit the teaching plan. The other two were unable to follow the teaching plan, and showed no evidence of correct use of the morpheme.

Di Biase (2002b) conducted a study on Italian L2, in which he used form-focused instruction based on PT's stages. The results showed that the learners responded positively to the teaching plan and acquisition procedures by learners of Italian L2 were improved.

In her study on the acquisition of Japanese L2, Kawaguchi (2005) found that all the test structures emerged only after formal instruction. She found that formal instruction had an important impact on Japanese L2 acquisition. However, she noticed that although they belonged to the same stage, some structures emerged one year after they were formally introduced, and other structures emerged only a couple of weeks after they were formally taught.

Zhang (2005) tested whether formal instruction could override PT's psycholinguistic constraints on the processing procedures. She found that 'although teaching plays an important role in the L2 learning of Chinese, learning itself is not absolutely determined by teaching' (Zhang, 2005, p. 174). The central role in the L2 acquisition of Chinese according to Zhang is played by PT's processing constraints

As shown above, studies on a different number of L2 acquisition found that formal teaching 'is only effective when it focuses on the linguistic structures which learners are ready to process' (Mansouri, 1999b, p. 83). The following section tests PT's concept of the impact of formal instruction on Arabic L2 acquisition.

DATA COLLECTION AND ANALYSIS

The data collection sessions for the current study consist of the following communicative tasks:

- Picture narration: Participants were exposed to pictures of family, a trip, a party, the surrounding environment etc... and asked to talk about them.
- Semi-Structured interviews: Participants in the current study were asked questions about their academic life, family, friends, careers, occupations etc. (e.g. Why and when did you decide to study Arabic? Have you visited an Arab country? If so, talk about it. If not, have you travelled overseas? If so, describe your trip, etc.).

All interviews, which lasted between seven to 15 minutes each, were conducted informally and tape-recorded.

SAMPLE SELECTION

At the beginning of the year 2005, students studying Arabic L2 at the Australian National University (ANU) completed a survey of detailed questions relating to their Arabic language skills.

The participants were identified according to the following criteria:

- Number of hours attended Arabic classes since joining the university (approximately 32 hours for Beginners, 128 hours for Intermediate and 224 hours for Advanced).
- Those who devote three or more hours to Arabic tuition per week;
- Those who have no private tuition;
- Those who have not studied Arabic before joining the university; and
- Those who are not from an Arabic background.

After considering the size of participants' data production for data analysis, the current study ended up with three participants from each group (three Beginners, three Intermediate and three Advanced). The following subsection provides additional detail on the methods of data collection adopted by the current study.

SETS OF DATA COLLECTION

The entire sequence of sessions was completed within two teaching semesters during the year 2005. The subjects participated in six sessions from May to November 2005, with a four week interval, except for two sessions in which the university holidays increased the intervals to nine and six weeks for the third and fifth sessions respectively. More details on the data collection sets are presented in Table 1.

Table 1 Sets of data collection

Semester	1			2		
Beginners						
Intermediate	T1	T2		T3	T4	T5
Advanced						T6
Month	May	June		July	August	October
Commencing Date	2nd	30 of May		25th	22nd	3rd
Teaching week	11	15		24	28	34

The average tokens per minute for each group was 14.5, 17.6 and 20.5 tokens per minute for the Beginners, the Intermediates and the Advanced respectively.

DATA ORGANISATION AND ANALYSIS APPROACH

A distributional analysis was conducted 'to determine which context or even which lexical items are related to which particular interlanguage rule' (Pienemann, 1998, p. 139) and to make sure that the production of the test structures was not a result of chunk transfer or over generalisation before the emergence criterion was applied and the implicational analysis carried out.

The current study adopts the methods of analysis that have been implemented by PT (Di Biase & Kawaguchi, 2002; Mansouri, 2005; see also Pienemann, 1998, 2005a; Zhang, 2005). PT highlights three empirical aspects that should be considered when analysing data obtained to test the development of learners' inter-language (IL). These aspects are: (1) the emergence

criterion, (2) the distributional analysis (3) and the implicational analysis (Pienemann, 2005a). These three aspects are assumed by this study and have therefore been applied in the data analysis of the learners’ oral production of the test structures.

The emergence criterion as it is employed in this study is based on the description and implementation of the emergence criterion within PT research (Di Biase & Kawaguchi, 2002; Kawaguchi, 2005; Mansouri, 2005; Pienemann, 1998, 2005a; Zhang, 2005). Pienemann argues that ‘from a speech processing point of view, emergence can be understood as the point in time at which certain skills have, in principle, been attained or at which certain operations can, in principle, be carried out’ (1998, p. 138). From a descriptive point of view, this is when it is possible to identify the beginning of an acquisition process, and then disclose further information on the remainder of the process.

This study takes the position of considering a structure to have emerged if there is a minimum of three tokens of that structure produced by the learners with a minimal pair in lexically varied contexts. It is worth mentioning at this point that the current study does not understand the emergence of a structure to mean that a learner has acquired that structure, but rather that it indicates the learner’s ability to produce the structure as one step in the acquisition procedure of that particular structure.

TEST STRUCTURES AND PT HIERARCHY

The current study predicts that test structures will gradually develop within the learner’s IL according to a particular typological hierarchy. The following table (Al Shatter, 2010; Mansouri, 1999a, 2005; Mansouri & Håkansson, 2007; Nielsen, 1997) summarises this typological hierarchy and identifies the specific linguistic features for each structure.

Table 2 Predictions for Arabic agreement structures

Level of information exchange	Linguistic context for structures	Processing procedures	Typological features
Inter-Clausal	Relativisation*	Subordinate clause procedure	Referential coherence (feature unification across clauses)
Inter-Phrasal	[+Hum] in VS(O)*	S-procedures	Reduced agreement: feature unification across constituents (Gender only)
Phrasal	[Pron (Topic)]; [N (Arg)]	S-procedures	Feature unification across constituents
	[+Hum] in SV(O); Subj (Pron)	S-procedures	Feature unification across constituents
	Dem-(al)-N*	Phrasal procedure	Feature unification within constituent
	N-Adj*	Phrasal procedure	Feature unification within constituent
Lexical	N-t*	Category Procedure	No information exchange
	V-affix	Category Procedure	No information exchange

In line with Table 2 above, this study predicts that learners of Arabic L2 will acquire the Lexical Category structures which include the [V-affix] structure and the [N-t] structure before the Phrasal structures which include the [N-Adj] structure and the [Dem-(al)-N] structures, and the Phrasal structure before the Inter-phrasal structure which includes the structures [+Hum] in SV(O); Subj (Pron), [Pron (Topic)]; [N (Arg)] and [+Hum] in VS(O), which in turn will be acquired before the Inter-clausal structures which include the relative clause structure only.

These predictions are based on the formal account conducted by the researcher (Al Shatter, 2007) as well as the predictions made by mainly Mansouri in earlier studies on the structures marked by a star in Table 2 (see Al Shatter, 2008, 2010; Mansouri, 1997, 1999b, 2005, 2007; Mansouri & Håkansson, 2007; Nielsen, 1997, for more information about efforts made to establish the hierarchy).

TEST STRUCTURES EMERGENCE

The results are presented in Table 3, Table 4 and Table 5 below. The first row marks the different developmental points in time in this corpus, and the far-left column shows the hypothesised structures based on PT-generated predictions, which are hierarchically arranged. Within the table, the emergence of a given structure is indicated by the symbol '+', structures that have not emerged are indicated by the symbol '-', structures with no linguistic context in the sample are indicated by the symbol '/' and insufficient production of the structure in the sample is indicated by the symbol '()'.

A test structure is assigned the mark '+' only if the learner produces a minimum of three positive tokens with a minimal pair of the structure with a different morphological marking and with different lexical items. However, if only two positive tokens out of three with a minimal pair of the structure with a different morphological marking and with different lexical items are reported in the learners' data, the structure is assigned the mark '+/-'. The structure is assigned the mark (1) when the learner produces only one token. The learners' data is shown in Table 4, Table 5, and Table 6.

OVERALL DEVELOPMENTAL ISSUES

The implicational analyses for the nine learners (Beginners: John, Mark and Alice, Intermediate: Chris, Jonathan and Kate and Advanced: Jessie, Shaam and George) showed that they produced the test structures according to the predicted processing hierarchy based on PT.

The three Beginners showed evidence of producing the two structures ([V-affix] and [N-*t*]) as early as Session Two, and then showed evidence that the structures developed at an adequate frequency. They also showed evidence of producing one structure ([N-Adj]) within the next stage (Phrasal procedure), (two Beginners Mark and Alice) at Time Five and Time Six. The data showed that two Beginners (John and Mark) produced the structure ([Pron (Top); [N (Arg)]] from the Inter-phrasal procedure stage at Time Two (Mark) and Time Six (John). One Beginner (Alice) produced one structure ([+Hum] in SV(O); Subj (Pron)) from this stage at Time Five and Time Six. However, no evidence of emergence was reported for the structure ([+Hum] in VS(O)) from the Inter-phrasal procedure level or the Relative Clause structure from the Inter-clausal level. The overall production pattern for the three Beginners is in line with PT's predictions apart from the production of the ([Dem-(*al*)-N]) structure where most of the data from the session provided insufficient evidence, or reported no context for the processing of this structure.

Table 3 The development of agreement morphology in Arabic L2 (Beginners)

Structure	John						Mark						Alice					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
Time																		
Inter-Clausal	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
Inter-Phrasal	Relativisation																	
	[+Hum] in VS(O)						/ / / / (O) (O) -						/ / / / / / /					
	[Pron(Topic)]; [N(Arg)]						(O) / (O) (O) (O) +						(O) (O) / (O) (O) (O)					
Phrasal	[+Hum] in SV(O); Subj (Pron)						/ / (O) / - (O)						/ +/ - / / / (O)					
	Dem-(a)-N						/ (O) / / / /						/ / - / / / / (O) /					
	N-Adj						/ / / (O) - -						/ / / / - / - +					
Lexical	N-t						/ + + - - +						/ + + + + + (1) (1) + +/ -					
	V-affix						/ / + + + +						/ / + + + +					

The Intermediate learners' data showed evidence that one Category procedure structure (V-affix) was produced as early as Session One and revealed steady development later. The other structure (N-*t*) was evident from Session One (Chris and Jonathan) and Session Three (Kate). The Intermediate learners then produced the two structures from the higher stage (Phrasal procedure). Chris was able to produce the structure [Dem-(*al*)-N] as early as Session One, however Jonathan was able to produce the structure at one occasion only and that was at Session Four. One Intermediate participant was able to produce the [N-Adj] structure as early as Session Three (Jonathan) and two others at Session Five (Chris and Kate). At the level of Inter-phrasal procedure, the first structure produced by the Intermediate learners was the structure ([+Hum] in SV(O); Subj (Pron)) which was first produced in Session One (Jonathan) and Session Five (Chris). The data showed that only one Intermediate learner (in this case Kate) produced the structure ([+Hum] in VS(O)) which belongs to the Inter-phrasal procedure level in the last session of the data collection period (Session Six).

The data also showed no evidence of producing the Relative Clause structure which belongs to the highest stage in the hierarchy (Inter-clausal procedure) by any of the Intermediate learners. The data showed that the overall IL development for the Intermediate group is consistent with the predicted sequence for Arabic L2 acquisition processability.

The data for Advanced learners showed that they produced all the Category procedures, one Phrasal procedure test structure (N-Adj) and one test structures from the Inter-phrasal procedure ([+ Hum] in SV(O); Subj (Pron)) as early as Session One. The data also showed that one Advanced learner (Shaam) produced the third test structure ([+Hum] in VS(O)) from the Inter-clausal procedure in Session Five and Session Six. George's data showed that he produced the highest stage structure (Relative Clause) only in Session Five. Except for the [Dem-(*al*)-N] structure, the production of the test structures by the Advanced level supports the prediction made by PT for the developmental stages of these structures.

Table 4 The development of agreement morphology in Arabic L2 (Intermediate)

Structure	Chris						Jonathan						Kate					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
Time																		
Inter-Clausal	/	/	/	/	/	(1)	()	/	/	/	/	/	/	/	/	/	/	/
Inter-Phrasal	/	/	(1)	/	()	/	/	/	()	/	()	(1)	/	/	()	/	-	+
	()	(1)	/	(1)	-	/	-	-	(1)	(1)	+	+	+	-	()	-	()	(1)
	[+Hum] in SV(O); [N (Arg)]	/	(1)	/	/	+	+	(1)	(1)	(1)	()	+	(1)	()	(1)	+	+	-
	[+Hum] in SV(O); Subj (Pron)	/	(1)	/	/	+	+	()	()	()	+	-	/	/	()	/	-	()
Phrasal	Dem-(al)-N	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	N-Adj	()	()	()	+	+	-	()	+	-	+	+	/	()	+	-	+	+
Lexical	N-t	+	(1)	(1)	+	+	+	+	(1)	(1)	+	+	(1)	(1)	+	+	+	+
	V-affix	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Table 5 The development of agreement morphology in Arabic L2 (Advanced)

Structure	Jessie						Shaam						George					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
Time																		
Inter-Clausal	/	/	/	/	/	/	/	/	(1)	/	(1)	/	/	/	/	+/-	+	/
Inter-Phrasal	()	/	/	/	(1)	(1)	/	/	()	(1)	+	+	/	(1)	(1)	/	/	/
Phrasal	[+Hum] in VS(O)						[Pron(Topic)]; [N(Arg)]						[+Hum] in SV(O); Subj (Pron)					
	+	+	+	+	+	+	+	()	(1)	(1)	(1)	(1)	+	+	+	/	+/-	+/-
	+	+	+	+	+	+	/	(1)	+	(1)	(1)	+	+	+	+	(1)	(1)	(1)
Lexical	Dem-(<i>al</i>)-N						N-Adj											
	/	/	()	/	()	/	(1)	+	+/-	(1)	+/-	+	-	(1)	-	-	()	/
V-affix	N-t						V-affix											
	()	()	/	+/-	()	+	(1)	+	+	+	+	+	+	+	+	+	+	+
	+/ -	+	(1)	+	()	+	+	(1)	+	+	+	+	+	+	+	+	+	+
V-affix	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

In general, the data showed that, while the Beginners were able to produce second (Category procedure) and third (Phrasal procedure) stage structures, and one learner (Alice in Session Five and Six) was able to produce one of the fourth stage structures (Inter-phrasal), the Intermediate learners were able to produce all the structures produced by the Beginners, plus all the structures from the fourth stage (Inter-phrasal procedure). However, one structure from the fourth stage was only produced by one Intermediate learner (Kate) and only in the final session (Session Six). At the same time, the data from the Advanced learners provided evidence that they produced all the test structures at every stage. However, the fifth stage structure (Relative Clause) was produced by one learner in Session Five only.

In general terms, this study has found that apart from a few cases (e.g., the [Dem-(a)l-N] structure), the overall processability hierarchy of the test structures is consistent with the prediction made for Arabic L2 morphological development based on PT's hypothesised hierarchy.

TESTING ARABIC L2 TEACHABILITY

This section discusses the impact of teaching on the acquisition of Arabic L2. First, it discusses the findings of Mansouri (1999b), then it discusses the findings of the current study. Mansouri found that 'the overall picture for the order of teaching objectives for morphological structures [in Arabic] is very inconsistent with the data-generated order' (1999b, p. 91). For instance, although the irregular plural and clitics were produced earlier in the curriculum, learners produced them at later stages. In contrast, the learners produced the case marking and the dual numbers structures at early stages, although they were introduced at later stages in the curriculum. According to Mansouri, 'learners disregard the explicitly stated learning objectives to develop the target language in the order most suitable and consistent with the realities of processing grammatical information in real-life speech production under time constraint factors' (Mansouri, 1999b, p. 92). These findings by Mansouri led him to conclude that in Arabic L2 acquisition 'teaching is only effective when it focuses on the linguistic structures learners are ready to process' (Mansouri, 1999b, p. 83).

The current study further examines the impact of teaching on the acquisition of Arabic L2. In this section, this study provides a description of the teaching objectives of a three year curriculum based on the syllabus and teaching materials that the participants used to study Arabic L2 at the Australian National University for the year 2005. Then, the section compares learners' IL development and order of acquisition based on (1) the findings of the current study as explained and discussed earlier and (2) the sequential order of teaching objectives as they were introduced in the syllabus.

TEACHING OBJECTIVES

Table 6, Table 7 and Table 8 display the test structures as they appear in the syllabus and teaching materials, either as target objectives or unintentionally embedded in the content over the three years of Arabic study. The sign X indicates that the structures were contained in the syllabus (i.e. a conscious attempt was made to teach them through intensive exercises). The sign (X) indicates that the structures were unintentionally embedded either in the passages or in the drills, but they were not targeted for teaching. And finally, the sign + indicates that the structure was processed by the learners according to the generated data for the three groups of learners. Cells are shaded to emphasise the point in time when the learners produced the test structure. The rules are spread over the three years of the course.

Table 6 shows that the Beginners produced the test structures only after formal instruction was conducted. On one single occasion, the ([Pron (Topic)]; [N (Arg)]) structure was produced at Time Two by one Beginner learner (Mark in this case) before formal instruction was conducted. However, the other two learners were not able to produce the structure until Time Six when it was produced by one learner (John).

Table 6 also shows that learners acted in two different ways when they produced the test structures. On the one hand, they produced some structures such as ([V-affix] and [N-t]) immediately after the structures were introduced into the syllabus. On the other hand, it took learners a long time to produce other structures such as ([N-Adj], [+Hum] in SV(O); Subj (Pron) and [Pron (Topic)]; [N (Arg)]). In addition, Beginners were unable to produce the ([Dem-(al)-N]) structure at all, although the structure was introduced formally as early as Time Two. The Beginners' behaviour is consistent with the PT prediction which states that formal instruction is not effective unless it focuses on the structures that learners are ready to process (Mansouri, 1999b).

Table 6 Beginners learning objectives as opposed to their IL development

Structure	T1 (Wk 11)	T 2 (Wk 15)	T3 (Wk 24)	T4 (Wk 28)	T5 (Wk 34)	T6 (Wk 37)
Relativisation						
[+Hum] in VS(O)	(X)	(X)	(X)	X	X	(X)
[Pron (Topic)]; [N (Arg)]	(X)	(X) +	(X)	(X)	X	(X) +
[+Hum] in SV(O); Subj (Pron)		X		(X)	(X) +	(X) +
Dem-(al)-N	(X)	X	(X)	(X)	(X)	(X)
N-Adj	(X)	X	X	X	(X) +	(X) +
N-t	X	X +	X +	X +	(X) +	(X) +
V-affix	X	X +	(X) +	X +	X +	(X) +

Apart from the ([Dem-(al)-N]) structure, the data shows that after the structures were formally introduced, Beginners produced structures belonging to lower stages in a shorter time than those belonging to higher stages in the Arabic L2 processability hierarchy. In some cases, they produced the structure 22 weeks after it was formally introduced (e.g., the [N-Adj] structure and the [+Hum] in SV(O); Subj (Pron) structure).

Table 7 below shows that similar to the Beginners, the Intermediate learners produced the structures only after they were formally introduced to them in the syllabus. It also shows that the learners produced the ([Pron (Topic)]; [N (Arg)]) structure a considerable time after it was formally introduced (28 weeks), while they produced the ([+Hum] in VS(O)) structure ten weeks after it was formally introduced.

Table 7 Intermediate learning objectives as opposed to their IL development

Structure	T1 (Wk 11)	T 2 (Wk 15)	T3 (Wk 24)	T4 (Wk 28)	T5 (Wk 34)	T6 (Wk 37)
Relativisation	(X)	(X)	(X)	(X)	(X)	(X)
[+Hum] in VS(O)	(X)	(X)	(X)	X	(X)	X +
[Pron (Topic)]; [N (Arg)]	X	(X)	(X)	(X)	X +	(X)
[+Hum] in SV(O); Subj (Pron)	(X) +		(X)	X	(X) +	X +
Dem-(al)-N	(X) +	(X)	(X) +	X +	(X) +	(X) +
N-Adj	X	(X)	(X) +	X	X +	X +
N-t	(X) +	(X) +	(X) +	(X) +	(X) +	(X) +
V-affix	(X) +	(X) +	(X) +	(X) +	(X) +	(X) +

Finally, Table 8 below shows that the Advanced learners produced the ([+Hum] in VS(O)) structure long after it was formally introduced. Given that they had formally learnt the structure when they were second year students, and that they had also learnt it very early during the third year, they were expected to produce the structure much earlier than Time Five. However, Table 8 also shows that the Advanced learners produced the Relative Clause structure shortly after the formal instruction took place.

The overall behaviour of the three groups of learners (Beginners, Intermediate and Advanced) shows that although formal instruction is necessary and although it plays an important role in Arabic L2 acquisition, the learners were not able to produce the test structures before they were developmentally ready.

Table 8 Advanced learning objectives as opposed to their IL development

Structure	T1 (Wk 11)	T 2 (Wk 15)	T3 (Wk 24)	T4 (Wk 28)	T5 (Wk 34)	T6 (Wk 37)
Relativisation	(X)	(X)	(X)	X	(X) +	(X)
[+Hum] in VS(O)	X	X	(X)	X	X +	X +
[Pron (Topic)]; [N (Arg)]	(X) +	(X) +	(X) +	(X)	(X)	X
[+Hum] in SV(O); Subj (Pron)	X +	X +	(X) +	X +	X +	(X) +
Dem-(<i>al</i>)-N	(X)	(X) +	X	X	(X)	(X) +
N-Adj	X +	(X) +	X +	(X) +	(X) +	(X) +
N- <i>t</i>	(X) +	(X) +	(X) +	(X) +	(X) +	(X) +
V-affix	X +	X +	X +	X +	X +	(X) +

The data in the current study supports the findings of previous studies which state that in order to obtain more effective L2 language learning, the focus of the teaching should be on the structures that the learners are ready to process (Di Biase, 2002a; Pienemann, 1998, 2005b).

ARABIC L2 SYLLABUS DESIGN

Syllabus design in general goes beyond the selection of teaching materials and content. It should consider every pedagogical aspect that plays a role in the process of teaching/learning. It involves the classroom environment, school environment, community, available resources, culture and sometimes values (Al Shatter, 2007).

L2 syllabus design is no exception. It involves the elements mentioned above, plus other factors specific to language learning in general, and to L2 learning in particular. For example, the influence of IL development is a factor that should be taken into account particularly when an L2 syllabus is designed (Gass & Selinker, 1994; Lowie & Verspoor, 2004;

Matthews & Yip, 2003; Odlin, 2003). Another factor is the particular sequence of L2 development that L2 learners follow in order to process particular structures. Here, the task of the L2 syllabus designer should be to consider all these factors in order to ensure effective teaching (Ur, 1996). One factor relevant to this study is the sequential development of Arabic L2. Earlier, the study had shown a particular order of development in Arabic L2 acquisition based on PT's understanding of the L2 development hierarchy. This section shows that this order is important for the design of an L2 syllabus and classroom activities.

According to Robinson (2001, p. 288), 'syllabus design is based essentially on a decision about the *units* of classroom activity, and the *sequence* in which they are to be performed, and these two decisions have consequences for the *role* of the learner in assimilating the language encountered in the classroom' (emphases in original). An important question at this point would be what sort of order should syllabus designers follow to organise these activities, and on what basis? One answer to this question can be found in PT's processability hierarchy of L2. For example, Kawaguchi (2002, p. 27), argued that 'L2 pedagogy has to consider the "psychological validity" of the syllabus in the sense that formal input should follow the natural order of acquisition'. In other words, syllabus designers need to account for the L2 learners' IL development based on the order predicted by PT.

Based on the findings of the current study, an Arabic L2 syllabus should take into account the sequential order of the acquisition of Arabic L2 processability hierarchy. That is, they need to consider the order in which Arabic L2 rules are introduced according to the learners' ability to process them. Therefore, an objective such as "to explain roommate's daily activities" is inappropriate for early lessons in a Beginners syllabus, because the learners are not ready to process structures where S-V agreement is required. Similarly, the content should not introduce these structures at this stage, because learners will not benefit from them. On the other hand, an objective such as "to describe classroom objects" could be considered appropriate for Beginners, because they are ready to process the ([N-Adj]) structure. Similarly, it is suitable to include expressions with the ([N-Adj]) structure in the content of the teaching materials because Arabic L2 Beginners are ready to benefit from them. However, it is worth mentioning at this stage that while it is recommended to observe the sequential order as predicted by PT in L2 teaching and syllabus design, 'teachers [and syllabus designers] may not have to radically alter what they teach, just the order in which they teach it' (Cook, 2006). It is also worth mentioning that the current study acknowledges the role of other pedagogical and acquisitional aspects such as chunk learning, individual differences, class environment, language transfer, formulaic utterances, etc, in L2 acquisition. However, in order to establish a better understanding of the role of these aspects against the

role of PT's hierarchy in L2 teaching and learning, we need to carry out more research focusing on the relationship between these aspects and PT's hierarchy.

CONCLUSION

This study showed that while formal instruction plays an important role in SLA, it is not effective unless it focuses on the structures that learners are ready to process. The data from the current study supports the findings of other studies conducted to test PT's claims regarding the processability hierarchy of L2 acquisition on Swedish, Italian, Japanese, Chinese and Arabic. These studies agree that improved L2 language learning is obtained when the focus of the teaching is on the structures that the learners are ready to process (Di Biase, 2002a; Pienemann, 1998, 2005b).

Based on the current study's data, Arabic L2 learners produced target structures according to the predicted processability hierarchy regardless of the time they were introduced. Learners spent longer time acquiring a structure at a higher stage when that structure was introduced earlier than it should be. Although some target structures from the two highest stages were introduced very early, beginners and intermediate learners' data show no evidence that they were produced during the entire data collection period.

Finally, the sequential order that the current study and other Arabic L2 acquisition studies (e.g., Mansouri, 1999a, 1999b; Mansouri & Håkansson, 2007) predicted for Arabic L2 processability hierarchy should be considered by Arabic L2 syllabus designers. This study suggests that the implementation of the processability approach will lead to an effective syllabus and productive formal instruction.

REFERENCES

- Al Shatter, G. (2007). Implementation and evaluation of new learning approach in Arabic: Implications for translator training. *Translation Watch Quarterly*, 3(1), 94-119.
- Al Shatter, G. (2008). The development of verbal structures in L2 Arabic. In J.-U. Kessler, (Ed.), *Processability approaches to second language development and second language learning* (pp. 267-299). Newcastle, UK: Cambridge Scholars Pub.
- Al Shatter, G. (2010). *Acquisition and development of nominal and verbal structures in Arabic: Agreement morphology in second language acquisition*. Saarbrücken: VDM, Verlag Dr. Müller.
- Cook, M. (2006). The multidimensional model, processability theory and the teachability/learnability hypothesis: Suggestions for the Japanese context. *Journal of the Faculty of Global Communication, Siebold University of Negasaki*, 7, 1-7.
- Dekeyser, R. (2003). *Implicit and explicit learning*. Malden, MA: Blackwell.

- Di Biase, B. (Ed.). (2002a). *Developing a second language: Acquisition, processing and pedagogy of Arabic, Chinese, English, Italian, Japanese, Swedish*. Melbourne: Language Australia.
- Di Biase, B. (2002b). Focusing strategies in second language development: A classroom-based study of Italian L2 in primary school. In B. Di Biase, (Ed.), *Developing a second Language: acquisition, processing and pedagogy of Arabic, Chinese, English, Italian, Japanese, Swedish* (pp. 95-120). Melbourne: Language Australia.
- Di Biase, B. & Kawaguchi, S. (2002). Exploring the typological plausibility of processability theory: language development in Italian second language and Japanese second language. *Second Language Research*, 18 (3), 272-300.
- Doughty, C. J. (2003). *Instructed SLA: Constraints, compensation, and enhancement*. Malden, MA: Blackwell.
- Ellis, R. (1990). *Instructed second language acquisition: Learning in the classroom*. Oxford: Blackwell.
- Ellis, R. (1999). *Learning a second language through interaction*. Amsterdam; Philadelphia: John Benjamins.
- Gass, S. M. & Selinker, L. (1994). *Second language acquisition: An introductory course*. Hillsdal, New Jersey Hove and London: Lawrence Erlbaum Associates.
- Håkansson, G. (2002). Learning and teaching of Swedish: a Processability perspective. In B. Di Biase (Ed.), *Developing a second language: Acquisition, processing and pedagogy of Arabic, Chinese, English, Italian, Japanese, Swedish* (Vol. 10) (pp. 7-16). Melbourne: Language Australia.
- Kawaguchi, S. (2002). Grammatical development in learning of Japanese as a second language. In B. Di Biase (Ed.), *Developing a second language: Acquisition, processing and pedagogy of Arabic, Chinese, English, Italian, Japanese, Swedish* (Vol. 10) (pp. 17-29). Melbourne: Language Australia.
- 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. 253-298). Amsterdam; Philadelphia: John Benjamins.
- Larsen-Freeman, D. & Long, M. H. (1991). *An introduction to second language acquisition research*. London; New York: Longman.
- Lenzing, A. (2008). Teachability and learnability: An analysis of primary school textbooks. In J. KeBler (Ed.), *Processability approaches to second language development and second language learning* (pp. 221-241). Newcastle: Cambridge Scholars Publishing.
- Long, M. H. (1988). Instructed interlanguage development. In L. M. Beebe, (Ed.), *Issues in second language acquisition: Multiple perspectives* (pp. 115-141). New York: Newbury House.
- Lowie, W. & Verspoor, M. (2004). Input versus transfer? - the role of frequency and similarity in the acquisition of L2 preposition. In M. Achardand & S. Niemeier, (Eds.), *Cognitive linguistics, second language acquisition, and foreign language teaching* (pp. 77-93). Berlin; New York: Mouton de Gruyter.
- Macaro, E. (2003). *Teaching and learning a second language: A review of recent research*. London; New York: Continuum.
- Mansouri, F. (1997). From emergence to acquisition: Developmental issues in agreement marking among Australian learners of Arabic. *The Australian Review of Applied Linguistics*, 20(1), 83 - 104.

- Mansouri, F. (1999a). Interlanguage syntax in Arabic as a second language: A processability theory perspective. *Languages and Linguistics*, 4, 45-71.
- Mansouri, F. (1999b). *The acquisition of Arabic as a second language: From theory to practice*. Sydney: University of Western Sydney, Macarthur.
- Mansouri, F. (2005). Agreement morphology in Arabic as a second language: Typological features and their processing implications. In M. Pienemann (Ed.), *Cross-linguistic aspects of processability theory* (pp. 117-154). Amsterdam; Philadelphia: John Benjamins.
- Mansouri, F. (Ed.). (2007). *Second language acquisition research: Theory-construction and testing*. Newcastle: Cambridge Scholar Press.
- Mansouri, F. & Håkansson, G. (2007). Intra-stage developmental order: Empirical evidence from Arabic and Swedish as second languages. In F. Mansouri, (Ed.), *Second language acquisition research: Theory-construction and testing* (pp. 95-118). Newcastle: Cambridge Scholar Press.
- Matthews, S. & Yip, V. (2003). Relative clauses in early bilingual development: Transfer and universals. In A. Giacalone Ramat, (Ed.), *Typology and second language acquisition* (pp. 39-81). Berlin; New York: Mouton de Gruyter.
- McLaughlin, B. (1987). *Theories of second language learning*. London; New York: Arnold, Edward.
- McLaughlin, B. (1990). "Conscious" versus "unconscious" learning. *TESOL Quarterly*, 24(4), 617-634.
- Nielsen, H. L. (1997). On acquisition order of agreement procedures in Arabic learner language. *Al-Arabiyya*, 30, 49-95.
- Odlin, T. (2003). *Cross-linguistic influence*. Malden: Blackwell.
- Pienemann, M. (1989). Is language teachable? Psycholinguistic experiments and hypotheses. *Applied Linguistics*, 10 (1), 52-79.
- Pienemann, M. (1998). *Language processing and second language development: Processability theory*. Amsterdam: John Benjamins.
- Pienemann, M. (2005a). An introduction to processability theory. In M. Pienemann (Ed.), *Cross-linguistic aspects of processability theory* (pp. ix-60). Amsterdam; Philadelphia: John Benjamins.
- Pienemann, M. (Ed.). (2005b). *Cross-linguistic aspects of processability theory*. Amsterdam; Philadelphia: John Benjamins.
- Rivers, W. M. (1991). Psychological validation of methodological approaches and foreign language classroom practices. In B. F. Freed (Ed.), *Foreign language acquisition research and the classroom* (pp. 283-294). Lexington; Massachusetts; Toronto: D. C. Heath and Company.
- Robinson, P. (2001). *Cognition and second language instruction*. Cambridge: Cambridge University Press.
- Ur, P. (1996). *A course in language teaching: Practice and theory*. Cambridge: Cambridge University Press.
- Zhang, Y. (2005). Processing and formal Instruction in the L2 acquisition of five Chinese grammatical morphemes. In M. Pienemann (Ed.), *Cross-linguistic aspects of processability theory* (pp. 155-177). Amsterdam; Philadelphia: John Benjamins.