



The Role of the Cognitive Knowledge in CLI in Acquisition of English as the Third Language by Persian Bilinguals

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Abstract

This study aimed at finding the impact of the cognitive status of the structures on the acquisition of third language (L3) English at the initial stages. To measure implicit and explicit knowledge, 85 participants were tested regarding placement of adjective phrase (AP) and partitive structure (PS) by using four instruments: a timed and an untimed grammaticality judgment tasks, a metalinguistic knowledge test, and an elicited oral imitation task. The participants included four groups; the first two had Azeri as their L1 and Persian as their L2, but used Azeri and Persian as the language of communication (LOC) respectively, and the third one had Persian as the L1, Azeri as the L2, and Persian as LOC. The control group used Persian as the L1 and English as the L2. While AP in English and Azeri has similar pre-nominal syntax, in Persian, it is post-nominal. Unlike AP, PS which specifies the parts out of a whole (e.g., two of my brothers) patterns similarly in Persian and English, meaning the part-whole pattern, whereas in Azeri the whole precedes the part. The results challenge the previous models (e.g., the L1 Factor, Hermas, 2010; the L2 Status Factor, Bardel & Falk, 2007; the Cumulative Enhancement Model, Flynn et al., 2004; the Typological Proximity Model, Rothman, 2010) and are compatible with the Contact Language of Communication (Fallah et al., 2016). Considering cross-linguistic influence as an ongoing dynamic phenomenon, this study proposes that at the initial stages of TLA, the cognitive status of structures is the main determining factor in specifying the source of syntactic transfer.

Keywords: Cross-Linguistic Interface, Dynamic System of Multilingualism, Third Language Acquisition, Syntactic Transfer

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1. Introduction

Based on evidences found in emergentist models and supported by psycho and cognitive linguistic studies, linguistic knowledge is realized in the learners' mind as explicit and implicit knowledge and kept in distinct areas of the brain (Paradis, 1994, 2009; Ullman, 2001, 2004, 2005). Focusing on the form in which linguistic knowledge is stored and sustained in the brain, or cognitive status of the linguistic knowledge, some researchers investigated the nature and operational definition and measurement of explicit/implicit knowledge. However, they applied different terminologies; subconscious and conscious knowledge (Krashen, 1981, 1982), practical and technical knowledge (Ellis, 1997), procedural and declarative knowledge (Anderson, 1983). Although these researchers did not agree on true nature of explicit/implicit knowledge (Bialystok, 1994; Hulstijn, 2007; Paradis, 1994), there was a consensus among them to attribute the difference between these two forms of cognitive knowledge to a set of factors; the presence or absence of awareness, consciousness or unconsciousness, ability to verbalize the structures, controlled or uncontrolled access to linguistic competence, the amount of time available to access the knowledge, or as Paradis (2004, p. 8) cited Cohen and Squire (1980) to 'knowing how' and 'knowing that'.

Nevertheless, in studies in third language acquisition (TLA) the cognitive status of structures has not drawn significant attention. If language knowledge is stored and sustained differently in implicit/explicit form, it is of utmost necessity to investigate the source(s) of syntactic CLI with respect to such a difference. Although implicitness or explicitness of linguistic knowledge has been a matter of investigation in a couple of second language acquisition (SLA) studies (Activation Threshold Hypothesis (ATH) Paradis, 2004, the Declarative/Procedural model (DP) Ullman, 2001), such a pursuit has remained roughly untouched in TLA. Fallah et al. (2016) in their proposal "Contact Language of Communication" (CLC) highlighted the role of implicitness, not directly though, in specifying the source of CLI in acquisition of English as an L3. However, as a separate proposal such a stand has not been suggested so far.

As a result, this study is an attempt to support this claim that the implicitness/explicitness of the structure plays a determining role in the probable transfer of that structure. In other words, it investigated the role of cognitive status of structures in determining the source of syntactic transfer in TLA. To achieve this aim, the researchers studied the acquisition of two structures, adjective phrase (AP) and partitive structure (PS) by Iranian bilinguals learning L3 English. The rationale for choosing these two structures is as follows: Firstly, English and Azeri have similar pattern in the AP structures, which means adjectives precede nouns. In contrast, adjectives appear post-nominally in Persian. And in the case of partitive structure,

English and Persian have similar pattern, i.e. in both of them the part precedes the whole while in Azeri the pattern is exactly reversed, i.e. the whole comes before the part.

Secondly, investigations done to unveil the role of factors triggering implicitness of the linguistic elements highlighted the role of frequency. For example, Ellis et al. (2008) and Ellis and Simpson-Vlach (2009) applied a variety of experimental instruments to show the way corpus linguistic indices of mutual information, which is a statistical measure that shows the coherence of word groups, and frequency was realized in an implicit way in native and non-native speakers. The findings stressed that for non-native speakers, the frequency was the major determinant. Concerning the present study, the frequency of AP structures is significantly higher in comparison to that of PS based on the corpora like iWeb and NOW. As a result, regarding the ATH, there is a higher probability for AP to become implicit and consequently less prone to be under CLI (Ellis, N. C 2002, 2015).

Furthermore, many novel studies probed the sources of transfer in the TLA to shed light on L3 acquisition process. They tried to explore what linguistic background specified the source of CLI in L3 acquisition. Some like Hermas (2010, 2014a, 2014b) insisted on continuity of UG dominance and brought evidence to accentuate the L1 as the source of transfer (L1 Factor), others like Bardel and Falk, (2007); Falk and Bardel, (2011), emphasized the similarity between L2 and L3 acquisition process and their place of storage and considered the L2 (L2 Status) as the main source of transfer. Other scholars provided some evidence for a selective realization of both the L1 and L2. Flynn et al. (2004) highlighted the facilitative source of transfer, no matter the L1 or L2: The Cumulative Enhancement Model (CEM), Rothman, (2010, 2011, 2013, and 2015) brought evidence to support this claim that the typological closeness between two linguistic systems specified the source of transfer: Typological Proximity Model (TPM). And Fallah et al. (2016) considered the dominant language of communication: Contact Language of Communication (CLC), to be the determining factor in CLI. This study, however, aimed at finding which of these proposals, if any, could better elaborate the source of CLI at the initial phases of the TLA in Persian bilinguals in a setting in which L1 and L2 acquisition happen in childhood while later on, L3 acquisition occurs formally in a foreign language context.

To sum up, the aim of the present study was to find if cognitive status of the structure has any role in specifying the source of transfer in syntactic structure in TLA. More specifically, it attempts to find answers for these questions

1. Does cognitive status of the structure have a significant role in specifying the source of transfer?
2. Is implicitness/explicitness of the structures a significant determining factor in syntactic transfer in TLA?
3. Is transfer a non-linear and dynamic phenomenon rather than a linear and static one?

2. Literature Review

Linguistically speaking, there are few practical instruments by which the process of additional language acquisition can be validly explained and theorized. As there is no direct access to what is going on in a multilingual mind, the study of transfer has been one of the key sources of discovering the nature of L3/Ln acquisition and a way to support the confirming evidence to test the hypothesis (Cook & Newson 2007). Moreover, the term cross linguistic influence (CLI) is preferred rather than transfer as “it covers the transfer phenomenon in both directions, i.e., both positive and negative”, Kellerman and Sharwood (1986, p. 1). Consequently, lots of studies in the last decade have been exploring the type and source of transfer in L3 to find some rationale to justify a comprehensive theory of L3 acquisition Flynn et al., (2004), Bardel and Falk (2007), Hermas (2010), Rothman and Cabrelli Amaro (2010) to name a few. These studies have been done to find the source of transfer regarding the CLI in L3. However, three major trends of studies have been dominant in this discipline which emphasizes the L1, L2, or a selective realization of both as the origin of CLI in TLA. What follows is a critical description of these lines of research.

2.1. L1 or L2 Factor

Two main studies emphasize either the L1, “L1 Factor” Hermas (2010) or L2, “the L2 Status” Bardel and Falk (2007), to be the primary source of CLI in TLA. Regarding continuity of UG as the major player in TLA, Hermas (2010) explored the role of L1 Arabic and/ or L2 French on the beginner L3 learners acquiring restrictive relative clauses in L3 English in the initial phases of the L3 acquisition. His results showed that transfer from L1 Arabic negatively affected the L3 English syntactic structures in the initial stages. (the L1 Factor, Hermas, 2010, 2014a, 2014b).

The other dominant study bolded the location where the non-native languages (L2 and L3) were stored i.e., declarative memory which is different from that of L1 which is in procedural one. As the name implies, the L2 Status Factor (Bardel & Falk 2007; Falk & Bardel 2011) maintained that in comparison to the L1, the L2 played a more significant part in the initial stages of L3 morphosyntax. Theoretically, the L2 was suggested to act as an obstacle to L1 grammar. In their research (Bardel & Falk, 2007) two groups

of participants acquiring an L3 (Swedish or Dutch) with distinct linguistic repertoire were studied. They claimed that the results vividly indicated that grammar was transferred with more ease from L2 than from L1 in the early stages of TLA. Therefore, they regarded the L2 as the primary source of CLI (the L2 Status, Bardel & Falk, 2007; Falk & Bardel, 2011). To test this hypothesis that the L2 was the major source of CLI, Bardel and Falk (2007) tested two distinct sets of participants: L1 non-V2/L2 V2 and L1 V2/L2 non-V2 who were acquiring an L3 (Swedish or Dutch), with a focus on placing negation. Various scenarios were developed based on different models like No Transfer, the L1 Factor, and the CEM which all explained the source of transfer. Their data, however, supported the prominence of the L2 as the determining factor. Although Bardel and Folk (2007) investigated syntactic structure, they asserted that many studies in the L2 status have been on vocabulary, and due to the storage of lexical property of language in declarative memory (Paradis, 2004), such evidence seemed to be not fully applicable to syntactic structure.

2.2. A Selective Realization of L1 and L2

Instead of a compartmental look at either the L1 or L2 to be the only candidate for probable transfer in TLA, a body of studies considered both the L1 and/or L2 to act selectively as a source of transfer. Although this line of inquiry claimed a selective CLI both from the L1 and L2, such a procedure has not been the same in the proposed models.

The Cumulative-Enhancement Model (CEM) (Flynn, 2004) highlighted the cognitive economy principle, which stressed that mind would not redo any activity done before (Rothman, 2013). In the case of language acquisition, mind avoids acquisition of anything previously acquired through the L1 or L2. In other terms, CEM focused on the facilitative role of the transfer, no matter from the L1 or L2, and considered this facilitative effect as a determining factor of transfer otherwise neutral. Meanwhile, it asserted that multilingualism would be realized by a cumulative trace of all one's previous linguistic repertoire. In other terms, all properties which have already been acquired would be theoretically available to L3/Ln learners. CLI, however, is supposed to be maximally facilitative rather than random. In this sense, the transfer of existing linguistic knowledge is assumed to happen in the process of TLA if such knowledge has a positive impact; if not, a transfer is not supposed to occur. The significant feature of CEM is having a property-by-property basis instead of a holistic view toward CLI in L3 acquisition.

Other models like the Typological Proximity Model (TPM) (Rothman, 2010, 2011, 2013, 2015) considered the overall psycho/typological closeness, or proximity of the linguistic system of the

languages as the main justification for the type of the transfer. TPM claimed that both the L1 and/or L2 would have the potentiality to be transferred to the L3 both facilitatively and non-facilitatively. Rothman stated that CLI in a multilingual mind was set selectively which in turn was the result of linguistic cues interpretation by the parser Rothman (2015, p. 11). The linguistic closeness is determined by the linguistic parser based on a hierarchy of four linguistic cues which are as follows: the lexicon, phonological cues, functional morphology and syntactic structure. It was claimed that the main source of transfer is the linguistic system which has more structural proximity with L3. The TPM and the CEM jointly claim that both already acquired systems can be a major source of CLI. In a different route though, the TPM proposed that either actual typological proximity or psychotypological proximity, which is perceived typological closeness among the existing grammars, specified the source of transfer. TPM suggests that while the parser is in his early L3 acquisition stage and has limited exposure to the L3/Ln, he evaluates the typological closeness and chooses the more probable system to be transferred. While there is a consensus between the TPM and CEM on the cumulative impact of multilingual CLI, only the TPM stresses the probability of transfer which can be non-facilitative. Such a possibility emerges from a psycho/typological misanalysis which specifies whether L1 or L2 syntax can be applied for making a hypothesis regarding any L3 structure. Rothman (2010) tested TLA models of the CEM, the TPM, and the L2 status regarding the acquisition of L3 Brazilian Portuguese relative clause attachment preference and also restrictions in word order. Such pairings seem plausible since although Spanish and Brazilian Portuguese have more vivid typological proximity, Brazilian Portuguese is mainly ordered like English, rather than Spanish in these related areas. The results demonstrated that while regardless of order of acquisition English would seem to be a more facilitative option, Spanish was transferred. This was considered as a supporting evidence for the TPM and unlike the claim of the CEM and the L2 Status Factor.

Moreover, in a recent attempt, the Contact Language of Communication (CLC), Fallah et al. (2016), the language in use was considered to be the source of transfer. This model claimed that the determining factor in CLI in TLA is neither psycho/typological proximity of linguistic systems, nor the continuity of UG in later acquisition process, and nor the place of storage of linguistic knowledge. Though not directly, the CLC implied the effect of implicitness on CLI. By taking contact language as the main determining factor of the source of CLI, it can be logically concluded that the ATH (Paradis, 2008), the Declarative/Procedural (DP) model (Ullman, 2001), or Adaptive Control of Thought (Anderson, 1983) has been the basis of such a phenomenon. In addition, CLC resembles the TPM,

as both have a holistic view toward CLI in TLA rather than a property-by-property view as that of the CEM.

2.3. Dynamic System of Multilingualism

By applying the principles of Dynamic System Theory (DST) to SLA (Larsen Freeman, 1997) and emergence of a critical comparison between linear and non-linear process of additional language acquisition, a dynamic look at multilingualism (such as Dynamic System of Multilingualism (DSM), Herdina and Jessner (2002) has been prioritized rather than a compartmental linguistic-specific view. A dynamic non-compartmental view would entail an interconnected, non-linear, and ongoing nature for additional languages acquisition. Unlike the existing tenets which advocate a distinction between L1 and Ln systems and believe in allocation of subsystems like syntax and lexicon to each language separately, models such as DSM present an interconnected dynamic linguistic system which presupposes the interrelation and mutual influence of subsystem elements of different linguistic systems such as syntactic features. In this paradigm, there is an ongoing, structure-by-structure, and sinuous competition between all existing linguistic elements in syntactic, lexical, and phonetic subsystems of a multilingual mind which causes the probability of their activation or attrition. Considering this fact, the pairings of structures and linguistic systems in the present study allowed the researchers to show that the cognitive status of structures in a multilingual mind was a changeable construct, which dynamically determined the source of transfer in TLA. In other terms, CLI was under non-linear ongoing probability of activation or attrition.

2.4. Syntax of the Structures

Two structures of AP and PS have been used to test the CLI in L3 acquisition. Both of these structures have different syntax in pairings of three languages in this study. The syntactic structures of these two are presented next.

2.4.1. Syntax of Adjective Phrase

Typologically speaking, although Persian and Azeri are subgroups of Indio-Iranian languages, they have different syntax in nominal modifiers. Regarding Persian, the head nouns precede modifiers while between them there is an Ezafe particle (EZ). As a result, in Persian, different noun complements like attributive nouns and adjectives and possessives come after nouns. In Azeri, however, modifiers are prenominal and are attached to nouns. The attributive adjectives appear on the right side of Persian EZ (Dabir Moghaddam, 2006; Larson, 2009), whereas Azeri, like English, places attributive adjective before noun to its left. Unlike Azeri and English in which attributive adjectives normally come before head nouns, in Persian

head nouns are followed by attributive adjectives, as shown in the sentences 1 to 3:

Persian (1) Yek ketab-e khub

a book e-EZ good

‘a good book’

Azeri (2) Bir iy kitab

a good book

‘a good book’

English (3) ‘a good book’

2.4.2. Syntax of Partitive

If one wishes to individuate mass nouns, he usually does this by using another noun which designates the unit to which the mass noun refers. In this way, it makes a more complex structure called the partitive: for example, “two of the girls”. English and Persian have the same PS syntax, whereas the partitive definite quantifier in Azeri appears in a structure of Quantifier-Head inversion; i.e., the regular position of the quantifier changes with that of the head noun. The canonical head noun, suffixed by the ablative or genitive suffix, occupies the position of pre-nominal modifier. It functions as the "whole" entity to be parted. The quantifier-turned-head is made definite by adding the definite suffix - (si) to quantifiers. When the modifier-noun is with the genitive suffix, the NP as a whole takes a structure exactly like that of the possessive construction.

Persian (4) Do ta az dokhtarha

two of (the)girl PL

‘two of the girls’

Azeri (5) qız-lar-in iki-si

(the) girl-PL-GEN two-3S.PO

‘two of the girls’

English (6) ‘two of the girls’

Table 1

AP and PS Syntax in Persian, Azeri, and English

Language	Adjective Phrase	Partitive Structure
Persian	noun e-ezafe adj ketab-e khoob book e-ezafe good 'a good book'	part prep(ta) prep(æz) whole PL noun se ta az dokhtaran three of girls 'three of the girls'
	adj noun gozæl qiz beautiful girl 'a beautiful girl'	whole noun PL Gen part Po qiz-lar-in iki-si (the) girl-PL-GEN two-3S.PO 'two of the girls'
English	Det adj noun a good book	part + prep 'of' Gen Det whole noun Pl two of the girls

To investigate the role of cognitive status of the structures in CLI in TLA, four groups of participants learning English as L3 or L2 with these linguistic repertoires were selected:

- L1 Azeri / L2 Persian speakers with Azeri as the LOC (Azeri 1);
- L1 Azeri / L2 Persian speakers with Persian as the LOC (Azeri 2);
- L1 Persian / L2 Azeri speakers with Persian as the LOC (Persian group); and
- L1 Persian and L2 English with Persian as the LOC (control group)

Table 2

The Order of AP and Partitive Structure across Three Languages.

	Azeri	Persian	English
AP	adjective+ noun	noun+ adjective	adjective +noun
PS	whole+ part	part+ whole	part+ whole

Thanks to these language pairings, the following hypotheses were tested (see Table 3 and 4):

1. The L1 specifies the source of transfer at the initial stages of TLA (the L1 Factor). If this scenario happens, in AP both the Azeri 1 and 2 have no serious troubles placing adjective pre-nominally because of the similarity in L1 Azeri and L3 English word order in the target structures. In contrast, it would be possibly more challenging for the Persian and control groups (L1 Persian) to place adjectives before nouns like English word order in comparison to the Azeri 1 and 2 groups. So, both the Azeri 1 and 2 should be better than the Persian groups. Unlike AP, the partitive structure is the other

way round. That is while both the Azeri 1 and 2 would have more problems in placing part before the whole due to resemblance to the pattern in English, the L1 Persian groups would have less difficulty in placing part before the whole compared with L1 Azeri groups.

2. The L2 determines the source of transfer at the early stages of L3 acquisition (the L2 Status). If the L2 dominates the L1 in terms of transfer in TLA, in AP structures it seems likely that the Azeri 1 and 2 transfer their L2 Persian causing a detrimental effect. On the contrary, the Persian group is supposed to transfer L2 Azeri which brings about a merit for this group at initial stages. So, the Persian group should be superior to both the Azeri 1 and 2 in all the tasks. The control group cannot be considered a valid candidate for this comparison as participants have only two languages in their linguistic repertoire. In partitive structure, however, the reverse prediction would work. Regarding the syntactic resemblance in the partitive structure between Persian and English, the Azeri 1 and 2 would have a privilege over the Persian group in placing the part before whole like that of English as they both acquired Persian as their L2. In the same vein, the Persian group would have more difficulty in this regard due to difference in their L2, Azeri, with English structure of partitive. The same argumentation in not viewing the control group is valid for this structure, either.

3. Based on the CEM, the previous languages would either stay neutral or ease the L3 acquisition. If this comes true for AP, all participants are supposed to transfer Azeri no matter it is their L1 or L2, causing facilitative effects for the first three groups. For the control group the learners have only the L1 in their background, then it could be claimed that there is no point in checking CEM because there have to be two languages involved in this model. Based on this model, therefore, the three groups' results on the tasks would bring about no significant difference. The same justification would work for partitive structure except the priority of Persian structure as a facilitative transfer in all groups but the control one.

4. If transfer happens based on the TPM, then the typological proximity should be the main player. Based on Rothman's model (2013), the linguistic parser who subconsciously processes the structural linguistic cues would decide the underlying structural proximity. As Rothman proposes, this process is initiated by the lexicon and followed by phonological, morphological and syntactic cues. Regarding the language pairings in this study, Azeri and Persian have no vivid lexical, phonological and morphological proximity to English. However, in terms of syntactic cues and compared to Persian, Azeri has more structural similarity to English regarding AP. On the other hand, the same closeness applies to Persian and English in terms of partitive structure. Therefore, according to the TPM, Azeri would specify the source of transfer at the early phases of L3 English

acquisition of AP, causing facilitative impact on all groups but the control one. Furthermore, the same argumentation favors Persian as the deterministic source of CLI in partitive structure for all groups. Thus, its prediction is like that of CEM which both contradict this study.

5. The contact language of communication (CLC) triggers CLI at the early phases of TLA. Accordingly, Azeri 1, with Azeri as the CLC, would put adjective after nouns, as L3 English. In reverse, the Azeri 2, Persian and control groups who used Persian as the CLC, would find it hard to put adjectives in prenominal position. Therefore, the Azeri 1 would outperform the Azeri 2, Persian and control groups in all the tasks. For partitive structure the Azeri 1 would have more difficulty due to different structures in Azeri and English, while the other three groups, the Azeri 2, Persian, and control groups would outperform the Azeri 1.

6. The cognitive status of the structures is deterministic factor specifying the source of CLI. If the implicitness index of a structure in L3 is significantly high, any negative transfer must be blocked from the L1 and/or L2. On the contrary, in the case of high performance in explicit knowledge tests, it would be the next highly activated language which would determine the source of transfer. For the Azeri 1, it would be Azeri as it is the contact language of communication, and for the remaining three groups it would be Persian which is either the contact language for the Azeri 1 and Persian groups or the L1 for the control group. The only point remained is the frequency index of AP and PS which would be a fundamental factor in decreasing the threshold of their activation and, in turn resulting in their implicitness. The frequency has been regarded as a main factor to turn the linguistic unit to implicit state as N. Ellis (2015) states: "...learners are sensitive to the frequencies of occurrence of constructions and their transitional probabilities, and that they have learned these statistics from usage, tallying them implicitly during each processing episode." (N.C. Ellis in P. Rebuschat 2015, P. 11). Based on the corpora (like iWeb and NOW, for example) the frequency index of AP structures is significantly more than that of PS. As a result, based on the ATH and D/P Model, AP is more prone to become implicit in comparison to PS. Consequently, considering higher probability of becoming implicit, AP English structure would be the deterministic source of transfer for all four groups. However, due to less frequency and lower chance of implicitness of PS in early stages of TLA, it is "contact language of communication" which would play the prominent role in CLI since it is both the next highly activated linguistic system and the next probable candidate for becoming implicit. Therefore, for PS it would be predicted that the Azeri 2, Persian, and control groups would outperform the Azeri 1 because of the similar pattern of PS in English and the contact language of these groups, Persian.

Table 3

Predictions for Language Transfer of AP at the Initial Stages of L3 English Based on Six Scenarios

Language	Azeri 1	Azeri 2	Persian	Control
Scenarios				
L1 Factor	Azeri (D)	Azeri(D)	Persian(F)	Persian(F)
L2 Status Factor	Persian(D)	Persian(D)	Azeri (D)	—
Cumulative enhancement Model	Persian(F)	Persian(F)	Persian(F)	Persian(_)
Typological Proximity Model	Persian(F)	Persian(F)	Persian(F)	Persian(F)
Language of Communication	Azeri(D)	Persian(F)	Persian(F)	Persian(F)
Automaticity of the Structure	Azeri(D)	Persian(F)	Persian(F)	Persian(F)

Table 4

Predictions for Language Transfer of PS at the Initial Stages of L3 English Based on Six Scenarios

Language	Azeri 1	Azeri 2	Persian	Control
Scenarios				
L1 Factor	Azeri (F)	Azeri(F)	Persian(D)	Persian(D)
L2 Status Factor	Persian(D)	Persian(D)	Azeri (F)	—
Cumulative enhancement Model	Azeri (F)	Azeri (F)	Azeri (F)	Persian (_)
Typological Proximity Model	Azeri (F)	Azeri (F)	Azeri(F)	Persian(D)
Language of Communication	Azeri(F)	Persian(D)	Persian(D)	Persian(D)
Automaticity of the Structure	Azeri(F)	Azeri(F)	Azeri(F)	Persian(N)

Note. D = detrimental transfer; F = facilitative transfer; N= neutral

3. Method

3.1. Participants

Eighty-five participants who were learning English as their L3 or L2 were selected in Qom, Iran. A large number of people in this city were Azeri bilinguals who either immigrated from Azeri provinces or were born to such families in Qom. Persian as the official language is the dominant language. English is added at the age of thirteen to the formal curriculum in grade 7. The researchers applied a convenient sampling method and the participants were selected from two schools in major Azeri speaking districts in Qom. All participants were 8th grade males with the age range between 14 and 15, mean = 14.13 and in the elementary level of their L3. After a minimum of 72 in grade 7, and 22 to 26 hours (mean 24.06) of teaching in 8th grade of

secondary schools, they were roughly in the early state of L3 English acquisition. In addition, no prior language institute instruction was provided for them and they had not received any explicit teaching about AP or PS.

Due to the lack of a standardized proficiency test for Azeri and Persian as an L2, a self-rating questionnaire was used to monitor the placement of all L3 learners at L2 (Azeri and Persian) advanced proficiency. Self-assessment has been proved to be a valid instrument to evaluate the language repertoire of multilinguals Marain et al. (2007). The Azeri 1, Azeri 2, and Persian groups participated in completing a questionnaire to self-rate their L2 Persian or Azeri proficiency based on a scale ranging from 1 to 5, in which 1 was for 'beginner' and 5 for 'native-like'. The L2 proficiency of the first three groups was self-rated between 4 and 5, with the means of 4.58, 4.53 and 4.32 for the Azeri 1, Azeri 2, and Persian groups, respectively. Regarding their L2 proficiency, a Kruskal–Wallis Test showed that in terms of three groups' L2 proficiency there was no significant difference (χ^2 of 1.32, $df = 2$, $p = .51$), which indicated the comparability of the mentioned groups regarding L2 proficiency.

Subsequently, the participants were assigned to four groups. The first group (N.21) had L1 Azeri and L2 Persian with Azeri as their contact language of communication (CLC). The second group (N.20) was the same as the first one except for their CLC which was Persian, and the third group (N.24) had L1 Persian and L2 Azeri with Persian as CLC. All these groups were learning L3 English. For the control group, Persian and English were L1 and L2, respectively. The first two groups were consecutive bilinguals, or sequential bilinguals who had exposure to their L1 at birth and then began to be exposed to the L2 later in childhood or adulthood. The third group were born in Azeri families in Qom, but because of some factors like family preference or sociocultural affective factors they had acquired Persian as their L1 before they acquired Azeri naturally as the L2 through interaction with family members and friends. The participants selected were almost in their initial state of L3 acquisition and thus with low level of proficiency in English as their L3.

3.2. Materials and Instruments

The participants participated in completing a set of questions developed to test their explicit and implicit knowledge of their English as L3: a timed grammaticality judgment test (TGJT), an untimed grammaticality judgment test (UGJT), a metalinguistic knowledge test (MKT), and an elicited oral imitation task (EOIT). According to previous studies (Bowles, 2011; R. Ellis, 2005), which were done on samples of participants with a varied proficiency levels, the TGJT and elicited oral imitation task were validated to be measures of implicit knowledge, whereas the UGJT and the

MKT were applied to test explicit knowledge. Detailed descriptions are provided in the subsections below.

3.2.1. Test of Explicit Knowledge

The explicit knowledge of the participants was measured by an untimed grammaticality judgment test (UTGJT) and a metalinguistic knowledge test (MKT). The UGJT consisted of 20 items (10 items for each structure) and 16 distracting items which assessed a variety of structures to make the participants not focus on the intended structures. Out of total 20 AP and PS items, 10 items were grammatical and 10 ungrammatical. As Azeri and English had the same pattern in terms of the AP structures, 5 grammatical items represented the Azeri order and 5 ungrammatical items indicated the Persian order. The reversed order was used for PS, i.e., 5 grammatical structures pattern Persian and English and 5 ungrammatical represent Azeri orders. The following examples show the test items:

- AP: (7) The new book is on the table.
 (8) *Cars old are in the street.
- PS: (9) Two chapters of this book are about Iran history.
 (10)*Of my brothers two live in Qom.

In MKT items, 20 questions (5 sentences for each structure and 10 distractors) were presented and participants were asked to underline the ungrammaticality and write the rule that was violated. The participants could provide their explanations in their preferred language (Persian or English) and they were told that they did not have to modify the error. No limitation of time was set to complete the test.

3.2.2. Test of Implicit Knowledge

A timed grammatical judgment test (TGJT) and an elicited oral imitation task (EOIT) were the instruments measuring implicit knowledge. The content and scoring process of the TGJT was exactly like UGJT. The only difference between TGJT and UGJT was a time limit for answering these questions. The elicited oral imitation task (EOIT) was made up of 20 sentences as follows: 5 sentences for each structure (5 grammatical and 5 ungrammatical sentences) and 10 distracting sentences for each structure (totally 20 sentences). After the sentences had been read aloud and recorded by a native like English speaker, they were played to the test-takers. After answering a yes-no question just as a distractor preventing parrot repetition, the participants were asked to repeat the sentences. Their performance was judged regarding the AP and PS syntax.

3.3. Procedure

In order to assess the participants' implicit and explicit knowledge regarding AP and PS structures, they were given the four types of tests. They took the tests in two sessions in two days. For both UGJT and TGJT the participants were asked to mark one of these three choices: grammatical, ungrammatical and 'I don't know'. To score their responses, the answers were put in two parts: acceptable judgment and unacceptable judgment. While an acceptable judgment indicated that the participant marked a syntactically acceptable structure as grammatical and an unacceptable as ungrammatical, an unacceptable performance was the other way round. That is an unacceptable judgment was when the participants marked an ungrammatical sentence as grammatical or a grammatical one as ungrammatical. Each correct judgment scored one while each incorrect judgment got zero, with a highest total score of 20. Interestingly, a trivial sum of all answers (around 5%) marked the 'I don't know' choice, which reasonably did not receive any score. Two raters scored the performance with no disagreements. The means of the four groups were measured for between group comparisons.

To score MKT, the focus was only on the order of AP and PS structure. In other words, the position of adjective/noun and the part/whole was the only criterion by which the rater scored an item as a correct one and other errors were ignored. If the participants marked the AP as adjective + noun and PS as parts before the whole as grammatical and marked the other syntax as ungrammatical, a point of 1 was given for each correct answer. Therefore, for this task the highest value was 20. An example illustrates the test item:

(11). I enjoyed air clean in the village.

Rule: _____

In EOIT part, after playing each sentence to the participants and before repeating the sentences, they were asked to write whether they approved of this sentence or not. This pause would be as an indicator that the performance of the participants was based on their internal grammar and not just a parrot repetition. As they repeated the sentences, the answers were audio recorded for later analysis to find their accuracy (Erlam, 2009). The first part of the task, whether they agreed or not, did not get any scores. If the participants repeated a sentence correctly in terms of the target structures, they got a score of 1, and in case of incorrect repetition or any avoidance they were given a score of 0. Here are some sample examples:

- (12) My brother has a happy life.
- (13) *She is a girl famous.
- (14) Two of my books are not in my bag.
- (15) *The table of two legs is not clean.

Five English native speakers and two TEFL university professors checked the items to confirm the acceptability of the test sentences and the validity of the tasks. Accordingly, they confirmed that the intended structures in tasks applied in the present study were 100% accurate; consequently, the task validity was substantiated.

4. Results and Discussion

4.1. Results

The study investigated the role of cognitive status of the structures in CLI in acquisition of L3 and explored the impact of implicitness/explicitness of the structure on CLI in TLA. The findings supported the claim that cognitive status of the structures had an influential part in specifying the source of transfer. In other terms, implicitness/explicitness of the structures was a determining index in finding the source of CLI. In addition, the comparison of the results of AP and PS tests was a supporting evidence that backed the idea that CLI had rather a non-linear and dynamic and structure-by-structure nature. A descriptive statistics of the performance of all groups on the four tests, i.e., the TGJT, UGJT, the MKT and the EOIT, are shown in Tables 5 and 6. A quick analysis of the mean of the four groups indicates that in AP structure the Azeri 1 got the highest means in the tasks measuring implicit knowledge, whereas concerning explicit knowledge, the difference between means was not significantly high. The Azeri 1 generally marked the sentences correctly (about 80%), showing that for the most part they acquired the target structure in accordance with the acceptable syntax in Azeri, in an English-like order.

Unlike this group, the Azeri 2, Persian, and control groups inclined to put the adjective post-nominally, in a Persian-like manner. Just a little portion of the cases that they marked or made was syntactically acceptable in English (about 20%). Mostly they repeated or marked the target structures in accordance with the order permitted in Persian (about 70% of cases).

As the present study had data without normal distribution, the Kruskal–Wallis Test was used to find the significance of the difference. A quick look at the results of four groups indicated a meaningful difference in participants' scores in terms of instruments measuring implicit knowledge of

AP structure, whereas the significant difference in PS was measured in tests of explicit knowledge.

Table 5

Participants' Results on the (UGJT), (MKT), (EOIT).and (TGJT) for AP Structure

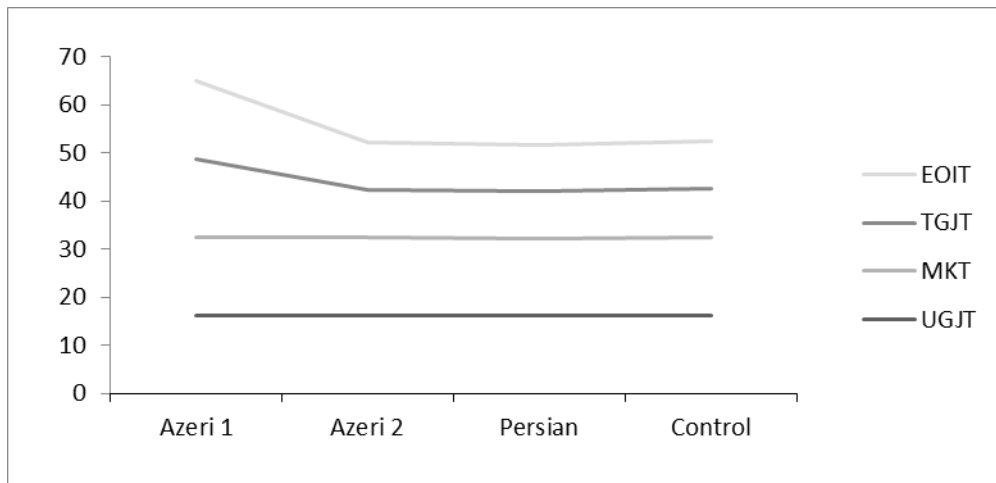
Group	N	UGJT		MKT		TGJT		EOIT	
		M	P	M	P	M	P	M	P
Azeri 1	21	16.23	81.15	16.23	81.15	16.38	81.9	16.19	80.95
Azeri 2	20	16.30	81.5	16.20	81	9.7	48.5	9.9	49.5
Persian	24	16.12	80.6	16	80	9.8	49	9.8	49
Control	20	16.15	80.75	16.20	81	10.20	51	9.8	49

Note. M=Mean; P=Percentage

Statistically speaking, a Kruskal–Wallis Test was used to show the significant difference among groups. Accordingly, a significant difference was revealed among the results of the four groups in terms of TGJT (AP) (χ^2 of 49.37, $df = 3$, $p < .001$), the EOIT (AP) (χ^2 of 47.84, $df = 3$, $p < .001$) the MKT (PS) (χ^2 of 49.04, $df = 3$, $p < .001$), and UGJT (PS) (χ^2 of 48.72, $df = 3$, $p < .001$). In contrast, the difference was not significant among TGJT (PS) (χ^2 of 1.15, $df = 3$, $p < .001$), the EOIT (PS)(χ^2 of .429, $df = 3$, $p < .001$) the MKT (AP) (χ^2 of .719, $df = 3$, $p < .001$), and UGJT(AP) (χ^2 of .410, $df = 3$, $p < .001$).

Figure 1

Comparisons of Means of Four Groups in AP Tests



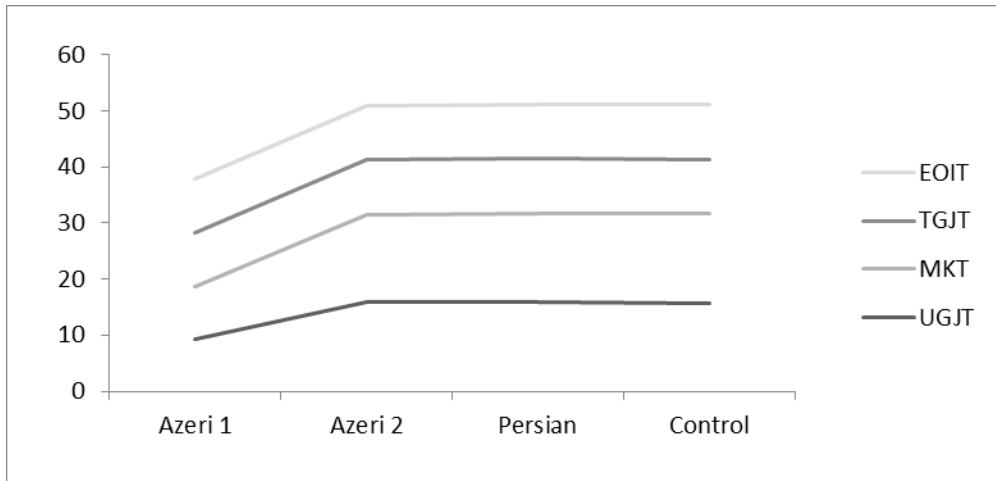
A couple of Mann–Whitney U tests were carried out so as to reveal any significant difference between pairs of groups. A Bonferroni adjustment to the alpha level was performed in order not to make probable Type 1 errors and a more stringent alpha level of $.05/4 = .012$ was established. The outcomes of Mann–Whitney U tests showed a significant difference between the Azeri 1 and Azeri 2 on the TGJT(AP) ($z = -5.53$, $p < .001$) and the EOIT ($z = -5.51$, $p < .001$), with a large effect size ($r = .60$). The similar difference was traced between the Azeri 1 and Persian groups on the TGJT (AP) ($z = -5.79$, $p < .001$) and the EOIT ($z = -5.77$, $p < .001$), with a large effect size ($r = .60$). The difference was also significant between the Azeri 1 and control groups on the TGJT (AP) ($z = -5.54$, $p < .001$) and the EOIT ($z = -5.51$, $p < .001$), with a large effect size ($r = .60$). In contrast, the results of UGJT (AP) and MKT (AP) were not in the same line. In fact, there was no significant difference between the Azeri 1 and Azeri 2 on the UGJT (AP) ($z = -.20$, $p = .83$, $r = 0.02$) and the MKT (AP) ($z = -0.16$, $p = .87$), with a very small effect size ($r = .01$). The Azeri 1 and Persian groups also had no significant difference in terms of the UGJT (AP) ($z = -0.36$, $p = .46$, $r = .71$) and the MKT (AP) ($z = -0.77$, $p = .44$), with a very small effect size ($r = .08$). Comparing results of the Azeri 1 and control groups, with a very small effect size ($r = .02$) revealed that the difference was not significant either on the UGJT (AP) ($z = -0.28$, $p = .77$, $r = .03$) and the MKT (AP) ($z = -0.19$, $p = .84$).

Table 6

Participants' Results on the (UGJT), (MKT), (EOIT), and (TGJT) for PS Structure

Group	N	UGJT		MKT		TGJT		EOIT	
		M	P	M	P	M	P	M	P
Azeri 1	21	9.28	46.4	9.47	47.35	9.52	47.6	9.57	48.75
Azeri 2	20	15.80	79	15.75	79.35	9.85	49.25	9.6	48
Persian	24	15.87	79.35	15.79	78.95	9.75	48.75	9.75	48.75
Control	20	15.75	78.75	15.90	79.5	9.65	48.25	9.8	49

Note. M=Mean; P=Percentage

Figure 2*Comparisons of Means of Four Groups in PS Tests*

For the PS structure, the results were different. As it is shown in Table 6, while in explicit knowledge tests the Azeri 2, Persian, and control groups who all used Persian as their language of communication had significantly higher mean in comparison to the Azeri 1, in implicit knowledge tests a significant difference did not exist between participants' mean. In explicit tests, around 75% of the three mentioned groups' judgment about sentences was correct. This showed that they mostly judged the target structure in accordance with the Persian part-whole order and different from that of Azeri which put the whole before the parts. In contrast, the Azeri 1 with Azeri as the language of communication preferred to set the whole before the part which was in accordance with Azeri syntax. The grammatically acceptable English sentences which they made or marked only composed a little percentage of their performance (about 40% of the sentences). Mostly, they repeated or marked the target structures according to the order regular in Azeri (about 60% of cases).

In other terms, in instruments measuring the explicit knowledge, the difference between results of the Azeri 1 and the other three groups, namely the Azeri 2, Persian, and control groups differed meaningfully. In contrast, the difference between participants' performance in tests of implicit knowledge of PS was not significantly different. A detailed statistic of PS results is as follows: on MKT (PS) and UGJT(PS) there was a significant difference between the Azeri 1 and Azeri 2 MKT (PS) ($z = -5.54$, $p < .001$), and the UGJT(PS) ($z = -5.53$, $p < .001$), with a large effect size ($r = .60$), between the Azeri 1 and Persian groups on the MKT (PS) ($z = -5.80$, $p < .001$) and the UGJT(PS) ($z = -5.79$, $p < .001$), with a large effect size ($r =$

.62), and also between the Azeri 1 and control groups on the MKT (PS) ($z = -5.52$, $p < .001$) and the UGJT(PS) ($z = -5.53$, $p < .001$), with a large effect size ($r = .60$). On the contrary, the difference was not significant between the Azeri 1 and Azeri 2 on the TGJT (PS) ($z = -1.02$, $p = .87$, $r = 0.1$) and the EOIT ($z = -0.81$, $p = .93$), with a small effect size ($r = .08$). The difference between the Azeri 1 and Persian groups also was not significant in terms of the TGJT (PS) ($z = -0.72$, $p = .46$, $r = .07$) and the EOIT ($z = -0.49$, $p = .62$), with a small effect size ($r = .05$). Between the Azeri 1 and control groups the difference was not significant either on the TGJT (PS) ($z = -0.43$, $p = .66$, $r = .04$) and the EOIT ($z = -0.52$, $p = .59$), with a small effect size ($r = .05$).

4.2. Discussion

Comparing the results of AP and PS tests revealed that while the Azeri 1 outperformed the three other groups in instruments measuring implicit knowledge of AP structure (TGJT and EOIT), the other three groups had a statistically higher performance in tests of explicit knowledge in PS, i.e. UGJT and KMT. The data revealed that cognitive status of the structure was a deterministic factor for specifying the source of CLI. In other words, having a higher record in implicit knowledge of AP, the Azeri 1 significantly outperformed other three groups in terms of AP structure which pattern similarly in English and Azeri. In the same line, the Azeri 2, Persian, and control groups who all had Persian as (either) their contact language or/and their L1 outperformed the Azeri 1 in PS explicit knowledge tests as Persian and English have the same syntax in terms of PS structure. The participants, instruments, and structures chosen for this study paved the way for the researchers to test the other hypotheses. Tables 5 and 6 presented detailed description of the participants' results.

The first scenario, the L1 Factor, Hermas (2010) specified no rooms for other factors in CLI and considered the L1 as the main and only linear playing factor in CLI in TLA. Hence, he gave no role to the cognitive status of the L2 and/or L3 structures. It proposed that the Azeri 1 and Azeri 2 groups would have a better performance in AP, whereas in PS the Persian and control groups would outperform the Azeri 1 and 2. Nevertheless, the L1 Factor proposal was not supported by the results of the study and L1 was not the only specifying source of CLI. There are some explanations for this inconsistency. Firstly, if multilingualism is regarded as a nonlinear process, it provides a comprehensive model which entails considering the status of all major players in the acquisition of additional languages, i.e. other present linguistic structures and not neglecting the dynamic aspect of the complex process of becoming multilingual. Secondly, the L1 Factor had a holistic all-or-nothing look at CLI rather than a property-by-property analysis.

The second model, the L2 Status Factor found the L2 as the main source of CLI due to the difference between L1 acquisition and SLA/TLA in terms of the nature of language learning and place of storage. Therefore, they put little or no emphasis on the L1 as a determining factor in TLA. If this proposal came true, the results would be as follows: concerning AP structure, the Persian group who had L2 Azeri would have the better performance compared with the other three groups. In PS, on the other hand, the Azeri 1 and 2 should outperform the other groups. The outcomes of this study, however, were not in the same track as what the L2 Status predicted. This inconsistency might go back to different reasons. The first difference was the design of this study. In Bardel and Falk' study (2007) the chosen participants learned their L2 and L3 in the same situation, i.e., formal instruction, similar age, strategies, and metalinguistic knowledge and awareness which was fundamentally different from their L1 natural acquisition while in present study the participants were consecutive preadolescent bilinguals who formally learned their L3 later on. The L2 Status Factor regarded the L2 as the main player in CLI if, like L3, it happened after childhood, as it shared lots of common variables with L3 acquisition (Bardel & Falk 2012). The next point, as it was explained for the L1 Factor, was the linear, holistic, and static view of the L2 Status Factor toward CLI. Attributing the transfer phenomenon in a binary fashion to one language could be another reason for inconsistency of the L2 Status Factor prediction.

The next model, the CEM, considered (either) the L1 or/and L2 as the probable candidate for CLI, though transfer should be facilitative or neutral (Flynn et al., 2004; Jaensch, 2011; Berkes & Flynn, 2012). As a result, for AP structure Azeri would be the key source of CLI while for PS structure, Persian would be the case. Based on CEM, no negative transfer would occur in these two structures. The results of the present study, though apparently similar to some extent, were not in the same track. For AP structure the results seemed the same with that of CEM except for the control group. However, these apparently similar results should be attributed to different reasons. Although CEM attributed the facilitative or neutral transfer to cognitive economy principle, the present study considered the implicitness of L3 structure as the main factor which blocked any negative transfer from other available candidates. Unlike AP, in PS, the prediction of CEM did not even apparently compatible with that of this study. In contrast, the explicitness of L3 structure paved the way for the other implicit candidates to be activated and as a result played some role in CLI. In this token, the Azeri 2, Persian, and control groups who had Persian as their contact language and/or mother tongue outperformed the Azeri 1 due to facilitative CLI and placed the partitives in a Persian-like syntax which patterned like English whereas the Azeri 1 who both had a poor performance in implicit measures

of PS and did not have Persian as their contact language inclined to put the whole before the parts in an Azeri-manner order which was the contact language of this group. In other words, the most activated candidate was the most probable structure among other existing ones to become the major player in CLI. Like CEM, the design of this study allowed the researcher to test the prediction on a property-to-property basis.

The predictions of the next model, TPM, were not compatible with the results of this study either. There are some justifications for this inconsistency. Firstly, based on TPM, as Rothman (2013) claimed, the linguistic parser specified the underlying linguistic typological proximity according to an implicational hierarchy of linguistic cues. In fact, the linguistic system which was closer to the L3 would be determined by the parser as the CLI main source (Foote, 2009; Ionin et al., 2011; Montrul, Dias, et al., 2011; Rothman, 2013). However, the type of linguistic knowledge of the multilingual parser would not matter in TPM. As a matter of fact, implicitness of a structure in a multilingual mind would have lots of outcomes among which were parser's unawareness of structure existence, task specificity, prior prediction possibility, and lack of conscious control. In such a case, the implicitness of a structure led a parser to unconsciously predict what was going to come next in advance rather than monitoring the linguistic systems to determine the proximity of the structures. It seemed likely that such a hierarchical analysis to find proximity of linguistic systems might be applicable for the time when linguistic knowledge was explicit as the parser had the time and conscious control of the available linguistic knowledge.

The next explanation for such results is the type of the bilinguals chosen for the study. Unlike TPM in which L3 learners who acquired a second language in adolescence were the target population (Rothman, 2010, 2011), the consecutive bilinguals learning an L3 afterwards were chosen for this study. This was a point which Rothman himself bolded as the issue of diversity of the predictions for different bilinguals in ongoing confirmative researches for TPM (Rothman, 2015, P. 9). Though he then claimed that in initial stages of CLI, the bilingual diversity would not lead to a difference Rothman (2015, P. 10).

The results of this study at least did not support this claim. Although Rothman (2015, P.233) pointed that the languages pairings for studies supporting TPM were so clear in terms of unambiguous typological proximity, the existence of the cases in which different pairing structures could occur in different language pairings were not clearly elaborated. As an example, in the design of this study, English and Azeri are structurally closer in terms of AP, while Persian and English bear the same closeness in PS. Keeping these points in mind, future confirmative studies on TPM can

highlight the following issues: Firstly, what predictions can be made about structure pairings which are different in terms of proximity in the languages chosen for the study, as in the case of AP and PS in English, Persian, and Azeri. Secondly, considering dynamic linguistic system of a multilingual, the fundamental issue is whether it is the typological proximity of languages or the mostly activated structure which plays the leading role in CLI.

The next model, Contact Language of Communication (CLC) (Fallah et al., 2016), had a strong compatibility with the results of this study, not fully led into the same outcomes, though. Regarding AP structures and the high index of implicitness in participants' results, the contact language of communication did not appear to play any dominant part in determining the source of transfer. However, in PS structure tests whose results showed a superiority of the participants in explicit knowledge, the predictions of the CLC and results of this study could be in the same line. Since the predictions of the CLC indirectly asserted the role of implicitness in lowering the activation threshold, the outcomes of PS tests confirmed the predictions of the CLC as well as the present study proposal. However, instead of a property-by-property analysis, CLC had a holistic look toward CLI.

In other terms, the sixth hypothesis, the cognitive status of the structure, was more compatible with the results obtained in this study. The Azeri 1 group had a significantly better performance in AP structure tests of implicit knowledge by placing adjectives pre-nominally in an English-like syntax, whereas the Azeri 2, Persian, and control groups significantly outperformed Azeri 1 in doing explicit knowledge tests of PS in a Persian-like order, placing the parts before the whole as shown in Tables 5 and 6 and Figures 1 and 2. Concerning all the facts, it can be induced from the results that implicitness/explicitness of the structure was the most determining factor in specifying the source of transfer in initial phases of TLA. In other terms, in the first level and among the available candidates in a multilingual mind, the cognitive status of the L3 structure determined the possibility of any negative CLI from existing acquired languages. In the case of implicitness of the structure and due to the lowest threshold of activation, this was L3 structures which would be activated in that context. If the structure did not become implicit due to many factors such as low level of frequency (Kellerman, 1983), high threshold of activation (Activation Threshold Hypothesis (ATH) Paradis, 2004; the Declarative/Procedural (DP) model Ullman, 2001, 2004, 2005), or low level of use (Cenoz 2001), other available implicit candidates would win the ground and become activated. In present study the next available implicit candidate was the language of communication. Therefore, the next candidate with lowest activation threshold, i.e., the structure used in dominant contact language, would be the main source of determining the syntactic CLI. It seemed that the most interesting point about this study was

that the parser would analyze the hierarchical levels to access the morphosyntactic level (Rothman, 2015), only if the structure was stored in explicit knowledge. Otherwise, the time-restricted, unconscious, and in advance predicted implicit structure would be the main active player in CLI and had superiority over the psycho/typological proximity. In other words, both implicit and explicit syntactic knowledge led the parser to determine the type of transfer. That is, the unconscious knowledge activated implicit knowledge while explicit knowledge would activate the conscious and controlled knowledge that would trigger other factors like typological proximity to play some role in CLI.

5. Conclusion and Implications

The study investigated the role of cognitive status of the structures in acquisition of adjective phrase and partitive structures among L3 English learners. It seemed like that the cognitive status (implicitness or explicitness) of the structure had a determining role in CLI in initial stages of TLA. In this way, all existing languages (L1, L2, and L3) would be a source of CLI in a changeable manner as the cognitive status of the candidate structure is a matter of change. Furthermore, CLI is a dynamic and non-linear phenomenon, rather than a linear one, which is influenced by many factors. Therefore, this study does not claim that cognitive status of the structure is the only static influential factor in specifying the source of transfer as the setting, participants, and the linguistic repertoire of other proposals (such as Rothman 2010, 2011) were different from this study, and more importantly, all mentioned proposals can play some role in ongoing, complex, and dynamic phenomenon of CLI. The study can enlighten researchers and teachers in multilingual settings on the role of implicit/explicit knowledge in enhancing the acquisition of additional languages. Moreover, it is beneficial in backing a non-linear dynamic view to the factors influencing language acquisition, rather than a linear static one. Availability of technological neurolinguistics devices such as MRI, fMRI, and CT scan can increase the accuracy of the measurement of cognitive status of linguistic knowledge of the participants rather than just relying on linguistic instruments. In addition, not having a standard and valid instrument for measuring the participants' proficiency in languages other than the main European ones, especially English, would be a limitation to such a study. Hence, the main tentative area for further studies is to develop the instruments for measuring the implicitness of the structures in L2 rather than solely relying on dominant language of communication and self-report questionnaire to tap into the cognitive status of L2 structure. Using think-aloud protocol to explore the emic knowledge of the multilinguals can lead to a better stand on theorizing the CLI through triangulation.

Reference

- Anderson, J. R. (1983). *The Architecture of cognition*. Harvard University Press.
- Bardel, C., & Falk, Y. (2007). The role of the second language in third language acquisition: The case of Germanic syntax. *Second Language Research, 23*, 459-84.
- Berkes, É. & Flynn, S. (2012). Further evidence in support of the Cumulative-Enhancement Model: CP structure development. In J. Cabrelli Amaro., S. Flynn., & J. Rothman (Ed.), *Third language acquisition in adulthood*, pp. 143–164. Benjamins.
- Bialystok, E. (1994). Analysis and control in the development of second language proficiency. *Studies in Second Language Acquisition, 16*, 157-168.
- Cenoz, J. (2001). The effect of linguistic distance, L2 status and age on cross-linguistic influence in third language acquisition. In J. Cenoz, B. Hufeisen., & U. Jessner (Ed.), *Cross-linguistic influence in third language acquisition: Psycholinguistic perspectives* (pp. 8-20). Multilingual Matters.
- Cohen, N. J., & Squire, L. R. (1980). Preserved learning and retention of pattern-analyzing skill in amnesia: Dissociation of knowing how and knowing that. *Science, 210*, 207-210.
- Cook, V.J., & Newson, M. (2007). *Chomsky's universal grammar: An introduction*. Blackwell Press.
- Dabir-Moghaddam, M. (2006). Internal and external forces in typology: Evidence from Iranian languages. *Journal of Universal Language, 7*, 29-47.
- Ellis, N. C., Simpson-Vlach, R., & Maynard, C. (2008). Formulaic language in native and second-language speakers: Psycholinguistics, corpus Linguistics, and TESOL. *TESOL Quarterly, 42*, 375–396.
- Ellis, N. (2002). Frequency effects in language processing: A review with implications for theories of implicit and explicit language acquisition. *Studies in Second Language Acquisition, 24*, 143-188.
- Ellis, N. C. (2015). Implicit and explicit learning of language. In P. Rebuschat, *Implicit and explicit learning of language* (pp. 1-24). Amsterdam, Philadelphia: John Benjamins.
- Ellis, R. (1997). *Second language acquisition*. Oxford University Press.
- Ellis, R. (2006). Modelling learning difficulty and second language proficiency: The differential contributions of implicit and explicit knowledge. *Applied Linguistics, 27*, 431-63.

- Ellis, N. C., Simpson-Vlach, R., & Maynard, C. (2008). Formulaic language in native and second-language speakers. *TESOL Quarterly*, 42, 375-396.
- Erlam, R. (2009). The elicited oral imitation test as a measure of implicit knowledge. In N. Ellis (Ed.), *Implicit and explicit knowledge in second language learning, testing and teaching* (pp. 65-93). Multilingual Matters.
- Falk, Y., & Bardel, C. (2011). Object pronouns in German L3 syntax: Evidence for the L2 status factor. *Second Language Research*, 27, 59-82.
- Fallah, N., Jabbari, A.A., & Fazilatfar, A.M. (2016). Source(s) of syntactic CLI: The case of L3 acquisition of English possessives by Mazandarani-Persian bilinguals. *Second Language Research*, 32, 225-245.
- Flynn, S., Foley, C., & Vinnitskaya, I. (2004). The Cumulative-Enhancement Model for language acquisition: Comparing adults' and children's patterns of development in first, second and third language acquisition of relative clauses. *The International Journal of Multilingualism*, 1, 3-16.
- Foote, R. (2009). Transfer and L3 acquisition: The role of typology. In Y.-k. I. Leung (ed.), *Third language acquisition and universal grammar* (pp. 89-114). Multilingual Matters.
- Herdina, P., & Jessner, U. (2002). *A Dynamic model of multilingualism: Changing the psycholinguistic perspective* (pp. 84-98). Multilingual Matters.
- Hermas, A. (2010). Language acquisition as computational resetting: Verb movement in L3 initial state. *International Journal of Multilingualism*, 7, 343-62.
- Hermas, A. (2014a). Multilingual transfer: L1 morphosyntax in L3 English. *International Journal of Language Studies*, 8, 1-24.
- Hermas, A. (2014b). Restrictive relatives in L3 English: L1 transfer and ultimate attainment convergence. *Australian Journal of Linguistics*, 34, 361-87.
- Hulstijn, J. H. (2007). Psycholinguistic perspectives on language and its acquisition. In Cummins, J. & Davison, C. (Ed.), *International Handbook of English Language Teaching* (pp. 783-795). Springer.
- Ionin, T., Montrul, S., & Santos, H. (2011). An experimental investigation of the expression of genericity in English, Spanish and Brazilian Portuguese. *Lingua*, 121, 963-985.
- Jaensch, C. (2011). L3 acquisition of German adjectival inflection - A generative account. *Second Language Research*, 27, 83-105.
- Kellerman, E., & Sharwood Smith, M. (1986). *Cross-linguistic Influence in Second Language Acquisition*. Pergamon Press.

- Krashen, S. (1981). *Second Language acquisition and second language learning*. Pergamon Press.
- Krashen, S. (1982). *Principles and practice in second language acquisition*. Pergamon Press.
- Larsen-Freeman, D. (1997). Chaos/complexity science and second language acquisition, *Applied Linguistics*, 18, 141-65.
- Larson, R.K. (2009). Chinese as a reverse Ezafe language. *Journal of Linguistics*, 39, 30-85.
- Marain, V., Blumenfeld, H.K., & Kaushanskaya, M. (2007). The language experience and proficiency questionnaire (LEAP-Q): Assessing language profile in bilinguals and multilinguals. *Journal of Speech, Language, and Hearing Research*, 50, 940-67.
- Montrul, S., Dias, R., & Santos, H. (2011). Clitics and object expression in the L3 acquisition of Brazilian Portuguese: Structural similarity matters for transfer. *Second Language Research*, 27, 21-58.
- Paradis, M. (2004). *A neurolinguistic theory of bilingualism*. John Benjamins.
- Paradis, M. (2007). L1 attrition features predicted by a neurolinguistic theory of bilingualism. In B. Köpcke., M.S. Schmid., M. Keijzer., & S. Dostert (Ed.), *Language attrition: Theoretical perspectives* (pp.121-134). John Benjamins.
- Paradis, M. (2008). Language and communication disorders in multilinguals. In B. Stemmer., & H.A. Whitaker (Ed.), *Handbook of the neuroscience of language* (pp.341-349). Elsevier.
- Paradis, M. (2009). *Declarative and procedural determinants of second languages*. Amsterdam, Netherlands: John Benjamins.
- Rebuschat, P. (2015). *Implicit and explicit learning of language*. Benjamins.
- Rothman, J. (2010). On the typological economy of syntactic transfer: Word order and relative clause high/low attachment preference in L3 Brazilian Portuguese. *International Review of Applied Linguistics in Teaching*, 48, 245-73.
- Rothman, J. (2011). L3 syntactic transfer selectivity and typological determinacy: The typological primacy model. *Second Language Research*, 27, 107-27.
- Rothman, J. (2013). Cognitive economy, non-redundancy and typological primacy in L3 acquisition: Evidence from initial stages of L3 Romance. In S. Baauw., F. Dirjkoningen., & M. Pinto (Ed.), *Romance languages and linguistic theory* (pp. 217-47). Benjamins.
- Rothman, J. (2015). Linguistic and cognitive motivations for the Typological Primacy Model (TPM) of third language (L3) transfer: Timing of acquisition and proficiency considered. *Bilingualism: Language and Cognition*, 18, 1-12.

Rothman, J., & Cabrelli Amaro, J. (2010). What variables condition syntactic transfer? A look at the L3 initial state. *Second Language Research*, 26, 189-218.

Ullman, M. T. (2001). The declarative/procedural model of lexicon and grammar. *Journal of psycholinguistic Research*, 30(1), 37-69.

Ullman, M.T. (2004). Contributions of memory circuits to language: The declarative/procedural model. *Cognition*, 92(1-2), 231-270.

Ullman, M.T. (2005). A cognitive neuroscience perspective on second language acquisition: Declarative/procedural model. In C., Sanz (Ed.), *Mind and context in adult second language acquisition: Methods, theory, and practice* (pp.141-78). Georgetown University Press.

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