

Learning of relative clauses by L3 learners of English

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Abstract

In surveys of third language acquisition (TLA) research, mixed results demonstrate that there is no consensus among researchers regarding the advantages and/or disadvantages of bilingualism on TLA. The main concern of the present study was, thus, to probe the probable differences between Persian monolingual and Azeri-Persian bilingual learners of English regarding their syntactic knowledge. It was an attempt to investigate whether they differ significantly in learning relative clauses. To carry out this study, a total of 200 female high school students studying at second grade were randomly selected from two educational districts of Tabriz and Shiraz in Iran. The participants were homogeneous in terms of English proficiency, sex, and age. They attended public high schools; they were taught the same materials and had the same number of hours of instruction. A general proficiency test, a language history questionnaire, and two syntactic structure tasks were administered to both groups. Statistical analyses including t-tests and descriptive statistics revealed that monolinguals and bilinguals differ in the comprehension and production of English L3 relative clauses.

Keywords: Azeri, bilingualism, third language, third language acquisition, language background, Persian

Introduction

The spread of English as a lingua franca throughout the world has promoted the acquisition of the English language not only as a second language, but also as a third language (Cenoz & Jessner, 2000). For instance, English is the third language for a large number of speakers in Asia. Therefore, third language acquisition (TLA) is a very common phenomenon all over the world (Cenoz, 2008). Generally speaking, TLA means "the acquisition of a non-native language by learners who have previously acquired or are acquiring two other

languages (Cenoz, 2003, p.71). TLA is a relatively new area of research in the field of second language acquisition (SLA), yet it has recently become the focal point of many studies (Molnár, 2008) as research on TLA is scarce in comparison to that already carried out on SLA, and first language acquisition (FLA). However, the young field of TLA research has experienced a number of important developments in recent years (e.g. Ringbom 1987; Edwards, 1994; Cenoz & Genesee, 1998; Cenoz & Jessner, 2000; Cenoz, 2000, 2009). Results have indicated that, despite sharing many characteristics,

the acquisition of an L3 is qualitatively different from that of an L1 and L2, since the L3 learner has already acquired one L2 (up to a certain level) in addition to an L1, and this knowledge plays a role in the acquisition of additional languages (Cenoz & Jessner, 2000). Furthermore, according to researchers, it is believed that different variables present greater diversity and complexity when more than two languages are involved. This complexity is the result of the interaction between various factors: linguistic, social, and individual (Cenoz & Jessner, 2000). The following section explains the basic differences between SLA and TLA.

Basic differences between SLA and TLA

According to researchers who actively work on TLA (Cenoz, 2001), important differences exist between second language and additional languages. Cenoz (2000) states that the main differences between SLA and TLA are: (a) the order in which languages are learned, (b) the sociolinguistic factors, and (c) the psycholinguistic processes involved.

Acquisition orders

In SLA, when two languages are involved, we only have two possible acquisition orders: either the L2 is acquired after L1, or the two languages are learned simultaneously. In the case of TLA there is greater diversity and there are at least four possible acquisition orders: (a) the three languages can be acquired consecutively (L1→L2→L3), or (b) the two languages (L2/L3) can be acquired simultaneously after the L1 has been acquired (L1→Lx/Ly), or (c) the two languages (L1/L2) can be acquired simultaneously before the L3 is acquired (Lx/Ly→L3), or (d) the three languages can be acquired simultaneously (Lx/Ly/ Lz) (Cenoz, 2000).

Sociolinguistic factors

The other difference between SLA and TLA refers to a set of contextual and linguistic factors (Cenoz, 2000). They are subdivided into:

Context of acquisition

One variable which increases this complexity is 'the context of acquisition', because more than two language acquisition situations are involved. L2 acquisition can take place formally, naturally or by a combination of both. But in TLA this situation is more complex than SLA (Cenoz, 2000).

Linguistic typology

Another variable is 'linguistic typology' or 'the type of languages' (Cenoz, 2000) involved in TLA which can present an important variation since "languages typologically closer to the target language may facilitate its acquisition or favour code-mixing procedures" (Jordà, 2005, p. 19).

Sociocultural status

The other variable is 'the sociocultural status of the languages' or 'their ethnolinguistic vitality' (Cenoz, 2000) which present greater diversity. This situation is seen in diglossic societies "where the L2 is used in the media, for educational purposes and the like, while members of these societies resort to their L1 and L3 in their everyday conversations (at work, with their families and the like)" (Jordà, 2005, p. 20).

Psycholinguistic processes

The third factor influencing TLA refers to the 'psycholinguistic processes' involved (Cenoz, 2000). Indeed, the acquisition of more than two languages complicates the cognitive and linguistic processes involved. In sum, TLA presents more diversity and complexity than SLA resulting in situations which are unique in language acquisition.

Bilingualism

Becoming bilingual "is a way of life. Your whole person is affected as you struggle to reach beyond the confines of your first language and into a new language, a new culture, a new way of thinking, feeling, and acting" (Brown, 1994, p. 1).

The narrowest definition was perhaps suggested by Bloomfield who defined a bilingual person as an individual who has "native-like control of two or more languages" (Bloomfield, as cited in Butler, 2013, p. 111). In other words, according to Bloomfield, having an extensive vocabulary as well as perfect skills in reading, writing, listening and speaking is a prerequisite for being bilingual.

On the other hand, Haugen defined bilinguals "as individuals who are fluent in one language but who can produce complete meaningful utterances in the other language" (cited in Butler, 2013, p. 111). According to Haugen, native-like proficiency is not a prerequisite condition for being bilingual.

Currently, many researchers employ a broader view of bilinguals (e.g. Macnamara, 1967; Hakuta, 1986; Valdés & Figueroa, 1994; Mohanty & Perregaux, all cited in Butler, 2013). Similarly, in this study, the broader notion of 'bilinguals' was adopted as individuals or groups of people "who obtain communicative skills, with various degrees of proficiency, in oral and/or written forms, in order to interact with speakers of one or more languages in a given society" (Bhatia & Ritchie, 2004, p. 115).

Studies conducted in Iran

In Iran, a multicultural and multilingual society (Khadivi & Kalantari, 2010; Kalantari, 2012), the studies on the relationship between bilingualism and the acquisition of L3 have produced

contradictory results. On the one hand, Keshavarz and Astaneh (2004), Modirkhamene (2008), Farhadian et al. (2010), Kassaian and Esmae'li (2011) and Saeidi and Mazoochi (2013), to name only a few, concluded that the third language learners outperformed their second language counterparts.

For example, Keshavarz and Astaneh (2004) investigated the relationship between bilinguality of second language learners and their vocabulary achievement in the target language. They compared three groups of female students, Turkish–Persian bilinguals studying only one language (Persian) academically in Tabriz, Armenian–Persian bilinguals studying both languages academically in Tehran, and Persian monolinguals. The authors used the Controlled Productive Ability Test (CPAT) to measure the participants' vocabulary knowledge. The results of the data analyses showed that:

Native speakers of Turkish and Armenian who speak Persian as their second language performed better in the English vocabulary test than the Persian monolingual learners of English. This can be attributed to the positive effect of the subjects' bilinguality on their third language vocabulary achievement. (Keshavarz & Astaneh, 2004, p. 295)

By applying Nation's Vocabulary Levels Test to measure the breadth of vocabulary knowledge and the Burt Word Reading Test to measure the participants' word reading skill, Kassaian and Esmae'li (2011) investigated the relationship between bilingualism and the breadth of vocabulary knowledge and word reading skills. Two groups of female students at two different pre-university centers were

compared; Armenian-Persian bilinguals, learning Armenian as their L1 and Persian as their L2, and Persian monolinguals. The results of the data analyses revealed that "bilinguality is highly correlated with breadth of vocabulary knowledge and reading skill. In other words, bilingual participants have larger size of vocabulary knowledge and they enjoy better word reading skill" (p. 966).

On the other hand, Talebinezhad and Mehrabi (2007), Gooniband Shooshtari (2009), Amerian and Maghsoudi (2009), Saffarian, Gorjian and NejadFazel (2013), and Khany and Bazyar (2014), among others, found that bilingual and monolingual learners did not perform significantly differently from each other.

Employing an experimental, within-group design, Talebinezhad and Mehrabi (2007) studied three languages, Persian as the mother tongue of the participants, English as the second language they learned at high school, and German as their third language to "explore the manner in which word forms are connected to the other words in the multilingual minds...check the claim made by many first language researchers that multilingual people's first languages play a privileged role in the acquisition of subsequent languages" (p.1). A translation deletion task, consisting of four parts, carried out in a separate session. The authors concluded that "the multilingual participants were processing the second and third language at the same speed...and first language does not seem to have a determining role in the development of a third language" (pp.1-10-11).

Gooniband Shooshtari (2009) conducted a comparative study in light of the syntactically-based generative models of SLA, namely, Full Access Full Transfer

(FAFT) and the Failed Functional Feature Hypothesis (FFFH) in order to investigate the acquisition of two syntactic properties of head and operator movements in English by L2 and L3 learners within Universal Grammar (UG) framework. The study was undertaken among Arabic-Persian bilingual and Persian monolingual learners of English in Khuzestan. Findings indicated that:

the bilingual and monolingual learners did not perform significantly different from each other with respect to the resetting of the two parameters of head and operator movements...the findings of the study with respect to language transfer in L3A give rise to the conclusion that the source of cross-linguistic influence in L3A is probably more of the learners' L2 than their L1, evidence in support of the prediction of FTFA hypothesis which argues for the availability of the all sources available to language learner. (pp. 136-138)

Moreover, Bahrainy (2007) investigated both lexical and syntactic knowledge and concluded that monolinguals outperformed bilinguals. A grammatically judgment test along with a correction task were used to examine two structures: preposition-stranding and pied-piping. The results revealed that monolinguals outperformed bilinguals in both vocabulary and syntax. The author believed that:

Perhaps the most important reason for such unexpected finding is that Turkish-Persian subjects had learned their L1 only orally in a natural setting. They did not receive schooling in Turkish and their academic language was Persian, the native language of the majority

linguistic group. So it can be argued that Persian is the more dominant language among the bilinguals. (p.17)

Theoretical framework

Hypotheses concerning L3 syntax

Bardel (cited in Falk & Bardel, 2010), Leung (cited in Falk & Bardel, 2010), Sjögren (cited in Falk & Bardel, 2010), and Vinnitskaya et al. (cited in Falk & Bardel, 2010) investigated L3 syntax and transfer from both L1 and L2 and the results revealed that both L1 and L2 play a significant role in this respect. These studies have been further discussed and the results have been meticulously re-analysed (Falk & Bardel, 2010) resulting in three syntactically-based generative models of TLA: the Cumulative Enhancement Model (CEM; Flynn et al., 2004; Flynn, 2009), the L2 Status Factor Hypothesis (LSFH; Bardel & Falk, 2007; Falk & Bardel, 2010, 2011; Falk, submitted) and the Typological Primacy Model (TPM; Rothman, 2010).

The CEM was suggested by Flynn et al. (2004). This model made use of the Vinnitskaya et al.'s (2003) study. The authors investigated the acquisition of three types of English restrictive relative clauses by comparing three groups of English learners, (a) Kazakh native speakers whose L2 is Russian, (b) Spanish native speakers and (c) Japanese native speakers. Kazakh (a Turkish language), like Japanese, is a head-final, left-branching language while English, Spanish and Russian are head-initial, right-branching languages. They wanted to investigate whether "the role of a first language is privileged over the role of a second language in the development of a third language or it is possible that all languages known can play a role in subsequent language acquisition" (Vinnitskaya et al., 2003, p. 2). The results

showed that the Kazakh speakers behaved like the Spanish speakers and contrasted strongly with the Japanese speakers. Therefore, the authors concluded that "no one language maintains a privileged role with respect to next or subsequent language learning" (Vinnitskaya et al., 2003, p. 2). According to this hypothesis, language acquisition can be said to be cumulative as the learner can fall back on not only one, but all, previously acquired languages in L3 acquisition (Vinnitskaya et al., 2003).

The LSFH is based on the properties shared by languages learned in the classroom. This hypothesis originates from Williams and Hammarberg's (1998) study on third language acquisition of content and function words, but it is proposed by Bardel and Falk (2007, 2011). In two studies, Bardel and Falk (2007, 2011) compared learners with different L1s and L2s. In one study, the participants were in the initial state of L3 acquisition, in another one they were at an intermediate level. Their data support the hypothesis that "the L2 factor is stronger than the typology factor in L3 acquisition." In other words, "in L3 acquisition, the L2 acts like a filter, making the L1 inaccessible" (Bardel & Falk, 2007, p. 480). In other words, The LSFH generally suggests that, in the acquisition of an L3, a general tendency is to activate a previously learned (second) language rather than to activate the L1 (Bardel & Falk, 2007, 2011).

According to the TPM by Rothman (2010), (psycho)typology determines whether the L1 or the L2 will be transferred in TLA. This model is a modification to the CEM based on the suggestions of (psycho)-typological factors by Rothman and Cabrelli (2009). Rothman (2010) investigated the acquisition of the syntactic and semantic properties of the Romance DPs in two groups, Italian native L2 learners of English

learning Spanish as an L3 and English native L2 learners of L2 Spanish learning Portuguese as an L3 in order to determine whether or not 'L2 status factor' or 'linguistic typology' between the languages is the most explanatory account of transfer in TLA. The data revealed that:

Neither the order of acquisition nor the L1/L2 status effects determine the source of transfer. The L3 Spanish learners transfer from their L1 Italian while the L3 Brazilian Portuguese learners rely on their L2 Spanish, not their L1 English. Both transfer sources are (psycho)-typologically similar to the L3, unlike English, a non-Romance language (Hermas, 2010, p.4).

The present study builds on the notion of Flynn et al.'s (2004) CEM, Bardel and Falk's (2007) LSFH and Rothman's (2010) TPM for syntactic learning. It compares and contrasts the status of relative clauses in Persian native speakers of L2 English and Azeri native speakers of L2 Persian and L3 English.

Research questions

The following research questions were formulated:

- 1) Does bilinguality affect the non-native comprehension of English L3 relative clauses by Azeri-Persian bilingual learners?
- 2) Does bilinguality affect the non-native production of English L3 relative clauses by Azeri-Persian bilingual learners?

Context of the study

Persian is an Indo-European language-a southwestern Iranian language from the Indo-Iranian branch. Persian is Iran's

official language, the language of education and instruction.

Azerbaijani or Azeri is a member of the Oghuz branch of the Turkic languages. In Iran, Azeri uses the Perso-Arabic script, although the spelling and orthography are not yet standardized.

In Iran, English is regarded as an academic subject in the formal context of classrooms. In some parts of Iran, where learners are members of linguistic backgrounds like Arabs, Turks, and Kurds, English is regarded as an L3, which is acquired after the acquisition of L1 and L2.

Method

This study adopted an ex post facto design to see if English L3 learners' distinct language background causes them to develop interlanguage patterns which are different or similar to those of monolingual learners of English.

Participants

A total of 200 female high school students studying at the second grade were randomly selected from two educational districts of Tabriz and Shiraz. The bilingual group (Azeri-Persian) were studying English as an L3 academically in Tabriz (an Azeri-speaking city in Iran), and the monolingual participants (Persian) were studying English as an L2 in Shiraz. The number of students in the bilingual group was 100, between the ages of 15 and 18 years ($M=15.68$, $SD=.62$), and in the monolingual group the number was 100, between the ages of 15 and 17 years ($M=15.71$, $SD=.61$).

All the participants had Persian as the language of instruction, and they also studied English as a school subject. Although Persian is the language of

instruction in Iran, Azeri is the language at the community level in a city like Tabriz.

The participants in both groups were homogeneous in terms of the educational context: both groups attended public high schools; they were taught using the same material; i.e. the textbooks and methodology for teaching English as a foreign language were the same (sanctioned by the Ministry of Education). Both groups had the same number of hours of instruction, which was one session (one hour and thirty minutes) every week. They were homogeneous in terms of their English proficiency level (with respect to the result of the OPT), sex, and age too.

Target structure

The target structure selected for the study was the English relative clause (RC). In Iranian high schools, the formation of RCs appears as a grammar item in grade two. The third unit in the students' English book highlights this structure.

RC is "a clause which modifies a noun or noun phrase" (Richards & Schmidt, 2010, p.494) and is typically introduced by a relative pronoun/adverb such as *that*, *which*, *who*, *when*, or *where*. Celce-Murcia and Larsen-Freeman define a RC as "a type of complex post-nominal adjectival modifier that is used in both written and spoken English" (cited in Abdolmanafi, 2012, p.196). The literature on the acquisition of RCs has concentrated on four particular types: (a) subject-subject (SS) relatives (The boy who speaks English is my cousin), (b) subject-object (SO) relatives (The woman whom you met is my mother), (c) object-subject (OS) relatives (I know the boy who speaks English), (d) object-object (OO) relatives (I read the book that my teacher mentioned).

RC, as one of the subordinate clauses, has attracted the attention of SLA researchers and educators "due to its complex structures" (Gass & Selinker, as cited in Abdolmanafi & Rahmani, 2012). Moreover, RC which is considered as "a universal linguistic phenomenon in languages of the world, have unique syntactic properties, and are frequent in everyday use of language" (Izumi, as cited in Marefat & Rahmany, 2009, p. 1) has been a very important issue in linguistic studies. The complexity of these structures "is related to their intrinsic nature of subordination which is a basic, universal linguistic process" (Sheldon, as cited in Abdolmanafi & Rahmani, 2012).

Therefore, the first reason for choosing this structure was the fact that RCs present a major obstacle for Iranian EFL learners (Bahrami & Ketabi, 2013). Pedagogically, due to their structural complexity (Gass & Selinker, as cited in Abdolmanafi & Rahmani, 2012), it seems that English RCs present a number of problems for Iranian EFL learners (Ghaemi & Bagherzadeh, 2012; Abdolmanafi & Rahmani, 2012; Marefat & Rahmany, 2009; Abdolmanafi & Rezaee, 2012; Bahrami & Ketabi, 2013). Relativization is often considered "to be the last hurdle for students to overcome since it involves complex grammatical rules (Yabuki-Soh, as cited in Abdolmanafi, 2012, p.197).

Instruments

Background information questionnaire

A questionnaire was used to elicit information about the participants' background and about the language repertoire of the participants. To provide a better picture of the context in which participants were learning the languages they knew, they were asked to provide information about the educational level of their parents, their families' native

languages, and how many years of education they had received in the L1, L2 and L3, the language(s) they use at school as well as the city they came from.

To avoid participants' English proficiency impinging upon their ability to fill in the questionnaire, the questionnaire was written in Persian. Although Persian is the language of instruction in Iran, Azeri is the language used at the community level in a city like Tabriz. The bilingual children learn and speak their L1 (Azeri) at home; like other Iranian students they start learning Persian literacy skills (reading and writing) at the age of seven. As a result, they become bilingual by speaking their mother tongue, Azeri, from birth and by learning to speak and write in Persian at school (Bahrainy, 2007).

The questionnaire was piloted on a pilot group, an intact class consisting of 25 students, was selected from one of the assigned schools; participants had similar characteristics to those of students in the main study. The reliability of the test was found to be .87, based on the Cronbach Alpha coefficient. Furthermore, two university lecturers with a PhD degree in teaching English as a foreign language were invited to appraise whether content validity was present. They were asked to offer any comments regarding the relevance of items to the purpose of the questionnaire, the wording, and interpretation problems and the instructions.

Standard general English proficiency test

A standard general English proficiency test was used to ensure the homogeneity of the participants. As grammar and vocabulary are heavily focused on in the Iranian EFL curriculum, we decided to use the grammar and vocabulary sections of the OPT. The test consisted of 50 multiple choice items

with an estimated time of 45 minutes for completion, as determined by the OPT.

The reliability of the OPT was calculated using the Cronbach Alpha coefficient, which was found to be .616. Besides, for the purpose of measuring the concurrent validity of this test, it was correlated with an achievement test developed by the Ministry of Education for second-grade centers. The correlation coefficient calculated between the achievement test and the OPT appeared to be .91.

Grammaticality judgment task (GJT)

The comprehension task was a grammatical judgment task which was used to tap into the participants' actual mental representation of English relative clauses.

The test comprised 24 English relative clause sentences, with an even split of three grammatical and three ungrammatical sentences in each category, plus three distractors (adapted from Azar, 2000). The distractor sentences were added so that the students could not predict that only their relative clause knowledge was being assessed. To control for the ordering effect, three versions were provided with different orders of the test items. The distribution of each type of relative clause was random. Only one error was included in each ungrammatical sentence so that the participants would not be distracted by other errors. Furthermore, vocabulary was controlled for and should not have caused any problems for the participants. Therefore, the participants were allowed to ask the meaning of the words they did not know. The time allotted for the test was 15 minutes.

In order to meet the internal consistency reliability, the Cronbach Alpha coefficient was calculated which was found to be .59.

Furthermore, regarding the content validity of the GJT, the test was evaluated by two university lecturers with a PhD degree in TEFL. They were asked to comment on the relevance of items to the purpose of the GJT. This resulted in a few adjustments to the questions in the GJT.

Moreover, the GJT was coded into 'hits', 'misses' and 'skips'. A 'hit' was either a correct acceptance of a grammatical sentence or a correct rejection. A 'miss' was either an incorrect rejection of a grammatical sentence or an incorrect acceptance of an ungrammatical sentence. A 'skip' (a missing value) was when no answer was given to an item (Falk, submitted).

Cloze task (CT)

The production task was a close task which was used to measure the English relative pronoun proficiency of high school students. The students were asked to fill in the omitted words with one word and they were allowed to ask the meaning of any words they did not know.

The cloze task was also piloted on the pilot group. The participants' comments and the process of responding to the test led the researchers to increase the task time from 15 minutes to 20 minutes. Furthermore, the Cronbach Alpha was used in order to estimate the reliability of the cloze task, according to which the reliability of the test was .62.

It should be noted that the cloze task was scored according to the appropriate scoring method; that is, answers which were grammatically appropriate were accepted as correct and were given a score of one. Those answers which were incorrect were assumed incorrect and were given a zero score and

those answers which were left blank were coded as a skip.

Furthermore, the researchers decided to set a hypothetical level for acquisition in both tasks, in line with other acquisition studies. In this study, the level of acquisition at an accuracy rate of 75% was chosen, following Neeleman and Weerman (as cited in Falk & Bardel, 2011) who assume that:

Deviations from the perfect score are due to performance factors and other variables that are not under our control. A subject might accept an ungrammatical sentence because he or she can assign a pragmatically plausible interpretation to it or because he or she is simply confused. Of course, such factors are irrelevant from our perspective and hence we should somehow correct for their influence when considering the test results. In order to do so we assume that a subject has knowledge of a particular construction if he or she reaches a score of 75%.

Data collection procedures

The data collection phase comprised the administration of four instruments. During the first phase of the study, after carrying out the sampling procedure and choosing subjects randomly, the researchers used oral description to explain the study to the students, giving brief instructions for all phases of the study. The questionnaire was then distributed.

Next, the OPT was taken by the participants. The test was administered according to the test instructions (45 minutes), and the participants were found to be at lower-intermediate level of proficiency.

In the next step, the participants were asked to judge the (un)grammaticality of English sentences. They were asked to respond as quickly as possible, because of the 15-minute time limit.

The last phase was the administration of the cloze task. The participants were asked to spend 20 minutes to complete this task. The tasks were all carried out during regular lesson-time and administrated by their teachers so as to avoid self-selection bias.

Data analysis

The results obtained were analyzed using the SPSS software. First the main test items were coded and given value. The values of similar variables were computed in percentage in order to have more organized data. That is, first the exact distribution in the learners' responses, their percentages along with the mean ratings of accurate responses for relative clauses and relative pronouns, across the two groups, were tabulated.

Furthermore, the independent-samples t-tests (two-tailed) were calculated and between-group comparisons were conducted.

Results

Figure 1 exhibits the percentages the learners obtained on GJT. As Figure 1 displays, the bilingual group had 65.67% acceptance and 1.5% rejection out of 1200 responses to grammatical sentences while the monolingual learners had 54.83% acceptance and 2.67% rejection out of 1200

responses to grammatical sentences. There is also a category including skipped items. Bilinguals had 32.83% skipped items out of 1200 responses while the monolingual learners had 42.5% skipped items out of 1200 responses.

It should be noted that the total responses were 2400 sentences. The descriptive statistics of grammatical stimuli for relative clauses by both (bilingual and monolingual) groups are presented in Table 1.

Comparison of the means provided by the participants in both groups shows the superiority of the performance scores of the bilingual participants since the bilingual group ($M = 7.88$) gained a higher mean than the monolingual group ($M = 6.58$). To probe the significant differences between the mean scores of the monolingual and bilingual groups, an independent-samples t-test (two-tailed) on the grammatical hits was applied. The magnitude of the difference (mean difference = 1.3, 95% CI: .71 to 1.88) was moderate ($\eta^2 = .088$). The results are presented in Table 2.

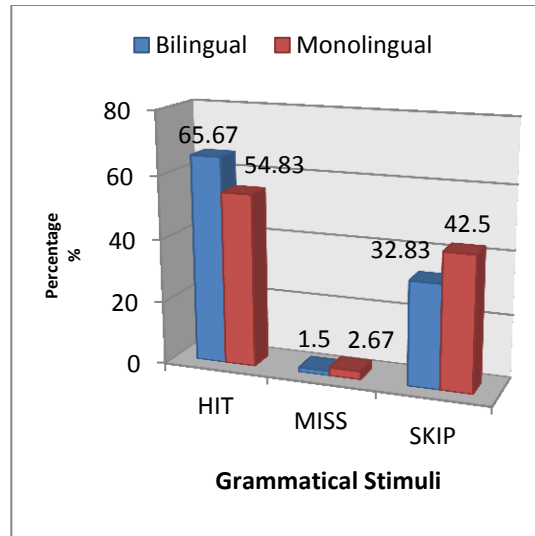


Figure 1: Distribution of grammatical stimuli for relative clauses

Table 1: Descriptive Statistics of Grammatical Stimuli for Relative Clauses by Bilingual and Monolingual Participants

	N	Minimum	Maximum	Mean	Std. Deviation	Std. Error Mean
GJT - Bilingual	100	3.00	12.00	7.8800	2.08060	.20806
Monolingual	100	1.00	12.00	6.5800	2.11860	.21186
Valid N (listwise)	100					

Table 2: Independent samples test on the grammatical hits

Independent Samples Test		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
GJT - GH	Equal variances assumed	.202	.654	4.378	198	.000	1.30000	.29694	.71443	1.88557
	Equal variances not assumed			4.378	197.935	.000	1.30000	.29694	.71443	1.88557

Furthermore, the bilingual learners had 1.25% acceptance and 34.58% rejection out of 1200 responses to ungrammatical sentences while the monolingual learners had 4.67% acceptance and 32.08% rejection out of 1200 responses to ungrammatical sentences. Also, bilinguals had 64.17% skipped items out of 1200 responses while the monolingual learners had 63.25% skipped items out of 1200 responses (see Figure 2).

Table 3 shows the results of the descriptive statistics of ungrammatical stimuli for relative clauses by the bilingual and monolingual groups.

As shown in Table 3, the bilingual group gained the lowest mean score ($M = .15$) whereas the monolingual group gained the highest mean score ($M = .56$). An independent-samples t-test (two-tailed) on the ungrammatical hits was run to probe the significant differences in the scores of the two groups. The magnitude of the differences in the means (mean difference = $-.41$, 95% CI: $-.68$ to $-.14$) was small (eta

squared = $.042$). The results are presented in Table 4.

In total, we found 803 hits (both grammatical and ungrammatical) out of 2400 grammatical sentences in the bilingual group and 714 hits (both grammatical and ungrammatical) out of 2400 grammatical sentences in the monolingual group. In other words, as shown in Figure 3, the overall accuracy rates for bilinguals are 33.46 % and for monolinguals are 29.75%. Besides, as Figure 4 shows the bilingual group revealed a higher mean rating in total grammatical relative clauses (hits) than the monolingual group: 8 vs. 7.15. To probe the significant differences between the mean scores of the two groups, an independent-samples t-test (two-tailed) was utilized. The magnitude of the difference (mean difference = $.85$, 95% CI: $.18$ to 1.52) was moderate (eta squared = $.030$). The results are presented in Table 5.

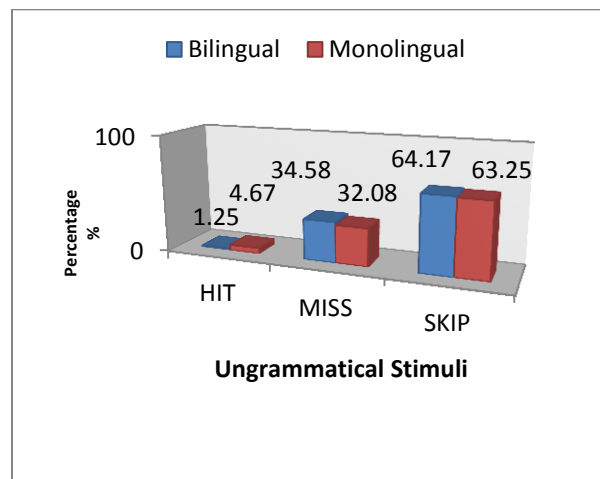


Figure 2: Distribution of ungrammatical stimuli

Table 3: Descriptive Statistics of Ungrammatical Stimuli for Relative Clauses by Bilingual and Monolingual Participants

		N	Minimum	Maximum	Mean	Std. Deviation	Std. Error Mean
GJT - UH	Bilingual	100	.00	4.00	.1500	.59246	.05925
	Monolingual	100	.00	8.00	.5600	1.24981	.12498
Valid N (listwise)		100					

Table 4: Independent samples test on the ungrammatical stimuli

		Independent Samples Test									
		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
										Lower	Upper
GJT – UH	Equal variances assumed	26.753	.000	-2.964	198	.003	-.41000	.13831	-.68275	-.13725	
	Equal variances not assumed			-2.964	141.355	.004	-.41000	.13831	-.68343	-.13657	

Table 5: Independent samples test on the grammatical and ungrammatical stimuli

		Independent Samples Test									
		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
										Lower	Upper
GJT	Equal variances assumed	1.722	.191	2.502	198	.013	.85000	.33975	.18001	1.51999	
	Equal variances not assumed			2.502	194.788	.013	.85000	.33975	.17994	1.52006	

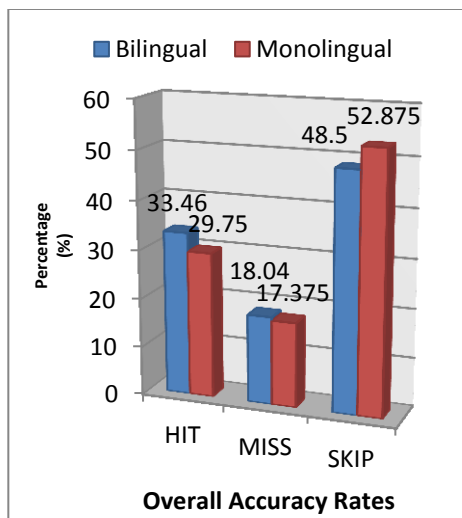


Figure 3: Overall accuracy rates for relative clauses

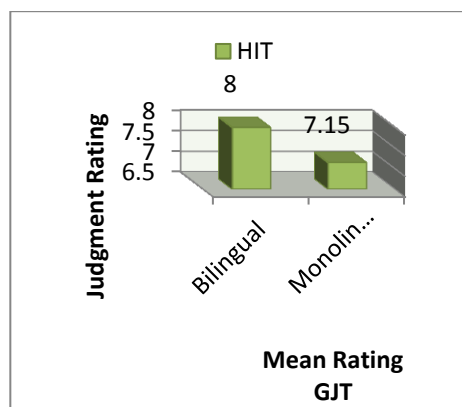


Figure 4: Mean ratings for relative clauses

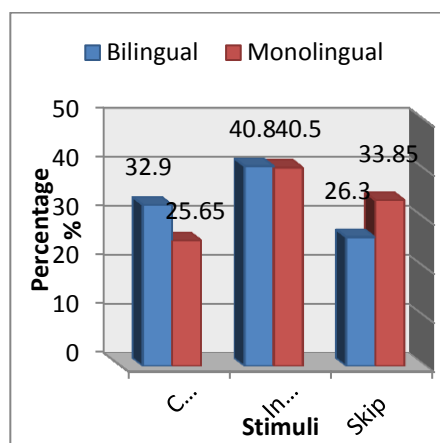


Figure 5: Distribution of stimuli for relative pronouns

These results suggest that bilingual learners performed significantly differently to monolingual learners. Yet, according to the 75% criterion (Neeleman & Weerman, as cited in Falk & Bardel, 2011), the participants in both groups did not reach the high proficiency level, i.e. structures such as relative clauses cannot be said to have been fully acquired. They are learning the target language, but the majority cannot be said to be at a high proficiency level of acquisition. It is therefore hardly surprising that they do not behave like native speakers.

Findings from the cloze test analysis

As Figure 5 displays, the bilingual group had 32.90% correct responses and 40.80% incorrect responses (out of 2000 responses) while the monolingual group had 25.65% correct responses and 40.50% incorrect responses (out of 2000 responses). There is also a category including skipped items; bilinguals had 26.30% skipped items (out of 2000 responses) while the monolingual learners had 33.85% skipped items (out of 2000 responses).

Figure 6 presents the mean percentages obtained by both groups for the relative pronouns on the CT. Comparison of the

means of the answers provided by the participants in both groups shows the superiority of the performance scores of the bilingual group. The bilingual group ($M = 6.58$) gained a higher mean than the monolingual group ($M = 5.13$). An independent-samples t-test (two-tailed) was run to probe the significant differences between the mean score of the two groups. The magnitude of the differences in the means (mean difference = .85, 95% CI: .77 to 2.13) was moderate (eta squared = .08). The results are presented in Table 6.

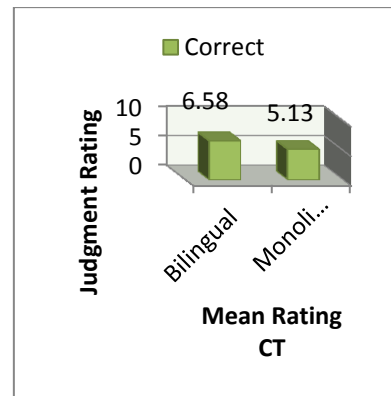


Figure 6: Mean ratings for relative pronouns

Table 6: Independent samples test on the correct responses (CT)

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower		Upper
Cloze	Equal variances assumed	.753	.386	4.222	198	.000	1.45000	.34343	.77274	2.12726
	Equal variances not assumed			4.222	196.228	.000	1.45000	.34343	.77271	2.12729

Discussion

Two points are worthy of being mentioned from the findings of this study. First, the results reveal that the bilingual group gained a higher mean than the monolingual group in the CT: 6.58 vs. 5.13. Also, the results of the independent-samples t-tests revealed a significant difference between bilingual and monolingual groups not only in the comprehension task (GJT) ($t(198) = 2.50, p = .013$) but also in the production task (CT) ($t(198) = 4.22, p = .000$). These results support the claim that the bilingual group generally had a better performance and significantly outperformed the L2 group in both the GJT and CT. It can be assumed from this study that bilinguals gain an advantage in knowing two languages when learning a third one.

According to the TPM theory (Rothman 2010), both L1 and L2 have the potential to play a stronger role in TLA based on their (psycho)-typological proximity to the L3. Consequently, typology is argued to have an impact on the transfer source, such that "the more typologically proximate the L2 or the L1 is to the L3, the more likely it is to be transferred" (Bardel & Falk, 2007, p. 474).

Typologically, English and Persian belong to the same Indo-European family while Azeri is classified as Altaic-Turkic-Southeastern/Oghuz. Azeri does not match English and Persian in its head direction. With regard to relative clause constructions, both Persian and English are post-nominal. Azeri is basically pre-nominal, although it has a borrowed form from Persian, which is post-nominal (the persified head-initial construction). The native relative clause construction is the most typical type of relative clause, whereas the borrowed one is not. Therefore, based on the typological proximity of Persian to English, it seems

that Persian has a stronger role in learning the L3 (English).

The results conform to the studies by Schachter (as cited in Ellis, 2008) and Flynn et al. (2004). In a quantitative study, Schachter (as cited in Ellis, 2008) investigated the relative clause structures in L2 and focused on four groups of students with different L1 backgrounds - Arabs, Persians, Japanese and Chinese. Results showed that Arab and Persian learners used relative clauses two or three times more than the Japanese and Chinese students. Schachter suggested that the reason responsible for the relatively greater use of the relative clauses was right-branching relative clause structures in Arabic and Persian.

In another study investigating the acquisition of the English Complementizer Phrase (CP), more specifically restrictive relative clauses in L3, Flynn et al. (2004) suggested that "prior CP development can influence the development of CP structure in subsequent language acquisition" (Flynn, 2009, p. 80).

Similarly, in this study the bilingual group judged grammatical relative clauses more than the monolingual group in GJT (803 correct responses by the bilingual group vs. 714 correct responses by the monolingual group). In other words, the overall accuracy rates for bilinguals were 33.46 % and for monolinguals were 29.75%. Furthermore, the bilingual group used correct relative pronouns more than the monolingual group in CT (658 correct responses by the bilingual group vs. 513 correct responses by the monolingual group). In other words, the overall accuracy rates for bilinguals were 32.90 % and for monolinguals were 25.65 %. Therefore, it seems that right-branching relative clause structures in Persian, which is

the same in English, were responsible for the relatively greater use of the relative clauses and relative pronouns by the bilingual group because the structure of the relative clause structure is dependent on a language's head-directionality (Flynn et al, 2004). To put it differently, in line with Flynn et al.'s (2004) suggestion, it seems that the bilingual group can benefit from their L2 Persian due to having the post-nominal relative clause structure which is typologically similar to the L3 English relative clause structure since prior post-nominal relative clause development can influence the development of post-nominal relative clause structure in learning L3 English.

The second point is that the results do not clearly rule out evidence of transfer from the bilinguals' L1. The distribution of acceptance and rejection responses can be ascribed to transfer from Azeri native pre-nominal relative clause structure. Considering the misses in the GJT by the bilingual group, we found that 1.5% of the grammatical sentences were judged in an incorrect way and the ungrammatical sentences received 34.58% misses. These numbers might be the result of participants transferring L1 Azeri relative clause structure. According to Ellis (1994), errors have been considered as one of the manifestations of language transfer. Where L1 and L2 features are identical, learning can take place easily through positive transfer of the L1 features, but where L1 and L2 features are different, learning difficulty can arise, and errors resulting from negative transfer are more likely (Ellis, 2002).

According to the results of GJT and CT analysis, it can be concluded that the bilingual group generally performed better (i.e. the overall accuracy of Azeri-Persian bilingual learners was higher than the

Persian monolingual participants) and significantly outperformed the L2 group in both the GJT and CT. The results of this study are in line with the findings of other studies, which suggest that "becoming bilingual, either as a result of home or school experiences, can positively influence aspects of cognitive functioning" (Cummins, 1976, p. 11).

Yet, according to the 75% criterion (Neeleman & Weerman, as cited in Falk & Bardel, 2011), the participants had not reached high proficiency levels; i.e., structures such as relative clauses cannot be said to have been fully acquired. It is therefore hardly surprising that they do not behave like native speakers. Nevertheless, it can be concluded that having a second language has an effect on the acquisition of English L3 relative clauses by bilingual learners. The findings are supported by other studies which have demonstrated that bilingualism results in more efficient foreign language learning (Ringbom, 1987; Thomas, 1988; Klein, 1995; Sanz, 2000; Hoffman, 2001; Keshavarz & Astaneh, 2004; Modirkhamene, 2008; Jaensch, 2009; Dibaj, 2011; Kassaian & Esmae'li, 2011; Seifi & Abdolmanafi, 2013; Saeidi & Mazoochi, 2013; and Zare & Mobarakeh, 2013).

Zobl (as cited in Falk & Bardel, 2010) used a grammaticality judgment test to measure several structures by monolingual and multilingual learners of English. Zobl's study indicated that multilinguals were at an advantage when learning English.

Klein (1995) conducted a study with monolinguals and multilinguals learning English and tested specific verbs and their prepositional complements and preposition strandings. Multilinguals presented significantly higher scores in both constructions.

Thomas (1988) concluded that the Spanish-English bilinguals who were only orally proficient in the two languages outperformed their monolingual English-speaking counterparts in learning French vocabulary.

Keshavarz and Astaneh (2004) found that the Azeri-Persian speakers outperformed their Persian peers on a CPAT at the 2000 and 3000 word levels. Furthermore, Modirksamene (2008) explored the possible differences between the performance of Persian monolingual and Turkish-Persian bilingual learners on metalinguistic tasks of ungrammatical structures and translation, and found that bilinguals outperformed monolingual learners.

Moreover, in Dibaj's (2011) study, the Azeri-Persian speakers outperformed their Persian counterparts on two incidental and four intentional vocabulary learning exercises. In Saeidi and Mazoochi's (2013) study, the results also indicated that bilinguals were superior in terms of their linguistic intelligence. They claim that the participants' bilingualism can enhance their cognitive development. Seifi and Abdolmanafi (2013) also indicated that bilinguals had an advantage over monolinguals in terms of using strategies.

Conclusion

The main purpose of this study was to ascertain whether bilinguals would perform better than monolinguals. The theoretical framework suggests that language background is an important factor in TLA (Thomas, 1988; Klein, 1995; Hoffman, 2001; Sanz, 2000; Keshavarz & Astaneh, 2004; Modirksamene, 2008; Jaensch, 2009; Saeidi & Mazoochi, 2013; Seifi & Abdolmanafi, 2013; Zare & Mobarakeh, 2013). The data were obtained through a questionnaire and two syntactic structure

tests (GJT and CT). The respondents were 100 female Azeri-Persian bilingual high school students and 100 female Persian monolingual high school students.

The first research question concerned the effect of bilinguality on the non-native comprehension of English L3 relative clauses by Azeri-Persian bilingual learners. The bilingual group judged the acceptability of the grammatical and ungrammatical sentences on the relative clauses to a higher degree than the monolingual group. Furthermore, the results of the independent-samples t-test on the total hits revealed a significant difference between the bilingual and monolingual groups in the GJT. The second research question concerned the effect of bilinguality on the non-native production of English L3 relative clauses by Azeri-Persian bilingual learners. The results showed the superiority of the performance scores of the bilingual group. Moreover, the results of the independent-samples t-test on the correct responses revealed a significant difference between the bilingual and monolingual groups in the CT.

The overall results of the study revealed that bilingualism presents a significant advantage in TLA. This difference can be explained in this way: "The more languages one has acquired, the more beneficial it would be for the acquisition of additional non-native languages" (Leung, 2005, p.1351).

The L3 Azeri-Persian learners are supposed to benefit from their unique language experience in two ways: the privilege of having knowledge of two separate grammar systems (Azeri and Persian) and the availability of the relative clause similarity between the target language, English, and their L2, Persian. In other words, they already have access to knowledge from

more than one language system, which results in 'multi competence' defined by Cook as 'knowledge of two or more languages in the same mind' (1992). Cook's notion of 'multi competence' refers to multilingual linguistic competence characterized by greater creativity and cognitive flexibility and more diversified mental abilities (Cook, 1992).

All in all, the predictions of particular syntactically-based TLA theories were tested in this study. The results appear to be compatible with TPM theory (Rothman, 2010), which states that both L1 and L2 have the potential to play a role in TLA, as determined by their typological proximity to the L3. In other words, in TLA, the language which is typologically similar to the L3 seems to be a determining factor in the shape and speed of TLA (Rothman, 2010). With regard to typological proximity it is possible that Azeri-Persian bilinguals may benefit from L2 Persian since prior post-nominal relative clause development can influence the development of post-nominal relative clause structure when learning L3 English. Moreover, in line with TPM theory, the results indicate non-facilitative transfer based on the distribution of the acceptance and rejection responses.

Implications of the study

A clear implication of this study is that students' sensitivity to the differences and similarities between the languages they know should be increased. In fact, "the more aware learners are of the similarities and differences between their mother tongue and the target language, the easier they will find it to adopt effective learning and production strategies" (Swan, 1997, p.178).

In multilingual educational settings, similarities and differences between languages can be concentrated on in order to

increase metalinguistic awareness in both teachers and students. It is thought that learners' awareness of similarities and differences between their mother tongue and additional languages will pave the way for effective learning. Therefore, a method of teaching foreign languages that demonstrates cross-linguistic similarities among languages seems to be an effective way in preparing language learners for more successful learning (Modirghamene, 2008).

Further research

The findings in this study open up a range of new research questions that should be answered in the future. As scholars (see Falk, 2010) argue, research outcomes are sensitive to the data collection method. This study involved GJTs. One of the advantages of using GJTs in research on the acquisition of syntax is that they are "handy tools with which we can construct any structures that we are interested in and force the informant to respond to the sentence" (Falk, & Bardel, 2011, p. 76). It is a matter for future research to determine whether having a very high accuracy rate depends on the proficiency level of the participants or not.

This study only examined two genetically and typologically similar languages (English and Persian) in relation to another language (Azeri). Different combinations could be adopted to test whether language distance is really an important factor underlying cross-linguistic influence among languages, such as three totally distant languages, three closely related languages, or the L1 and L3 being more closely related than the L2.

Research manageability made it necessary to delimit the study in terms of the age and gender of the participants. Thus, the results obtained from this study cannot be generalized to other age ranges and male

learners. Therefore, more studies may be conducted with different age groups and with male participants.

Limitations of the study

The current study has shed some light on the effect of bilingualism on learning an additional language, especially in the area of syntactic learning, but it has certain limitations and more studies in this area may be worthwhile.

The most obvious limitation present in this study originates in the test administered to evaluate the participants' proficiency. The

test only included a structure section and a vocabulary section.

The second limitation is that an error analysis was not carried out. Error analysis is useful because it reveals problematic areas.

The third limitation involves the proficiency level of the participants in their L1 Azeri. Proficiency in the source language is argued to be an important factor (e.g., De Angelis, 2007). However, the proficiency level of the bilingual learners in their L1 language (Azeri) was not possible to measure.

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Appendix A: Grammaticality Judgment Test (adapted from Azar, 2000). Distractor items have been *italicized*.

English Grammaticality Judgment

Name:

Age:

Dear students,

The following test is part of a research project about Third Language Acquisition. Please read the instructions carefully. Thank you for your cooperation.

Instructions:

Please read each sentence carefully and decide whether they are grammatical (G) or ungrammatical (U).

		G	U
1.	I know the girl who speaks Persian.		
2.	I read the book that you mentioned.		
3.	The boy that the kid hits watches the girl.		
4.	<i>There aren't many cars in the car park.</i>		
5.	I found a book that I should read it.		
6.	He is the man that I saw yesterday.		
7.	The man that you saw is her uncle.		
8.	The students that know German well are few.		
9.	The girl that Kate saw her is my friend.		
10.	The man who is standing there is my father.		
11.	The boy who he speaks French is my nephew.		
12.	The doctor who he visited your mother is very famous.		
13.	I saw a woman who she knew everything.		
14.	The student who got an A is a friend of mine.		
15.	<i>Don't forget to switch off the lights before you go out.</i>		
16.	The person that he takes after her is his mother.		
17.	Please hand this over to the man who is wearing a red jacket.		
18.	Jill spoke to the students that they failed the test on grammar.		
19.	The reporter photographed the patient who was looking happy.		
20.	Jill liked the present which I gave it to her.		
21.	The woman who she was reading the newspaper answered the phone.		
22.	The student whom you have talked to was my friend.		
23.	The woman that you have invited her has arrived.		
24.	John found a topic which you should work on.		
25.	This is the child that he picks the flowers.		
26.	<i>Helen is studying History at university.</i>		
27.	The library didn't have the book which I wanted it.		

Appendix B: Cloze Test (adapted from *ESL-Lounge*)

Cloze Test

Name:

Age:

Dear students,

The following passage is part of a research project about Third language Acquisition. Please read the instructions carefully. Thank you for your cooperation.

Instructions:

Please read the following passage and fill in the blanks with an appropriate relative pronoun.

Dear Frank,

In your last letter, you asked me to tell you about all the things I did during my summer vacation. There are so many things (1)I can say to you.

We went to Vancouver (2)I have some old friends (3)I haven't seen for about three years. My friend Tom, (4)mother I wrote about in my last letter to you, came with me and we had a great time. We flew into Vancouver on Monday 24th, (5)was also my birthday.

The first thing we did was to visit the wonderful aquarium in the city center (6)there are three killer whales and a whole crowd of seals, penguins and dolphins. We arrived in the late afternoon (7)all the animals are fed so it was wonderful to see the dolphins leaping out of the water to get the fish (8)they love to eat so much. You know dolphins are marine mammals (9) are related to whales.

The following day, (10)was cloudy and rainy unfortunately, we went to a museum (11)they have some dinosaur skeletons (12)local people have found in the area. The horrible weather never improved all day so we visited a superb seafood restaurant later in the afternoon and had an early dinner. The waiters, (13)were all dressed in traditional fishermen's clothes, were very friendly and

told us about the history of the restaurant (14)name was The Jolly Whaler. The food (15)chef cooked was delicious. The restaurant, (16)has been open since 1888, was once visited by the American President J.F. Kennedy and his wife Jackie.

The skies were blue on Thursday and we spent some time out on the sea in a large boat (17)we hired. I caught a big fish (18)the captain said was the biggest he'd seen this year. I felt very proud! We left on Thursday evening after a mini-vacation (19)helped me to relax a lot and now I have returned to work.

The next time (20)you write to me, you must tell me about your last vacation.

Bye for now Frank,

Oliver

