

The relationship between Iranian minority speakers' academic achievements and their proficiency in L2*

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Abstract

The aim of this study was to examine the relationship between language proficiency (LP) of Persian native speakers and bilingual speakers' academic achievement (AA). Four groups of Armenian and Persian high school students (60 males and 60 females) participated in the study. The data were collected through the Persian reading comprehension test (RCT) and the students' end-of-the-year-grade point averages (GPA). The results indicated no difference between the language proficiency of Armenians and Persians. Moreover, the results showed an approximately similar positive correlation between LP and AA for all the groups irrespective of their first language (L1) background.

Keywords: minority groups, reading comprehension, bilingual, language proficiency, academic achievement

1. Introduction

The issue of language proficiency (LP) and its relationship to academic achievement (AA) has long concerned educators and linguists. A large number of studies have been carried out into the nature of LP with the aim of determining its relationship to performance on different types of academic tasks, especially among bilinguals and adult second/foreign language learners (e.g. Scholtz, Hendricks, Spurling, Johnson & Vandenburg 1977; Canale & Swain 1980; Cummins 1980, 1983; Canale 1983; Carroll 1983; Rivera 1984; Sang, Schmitz, Vollmer, Baumert & Roeder 1986; Garcia 1988; Bachman 1990; Garcia 1991; Corson 1993; Gregory 2000; Lareau 2003). The findings, although inconclusive (cf. Canale 1983; Hale 1988; Bachman 1990), seem to generally agree that LP consists of a general factor which is common to all of the variances of all language tests and a large number of specific factors (cf. Canale & Swain 1980; Cummins 1980; Bachman & Palmer 1981; Canale 1983; Vollmer & Sang 1983; Cummins & Swain 1986; Carrell 1987; Carrell, Devine & Eskey 1988; Clarke 1988; Bachman 1990; Jafarpur 1990). As regards the relationship between LP and academic achievement, it seems that LP affects the learners' performance on various types of mental tasks (e.g. Oller & Perkins 1978; Rivera 1984; Joshua 1985; Alderson 1988; Alderson & Urquhart 1988).

Speculations about the nature of LP and its role in academic success have been many and varied (e.g. Tomas & Collier 2002). Donaldson (1978) supports that LP consists of two kinds of competence: communicative and analytic. The former refers to rules of

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appropriate social language use in face-to-face communication and the latter to the context-free use of language in mental activities. He believes that, as general LP develops, these two competences become increasingly more autonomous. In his view, analytic competence is required for academic progress and develops at school settings.

The strongest support regarding a general factor of LP comes from Oller & Perkins (1978) and Oller (1979). Reporting on a number of experiments carried out by Oller & Perkins, Oller (1979) concludes that a global factor of LP may be mainly responsible for the candidates' performance on IQ tests as well as other types of achievement tests and that LP is a unitary competence. In a similar attempt to define the nature of LP and decide on its role in educational progress, Canale & Swain (1980) and Canale (1983) carried out research studies similar to those of Oller's (op. cit.). However, they discovered different types of linguistic competence or language skills, which refuted Oller's unitary competence hypothesis. Canale & Swain (1980) proposed that communicative language use comprises three independent competences: linguistic, sociolinguistic, and strategic. In Canale & Swain's and in Canale's (1983) definition, four different components, or subcategories make up the construct of communicative competence: grammatical, discourse, sociolinguistic and strategic.

In a similar vein, Cummins (1980) proposed a distinction between basic interpersonal communicative skills (BICS) and cognitive academic language proficiency (CALP). He suggests that BICS and CALP are independent of one another both in L1 and L2. He further suggests that while everybody acquires BICS in L1 without formal education, CALP is promoted mostly through schooling. Cummins (1983) states that mastery of CALP takes much longer (five to seven years) for foreign language learners than BICS (about two years). In later work, Cummins (1983) used the concepts of context-reduced and context-embedded communication, where the former resembles CALP and the latter BICS, but with the added dimension of considering the context in which language is used. A good share of classroom, school-oriented language is context-reduced, while face-to-face communication with people is context-embedded. Based on this theoretical framework, Cummins (1983) argues that tasks cognitively undemanding for native speakers of a language may be cognitively highly demanding for learners whose mother tongue is different. This, he suggests, is due to linguistic deficiency of non-native speakers, thus claiming that there is a link between LP and academic achievement.

In Iran, which is a nation comprising speakers of various languages and dialects, the official language is a variety of Farsi regarded as the standard Persian. Speakers of minority languages such as Turkish, Kurdish, Arabic and Armenian (as well as speakers of non-standard Persian) are assumed to be at a disadvantage at school compared to Persian speakers. This study investigates the validity of such an assumption.

Before we present our data, let us explain the structure of the educational system in Iran. This is basically divided into five cycles such as pre-school, primary, middle (or 'guidance'), secondary (or high school), and post-secondary. The secondary education cycle is a four-year stage which covers grades 9 to 12, from age 14 to 17. This cycle offers a choice between two main branches, namely academic/general and technical/vocational. The academic branch, also known as the "theoretical" branch, is divided into four mainstreams: literature and culture, economics and social sciences, sciences and mathematics, and experimental sciences. The "technical" branch is particularly designed to train technicians for the labor market and covers three mainstreams: technical, business, and agriculture.

2. The study

2.1 Participants

Four groups of Armenian and Persian High School students (60 males and 60 females) in their final year of high school (fourth grade) were randomly selected as subjects. Of the four groups, one Armenian and one Persian group majored in Sciences and Mathematics and the other two, again one Armenian and one Persian, majored in Economics and Social Sciences. The Armenian group of Sciences and Mathematics (Armenian S&M) consisted of 28 boys and the corresponding Persian group (Persian S&M) included 28 girls. As for Economics and Social Sciences, the Armenian group (Armenian E&S) comprised 32 girls and the Persian group (Persian E&S) 32 boys. The age range of the subjects in all groups was 17 to 20 with an average age of 18.

2.2 Materials

The materials used in this study were a Persian reading comprehension test (RCT), the end-of-the-year grade point averages (GPA) of the subjects, as well as a questionnaire. The RCT consisted of 16 excerpts with 40 multiple choice items. The length of the texts ranged from 10 to 150 words and from one to seven sentences. The texts were selected from among a large number of sources such as newspapers, newly published books of general topics, magazines and radio interviews. Care was taken to include texts which were of a general nature and as culture-free as possible.

To determine the construct validity of RCT, we tried it out with subjects from three different age groups, who were presumably at different stages of language development (cf. Klein-Braley 1985). Group One included 61 students (29 males and 32 females) in the first grade of guidance school, with an average age of 12. Group Two consisted of 57 students (30 males and 27 females) in the second grade of high school with an average age of 15. Last in Group Three there were 40 students (22 males and 18 females) in their final year of high school, with an average age of 18. The data obtained were subjected to statistical computations to estimate measures of central tendency (*M*) and variability (*SD*). Results are shown in Table 1.

Table 1. RCT scores of three age groups

<i>Subjects</i>	<i>No of cases</i>	<i>M*</i>	<i>SD</i>
Group One	61	10.01	2.98
Group Two	57	12.52	3.13
Group Three	40	20.90	4.04

* Maximum possible score = 40

As can be observed, the mean scores for the subjects increase as their level of language ability/level of achievement increases. This is taken as an indication of valid measurement. To further ascertain the observed differences, the scores of the subjects in the three groups were subjected to an analysis of variance (ANOVA), which revealed significant between-group differences. Given that the obtained value was quite large ($F = 134.044$), we conducted the group t-test. Results are presented in Table 2 below.

Table 2. T-test results from RCT scores

<i>Subjects</i>	<i>M*</i>	<i>SD</i>	<i>df</i>	<i>t</i>
Group Three vs Group Two	20.90 vs 12.52	4.04 vs 3.13	95	11.48
Group Three vs Group One	20.90 vs 10.01	4.04 vs 2.98	99	15.57
Group Two vs Group One	12.52 vs 10.01	3.13 vs 2.98	116	4.46

*p < 0.001

All group differences were highly significant at $p < .001$, which verified the construct validity of the RCT test. It was thus concluded that the test may confidently identify various levels of language ability.

The content validity of the RCT was confirmed by three university lecturers with a long experience of the TESOL test, as well as by high school teachers of Persian, all of whom had been asked to consider the test items in terms of language, content and format. Also, the reliability of the RCT was established through the split-half method ($r = .77$).

The criterion for academic achievement was based on the subjects' end-of-the-year grades from all academic courses. Additionally a questionnaire was developed with 15 questions inquiring about the subjects' age, chronological rank in the family, mother tongue, whether they had begun learning Persian before or after attending primary school, parents' occupation and level of education, the number of family members, the kind of sports they enjoyed, how they spent their free time, the kind of radio and TV programs, as well as the kind of books and magazines they were interested in. This questionnaire was intended to provide two types of information: first, how homogeneous the subjects/groups would be in terms of age, socio-economic status, cultural background, and the like; second, whether external relevant factors affected the performance on the RCT. Responses in the questionnaire revealed that all the Armenians had begun learning Persian at about the age of six, that is, when they started attending primary school. This established the one decisive criterion upon which the study was based because it drew a distinct line between the Armenians as second language learners vs the native speakers of Persian. Moreover, the subjects' differences in terms of external factors were not statistically significant.

2.3 Procedure

To ensure uniformity of administration and to minimize language learning between the testing sessions, the tests were administered to all groups from 3:00 to 4:00 p.m. over a 5-day period. Instructions to each group were given orally just before the beginning of each test administration. At the end of each session the questionnaire was distributed among the subjects. The subjects' previous year's final grades were obtained from their high school records. Therefore, for each subject two scores were obtained: one relating to their score on the Persian test (the RCT) and the other relating to their overall GPA. Their overall GPAs were based on the grades they had obtained in algebra, geometry, modern mathematics, trigonometry, physics and chemistry for the S&M groups and sociology, Persian dictation, statistics, economics, commercial affairs and psychology for the E&S groups.

Three different procedures were used in the data analysis. The questionnaire responses were analyzed through ANOVA, the RCT scores through several t-tests and the relationship between language proficiency and academic achievement scores was computed using the Pearson correlation formula. The latter aimed to compare the means obtained from the Persian and the Armenian groups (Persian S&M vs Armenian S&M, Persian E&S vs Armenian E&S, Persian S&M vs Persian E&S and Armenian S&M vs Armenian E&S).

2.4 Results

The dependent variable was the subjects' scores on the RCT. Independent variables were factors related with the information obtained from the questionnaire, such as age (17/18 years), the parents' level of education (whether one or both of them were educated or illiterate), socio-economic status of the family (whether the parents were workers, government employees or engaged in highly profitable private jobs) and the number of family members (± 6). The results from a two-way ANOVA of the questionnaire data are displayed in Table 3.

Table 3. Analysis of the questionnaire data

<i>Possible Source of Variance</i>	<i>Sum of Squares (SS)</i>	<i>Deg. of freedom (df)</i>	<i>Mean Squares (MS)</i>	<i>F</i>
Age (17/18)	14.937	1	14.937	1.29
Parents' Education	15.123	1	15.123	8
Socio-economic status	10.431	1	10.431	1.31
Family members (± 6)	5	1	5	5
Age X edu. X socio. X family members	4.38	1	4.38	.907
Error	345.001	30	11.500	.434
Total	394.889	35		.380

Table 3 shows that the observed differences of external factors are not significant because the obtained values for *F* are all smaller than the *F* value (4.17) at the $p = .05$ level of significance. Next we turn to results from the RCT, demonstrated in Table 4 and Table 5.

Table 4. Means comparison between Persian and Armenian groups in the RCT

<i>Subjects</i>	<i>M*</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>df_t</i>	<i>P</i>
Persian S & M vs. Armenian S & M	21	4.19	54	0.916	1.297	.20
Armenian E & S vs. Persian E & S	16.31	3.92	62	0.216	.679	.50
	16.09	4.21				

Table 4 reveals that there was no significant difference between either the S&M groups (TOBS = .916, $n = 56$, $p > 0.2$) or the E&S groups (TOBS = .216, $n = 64$, $p >$

0.5). However, results in Table 5 reveal that the S&M groups were linguistically superior to the E&S groups.

Table 5. Means comparison between S&M and E&S groups

<i>Subjects</i>	<i>M*</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>df_i</i>	<i>p</i>
Persian S & M vs Persian E & S	21 16.09	4.19 4.21	58	4.51	3.476	< .001
Armenian S & M vs Armenian E & S	20.03 16.31	3.70 3.92	58	3.760	3.476	< .001

To further investigate the M&S groups' outperformance of the E&S groups, the scores of the M&S groups on the RCT were pooled and their means were compared with those of the E&S groups. The results of the two comparisons are presented in Table 6.

Table 6. Means comparison between Armenians and Persians and between M&S and E&S groups

<i>Subjects</i>	<i>df</i>	<i>t</i>	<i>df_i</i>	<i>p</i>
Persian groups/Armenian groups	118	.664	.677	.50
S&M groups/E&S groups	118	6.334	3.373	.001

For the Persian and Armenian groups the calculated t value was .664, which was less than the value of the t-critical (1.64) at $p = .05$. Therefore the two groups did not differ significantly. On the other hand, for S&M and E&S groups the t-value was 6.334, which was more than the value of the t-critical (2.33) at $p = .01$. Thus, the figures in Table 6 show that the previous findings (cf. Table 5) are more strongly confirmed when pairs within each group are merged.

To find out the relationship between language proficiency (LP) and academic achievement (AA), correlation coefficients were computed between the scores on the RCT and their end-of-the-year-grade point averages. The results of the obtained Pearson Product Moment Coefficients appear in Table 7.

Table 7. Correlation between RCT scores and final grades

<i>Subjects</i>	<i>M</i>	<i>df</i>	<i>r</i>	<i>Results</i>
Persian S&M	21	26	.52	.52 > .479 $p < .01$
Armenian S&M	20.3	26	.48	.48 > .479 $p < .01$
Armenian E&S	16.31	30	.74	.74 > .449 $p < .01$
Persian E&S	16.09	30	.68	.68 > .449 $p < .01$

As can be seen from Table 7, the obtained r values were more than r -critical (.479 and .449) indicating a significant positive relationship between performance on the RCT and academic achievement for all groups at $p < .01$.

The presence of a close relationship between LP and AA can be better illustrated if one compares each group's r value with its mean on the RCT, an indication of its LP. Such a comparison will show, as presented in Table 7, that the r value for the subjects in each major field is sensitively related to the means of the respective groups. Table 7 also suggests that the degree of correlation differs according to the subjects' major field of study, regardless of whether they are non-natives or natives.

3. Discussion and conclusion

As was mentioned at the outset of this paper the questionnaire was intended to provide two types of information: first, how homogeneous the subjects/groups would be in terms of age, socio-economic status, cultural background, and the like; second, whether external relevant factors affected the performance on the RCT. The obtained values for F (Table 3) are all less than the F -critical (4.17) at the $p = .05$; therefore, the differences of variances are not significant and the subjects/groups are homogeneous. This also implies that the external factors did not affect the performance on the RCT.

The ultimate goal of the present study was to determine if there is any relationship between language proficiency and the Armenian high school students' academic development with respect to their ability in reading comprehension. On the whole, results showed a close positive relationship between the two. Moreover, it was noted that the correlation between the RCT scores and GPA for the students majoring in E&S was higher than that of the subjects majoring in S&M. A possible explanation may be that the higher degree of correlation for the E&S groups is due to the fact that the academic subjects in E & S are more language dependent than the subjects related to the field of science and mathematics. This can be explained on the account of the fact that mathematics and physical sciences are less language demanding than the social sciences and humanities.

With regard to the question, "*Is there any difference in LP between Persian native speakers and non-native bilinguals by the time they finish the high school?*", results indicated no significant differences between the RCT mean scores for any of the two groups of Armenian and Persian students majoring in the same field. This leads to the conclusion that students of minority groups are able to achieve a relatively equal command of Persian at least in CALP (Cummins 1980, 1983) by the time they graduate from high school. It further implies that although the Armenians' LP is insufficient, there is no discrimination against them at school.

The results of this investigation show that minority and native speakers of Persian attain approximately the same level of LP and academic standards by the time they finish high school. This implies that (knowingly or by accident) the current program of education for minority students in Iran is successful.

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