

# The Interplay of Locus of Control, Academic Achievement, and Biological Variables among Iranian Online EFL Learners

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**Abstract**—Students' academic achievement, along with the effects of different variables, has been a serious concern of educators since long ago. This study was an attempt to investigate the interplay of Locus of Control (LOC), academic achievement and biological variables among Iranian online EFL Learners. The participants of the study included 100 students of different age groups and genders studying English online at Iran Language Institute (ILI), Isfahan, Iran. The instrument used was Trice Academic LOC questionnaire which identifies orientations of internality or externality. The participants' Grade Point Averages (GPAs) were used as the measure of their academic achievement. A series of independent samples t-tests were performed on the data. The results of the study showed that (a) there were no significant differences between male and female participants in LOC orientation, (b) there was no relationship between LOC and academic achievement among internal males and females, (c) external females were better achievers than external males, (d) and the age had no significant relationship with LOC and academic achievement. It can be concluded that the social, cultural patterns of genders have changed. This study might help sociologists and psychologists as well as applied linguists in that they reflect the recent social changes and their effects on the LOC and their consequent implications in teaching languages.

**Keywords**—Academic achievement, biological variables, Iranian online EFL learners, locus of control.

## I. INTRODUCTION

STUDENTS' academic achievement has been a serious concern for educators since long time ago. They witnessed that although all of the students have the ability to succeed academically and administrators take efforts to identify remedies for increasing academic success, some of them do not achieve those academic goals expected to gain. On the other hand, some students who are identified as academically weak often have the ability to achieve above their expectancy level [1]. These issues illustrate the need to investigate other factors such as personal characteristics of the learners.

The personality construct of LOC was originally developed by Rotter in 1954 from his larger personality theory referred to as Social Learning Theory. Reference [2] introduced his theory of internal versus external control of reinforcement to state that the individual's perception of whom or what was

responsible for his accomplishments is so important to his motivation and achievement. LOC focuses on whether individuals view events as being a matter of luck, chance, or fate, or that life events are influenced by one's own actions.

There are a handful of studies available with regard to the relationship between academic success and LOC with controversial results. Some researchers found a positive relationship between the status of internality and learners academic achievement [3]-[5] but, others did not find a direct relationship between the variables [6]-[8]. They attributed this variation to many different factors such as homogeneity of the participants of their studies, the selected field of study in which the participants were studying in, and their selected channel of education, distance as opposed to conventional.

Moreover, biological variables have been often regarded as probable factors of participants' success or failure. Among many, age, and gender are the most considerable ones and they have been the subject of many debates till now especially after the advent of social learning theory by Rotter in 1954 whose prediction was based on traditional socialization patterns of the society and different socialization experiences of males and females.

## II. LITERATURE REVIEW

Studying the differences between two genders has always been noteworthy by researchers, especially in psychology. Reference [9] found male scores to be more internal than females. This might be due to social desirability because based on traditional gender roles, females tend to believe that an internal perspective is inconsistent with female gender roles, and thus is socially undesirable. Also, [10] found females who were high in beliefs of social desirability capable of gaining higher external scores than females with low beliefs in social desirability. Therefore, female responses on LOC scales are influenced by their own beliefs about appropriate gender roles. Thus, LOC scores of females may not accurately figure actual beliefs. Moreover, [11] found gender differences in LOC and academic achievement relationship, as if there was no significant relationship between the two variables for males, but a significant negative relationship was found for females. The internal males/females achieved higher averages than the external males/females in his study. On the other hand, [12] investigated the relationship between LOC and academic achievement among 172 students of Mazandaran University of Medical Sciences and found that females were more externally controlled in comparison with males, but the difference was

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not large may be due to the improvement of self-reliance among females. Also, [5] after analyzing the correlation of both genders found that there were apparent differences, mainly, between both genders. Moreover, both genders possessed high positively correlated internal LOC with academic achievement. Subsequently, only male scores were high positively correlated external LOC with academic achievement. While the female scores were negatively correlated external LOC with academic achievement.

In [4], there was no difference of internality or externality between males and females. Both genders were more internally oriented, because the mean LOC scores for the internally oriented female and male participants were significantly higher than the externally oriented participants. In other words, male and female participants had no main differences in LOC orientation. With regard to the relationship between age and LOC, they found a significant correlation in the relationship between the internal students' ages and their averages; this means that the age had no main relationship with the high and low averages among the internal students. The Pearson product-moment correlation coefficient showed no significant correlation coefficient between age and LOC scores for the external students. The relationship between the externals' LOC scores and their averages was small and not significant, indicating the external participants' averages was not related to their LOC scores.

The main issue in this study was to examine the moderating effects of gender differences and age as biological variables on the relationship between LOC and academic achievement of online Iranian EFL Learners. This study sought to answer the following research questions:

1. Does the gender of Iranian online EFL learners modify the relationship between LOC and academic achievement?
2. Does the age of Iranian online EFL learners modify the relationship between LOC and academic achievement?

### III. METHODOLOGY

This study was qualitative and non-experimental in nature which employed a correlational design. The goal of correlational research is to measure the strength of the relationship between variables in order to predict one variable from the other. Correlational research is non-experimental and thus does not allow for causal inferences. The study was also exploratory and descriptive as well as retrospective (because it was done on retrospective data).

#### A. Participants

The participants of this study (N=100) were all Iranian online learners studying English in Iran Language Institute (ILI). They were forty eight male and 52 female students with different age groups and proficiency levels, and of both LOC statuses. The participants' demographic information is summarized in Table I.

TABLE I  
 DEMOGRAPHIC BACKGROUND OF THE PARTICIPANTS

Number Of Participants	Male	48
	Female	52
Language proficiency	Elementary	48
	Intermediate	52
	Above 33	28
Age	26-32	42
	Below 25	30
LOC Orientations	Internal	50
	External	50

#### B. Instruments

In order to measure participants' language proficiency level upon entry into the institute, the 2000 version (Test 4) of the IELTS (University of Cambridge Local Examinations Syndicate, 2000) was administered and the students were placed into their own level by the institute experts. A demographic questionnaire was also developed to obtain personal information for instance their age, gender, and their academic majors and degrees in order to gain their GPA from the institute and further analyze the data.

In addition, to identify participants' LOC orientations, the 28-item academic scale of LOC developed by [13] was used. This scale is a self-report inventory designed to measure beliefs in personal control over academic outcomes. Individuals responded to each item by indicating that its phrases were either true or false as applied to them. For instance, college grades most often reflect the effort you put into classes. Scores on the scale were derived from summing the number of externally answered items. Thus, total scores might range from 0 (internally oriented) to 28 (externally oriented). Trice reported a Kurder-Richardson-20 (KR20) reliability coefficient of .70 and the Cronbach's alpha for this sample was .71 indicating an adequate level of internal consistency.

The scale also showed high test-retest reliability over a five week period ( $r=.92$ ) indicating significant stability. As evidence for the construct validity, product-moment correlations with the Rotter I-E scale were significant ( $r=.50$ ). The scale also had non-significant social desirability scores. Finally discriminant and convergent validity data was adequate for this research purpose. To measure participants' achievement, gain in cumulative grade point average (GPA) across time was used.

#### C. Data Analysis Procedures

The differences between female and male participants were studied based on their LOC. To do so, the externality score of all male and female participants were listed against each other and an independent t-test was used to find out if there are any differences. Also, in order to study the relationship between age and LOC, another t-test was administrated between the age of all participants and their LOC scores on the questionnaire.

#### IV. RESULTS

First, the overall locus of control (LOC) status was checked and the results are shown in Table II.

As shown in Table II, in order to check whether the gender could be considered as a modifier variable influencing the relationship between LOC and academic achievement, the participants were divided into two separate groups based on their gender.

In order to answer the first research question each gender group was divided into two internal and external groups based

on their LOC status and a comparison was made between the two groups. In comparing male internals and female internals they were grouped. Later, the data were analyzed using the t-test and the obtained results are illustrated in Table III.

TABLE II  
THE PARTICIPANTS' LOC STATUS BASED ON GENDER

	Group	N	Mean	Std. Deviation	Std. Error Mean
Locus	Male	48	9.9167	2.87197	.41453
	Female	52	10.9231	3.32457	.46104

TABLE III  
THE T-TEST FOR THE RELATIONSHIP BETWEEN INTERNAL GENDERS AND THEIR ACHIEVEMENT

	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
Achievement			-1.691	48	.097	-5.11538	3.02571
Equal variances assumed	.003	.959	-1.694	47.934	.097	-5.11538	3.02020
Equal variances not assumed							

TABLE IV  
THE T-TEST FOR THE RELATIONSHIP BETWEEN EXTERNAL GENDERS AND THEIR ACHIEVEMENT

	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
Achievement			-2.846	48	.006	-8.53896	2.99985
Equal variances assumed	.389	.536	-2.832	44.309	.007	-8.53896	3.01539
Equal variances not assumed							

TABLE V  
THE T-TEST FOR THE RELATIONSHIP AMONG THE FIRST AGE GROUP, LOC AND ACHIEVEMENT

	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
Achievement			.793	28	.435	3.33333	4.20459
Equal variances assumed	1.370	.252	.734	17.697	.473	3.33333	6.21954
Equal variances not assumed							

TABLE VI  
THE T-TEST FOR THE RELATIONSHIP AMONG THE SECOND AGE GROUP, LOC AND ACHIEVEMENT

	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
Achievement			-1.875	40	.068	-6.68269	3.56430
Equal variances assumed	.229	.635	-1.865	31.345	.072	-6.68269	3.58352
Equal variances not assumed							

TABLE VII  
THE T-TEST FOR THE RELATIONSHIP AMONG THE THIRD AGE GROUP, LOC AND ACHIEVEMENT

	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
Achievement			.925	26	.364	3.71111	4.01336
Equal variances assumed	7.283	.012	.798	12.512	.440	3.71111	4.64339
Equal variances not assumed							

As Table IV shows, the significance of the internal males and internal females relationship is (.097) that is not significant at all which shows that gender could not be considered as modifier when discussing about internal people.

Another similar procedure was used in order to compare external female and male achievement, the same steps were followed and the results are reported in Table IV.

Table IV shows the significance of the results and it implies that when considering the achievement of external students, gender could be taken as modifier in that external female outperform external males.

In addition, in order to check whether age could be taken as modifier, the 100 participants of the study were divided into three groups in appropriate frequencies. First group range was 13-25 and they were totally 30 participants. Second group consisted of 42 participants, ranging from 26-32 and the third group consisted of 28 students ranging from 33-54. Each age group is analyzed and reported in separate analysis. The results of the statistics for the first age group containing 12 internal and 18 external participants are reported in Table V.

Table V shows that although the group means are reported as different (.435 and .475), they are not significant. In other words, in this group, the age does not act as a modifier.

The second age group consisted of the participants between 26-32 years of age and contained 42 participants. In this group, 26 external and 16 internal students were identified.

The second age group consisted of the participants between 26-32 years of age and contained 42 participants. In this group, 26 external and 16 internal students were identified.

Table VI shows that, the groups' mean difference is not statistically significant ( $t = -1.875$  and  $1.865$ ). Therefore, age could not be taken as a modifier at this age group either.

And finally the third age group has the 33-54 years of age. Out of all 28 participants in this group, 18 of them are internal and the rest are external. Table VII shows the results of the t-test for the 3rd age group.

As Table VII shows, although the difference exists, it is not significant and this implies that in this age group the LOC status could not be taken as modifier and since none of the age groups inferential statistics was significant, it could be concluded that age could not be considered as a modifier in this study.

#### V. DISCUSSION AND CONCLUSION

Four parallel sample groups were used (internal males and females, external males and females) to examine the first research question with regard to gender differences addressed by this study. The overall LOC status of both genders did not differ too much (see Table II). In other words, there was no difference of internality or externality between males and females. That is, neither males were more internal or external than females nor were females more internal or external than males. But, both male participants and female participants were more internally oriented, because the mean LOC scores for the internally oriented female participants and the internally oriented male participants were significantly higher than the mean LOC scores for the externally oriented female participants and the externally oriented male participants and this might be because of participants attendance in online language education discipline.

The results of the study showed that there were no main differences in LOC orientation between male and female students. The social learning theory prediction was that based on traditional socialization patterns of the society and different socialization experiences of males and females, there are different statuses for them; therefore, they can have different LOC perceptions. In the present study, both male and female learners were more inclined to the internal control orientation. This might be because, nowadays, females/males' statuses and practices have changed as a result of changes in social, cultural norms, and patterns and this precludes gender differences in LOC perceptions.

The study found that there was only an observable difference in the relationship of LOC and achievement merely among externals. The external females of the present study outperformed external males. The results of the present study with regard to gender were in line with the results obtained by

[11] in that he found internal males and females as higher average achievers than the external males and females. The results also match the findings of [5] showing internality as correlated positively for both genders, but when comes to externals, only male scores were correlated positively with external LOC with regard to the relationship with academic achievement.

The supposition is that because of the changes in the social and cultural patterns and norms, men and women have statuses and experiences different from the past, women have jobs and responsibilities like men and even more difficult jobs than men; therefore, they have enough self-confidence, can take responsibilities, and attribute the causes of successes and failures to themselves, and not to luck, chance, or other external events.

Then, the sample group was divided into six groups to examine the third research question with regard to age differences addressed by this study. In order to analyze different age groups separately using t-test, the participants were divided into three groups. There was no significant correlation between the internal learners' ages and LOC scores. In other words, age had no main relationship with LOC scores among internal learners. No significant correlation was also found for the relationship between the internal students' ages and their averages. This means that the age had no main relationship with the high and the low averages among the internal students.

Also, the t-test showed no significant correlation between age and LOC scores for the external students. As it was stated, the relationship between the externals' LOC scores and their averages was small and not significant, indicating the external participants' averages were not related to their LOC scores.

There existed no remarkable relationship of age with LOC scores and also with averages among both internal and external participants. This suggests that age had no main impact on the relationship between LOC and academic achievement for all participants. This finding of the study is consistent with the findings of [4], but inconsistent with the findings of some other previous studies. As [14] and also [9] suggested, due to the curvilinear relationship of LOC with academic achievement, the results of the works investigating the impact of age on the relationship between these two variables are inconsistent and ambiguous.

The results of this study seem to be of interest to both gender sociology and educational psychology along with applied linguistics. In fact, this study bridges between sociolinguistics, psycholinguistics, and applied linguistics by showing how different the reality of the modern society is with the educators' predispositions about the LOC statuses of males and females. This implies that curriculum developers should give more credit to female learners now and view their internality as almost equal to that of male learners. Also, a number of hints can be concluded on how to take the effects of LOC on achievement into consideration in language teaching.

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