The impact of locus of control on language achievement

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This study hypothesized that students' loci of control affected their language achievement. 198 (N=198) EFL students took the Rotter's (1966) locus of control test and were classified as locus-internal (ni=78), and locus-external (ne=120). They then took their ordinary courses and at the end of the semester, they were given their exams. Their semester-end cumulative grade point averages (GPA) were compared to their previous-term GPA. SPANOVA results did not identify locus of control (LoC) as a predictor of achievement. Results also indicated that factors like LoC, if at all, interact with proficiency only at the advanced level.

Keywords: Locus of Control; Externalizers; Internalizers; Achievement; Attribution

1. Introduction

As Williams and Burden (1997) noticed learning does not take place in a vacuum. Environmental, social, political, and many other learner-external factors interact in complex ways to determine learning outcomes. Moreover, the way learners observe the world has a great influence over their educational achievements. Studies have shown that their sense of personal control over the educational process is one of the most significant factors in arousing and maintaining individuals' interest and involvement in learning activities. This sense of personal control is known as Locus of Control (LoC). The present study is an attempt at showing if LoC determines language achievement.

2. Background

Locus of Control (LoC) has certainly generated much research in psychology in a variety of areas. It was first introduced by Rotter in Social Learning Theory (196) and is distinguished from 'attributional style' in that the former is a concept linked with expectancies about the future while the latter is a concept linked with explanations for past outcomes. As such, LoC indicates how a person believes about control over life events; LoC refers to whether individuals relate their success or failure to their own behavior. Rotter proposed a continuum for LoC with Externalisers and internalisers at the two

opposing extremes. 'Internalisers' feel personally responsible for everything that happens to them in their lives whereas 'Externalisers' believe that factors beyond their control determine what would happen in their lives. For example, college students with a strong *internal* locus of control may believe that their grades were achieved through their own abilities and efforts, whereas those with a strong *external* locus of control may believe that their grades are the result of good or bad luck, and are hence less likely to work hard for high grades. This has obvious implications for differences between internals and externals in terms of their achievement motivation, suggesting that internal locus is linked with higher levels of progress. Due to their locating control outside themselves, externals tend to feel they have less control over their fate. People with an external locus of control tend to be more stressed and prone to clinical depression (Furnham & Steele, 1993).

Several researches have been done to investigate the relationship between Locus of Control and success in life, especially in academic achievement. In a review of these studies, Findley and Cooper (1983) concluded that those with more internal beliefs are more successful in their academic achievements. They also found this relationship to be stronger for males than for females. They further noticed that learners with a high level of internal LoC exhibit strong tendencies to seek information and show exploratory behavior and to voluntarily participate in problem-solving tasks. By way of contrast, those with high externality, tend to be passive, compliant, non-exploratory and inattentive. Gregory (1979) studied the effects of three feedback conditions (i.e., no feedback, confirmations of correct response and monetary reward for correct response) on students' achievement; internalizers were compared to externalizers, and it was found that, while internals performed equally well in all conditions, externals performed best with tangible reinforcement. The effects of reinforcement in general on students' academic achievement revealed that:

- externalizers performed better with tangible reinforcement than with verbal reinforcement or with no reinforcement;
- Internalizers performed equally well with different kinds of reinforcers.

It was further found that internals gained higher cumulative grade point averages (GPA) (used as a measure of achievement); significant increases were observed in their reading comprehension and essay test scores on the post-tests. As such, internal LoC was considered as a predictor of achievement.

Parr and Maguiness (2005) tried to find the relationship between locus of control and the way it affected readers. He found that the locus-internal

readers were focused on the material and clear about their preferences and selections; the eight locus-external readers, however, needed support. In another study, Galbraith and Alexander (2005) focused on the loci of control of a group of primary school pupils to examine the efficacy of an integrated, eclectic approach to the teaching of literacy; their aim was to see if helping students to develop and change such constructs as self-concept, LoC, and self-esteem had a bearing on academic achievement. Significant improvements in the reading scores of the target children were concurrently achieved with improved self-esteem and locus of control scores. Their results suggested the usefulness of the teacher acting simultaneously as instructor, scaffolder and iconoclast (c.f., Rababah, 2012).

Overall, study findings of the past few decades have distinguished internals from externals on several grounds; Table 1 presents a summary of these findings.

Table 1.
Comparison of Distinctive Features of Externals and Internals

Internals	**Externals**
• tolerate delays in rewards • plan for long-term goals • are better able to resist coercion • are less prone to depression and anxiety • are less willing to take risks • are more guilt-prone • derive greater benefits from social supports • are more likely to work for achievements • are more likely to prefer games based on skill • are better at tolerating ambiguous situations • are more willing to resort to remedial work for self-improvement • are more likely to do well at distance learning situations • after failure, re-evaluate future performances and lower their expectations of success • make better mental health recovery in the long-term adjustment to physical disability	• are more likely to lower their goals • have low achievement motivation • are prone to learned helplessness • prefer games based on chance or luck • need more encouragement and guidance from the instructor • after failure, may raise their expectations

To the researcher's knowledge, however, there is still a dearth of studies that have addressed the effects of LoC on foreign language achievement. The present study was therefore conducted to investigate how LoC may affect EFL learners' language achievement.

3. METHOD

3.1. Participants

Participants in the present study (N=198) were all Iranian EFL university students majoring in Translation (n_{Trans}=59), Literature (n_{Lit}=73), and Teaching English as a Foreign Language (TEFL) (n_{TEFL}=66). They belonged in different proficiency groups: Beginner (n_{big}=58), Lower-intermediate (n_{li}=43), Upper-intermediate (n_{ui}=48), and Advanced (n_{a}=49).

3.2. Instruments and measures

To identify participants' LoC, the 29-item scale of LoC developed by Rotter (1966) was used. The scale is considered to be the most standard one which is used worldwide. Previous studies have reported that this measure of LoC has acceptable reliability and validity (c.f. Buchanan & Seligman, 1997; Shiraev and Levy, 2004). It is a 29 items test, each containing two questions. The subjects are supposed to chose only one question according to what they feel and believe. 23 out of 29 of these items are intended to measure the kind of locus of control and the other 6 items (i.e., items 1, 8, 12, 19, 23, and 28) work as lie-detectors (intended to show if respondents are taking the scale seriously); the answers to these 6 distracter items are not scored. In the 23 items which are used to measure subjects' locus of control, questions labeled (a) receive 1 credit while questions labeled (b) receive no credit. The questionnaire average is 8.28. Since the total score made by each respondent suggests their kind of LoC, those with 9-plus score are identified as externals and those with 9-minus scores are identified as internals.

To measure participants' achievement, gain in cumulative grade point average (GPA) across time was used. A GPA is an internationally recognized measure which provides an overall view of students' performance in a program and is a leading indicator of students' achievement. In Iranian universities, a scale from 0 to 100 is often used for scoring students' test performance, wherein >70 to 100 equals to Good to Excellent, 70 is the Average point, 60 is the Passing thresholds, and <60 equals to Failed.

To measure participants' language proficiency level upon entry into the study, the 2000 version (Test 4) of the IELTS (University of Cambridge Local Examinations Syndicate, 2000) was administered.

3.3. Procedures

In the first step of the study, a total of 198 university students all majoring in English took the 2000 version (Test 4) of the IELTS. Although IELTS scores are often reported as a scale, each correctly-answered item on the test received 1 point and each participant's proficiency score was equal to the sum of points they received for items they had correctly answered. Their Z-scores on the test were calculated and standard deviations (SD) from the mean were used to assign participants into proficiency groups. That is, those who had scored higher than 'mean-plus-one' SD were assigned to the advanced proficiency group (n_a=49), those who stood within the 'mean-plus-one' SD range were assigned to the Upper-intermediate group (n_{ui}=48), those within the 'mean-minus-one' SD range to the Lower-intermediate group (n_{li}=43), and those below the mean-minus-one SD to the Beginner group (n_{big}=58). The participants then took Rotter's LoC scale. Their scores on the scale were used to distinguish between internals (n_i=78) and externals (n_e=120). They then took their ordinary courses and at the end of the semester, they were given their exams. Their semester-end GPAs (used as post-test data) were then compared to their previous-semester GPAs (used as pre-test data).

4. Results and discussion

The study was based on a mixed between-within subjects design proficiency, sub-major, and LoC as the independent variables (i.e., the between subjects variables) and achievement (or change in GPA over time) as the dependent variable (i.e., the within subjects variable). Therefore, three sets of 'mixed between-within subjects' analysis of variance (also known as SPANOVA) were conducted for data analysis.

The main aim of this paper, as it has already been delineated in the 'introduction' section, was to address the question of whether kinds of LoC differentially affect achievement. Therefore, the results of data analysis for sub-major (i.e., Translation, Literature, and TEFL) will not be presented here.

4.1. SPANOVA for locus of control

One question addressed in this study was:

- Is there a change in subjects' GPA across two time phases (Previous semester and this semester) as a result of the effect of LoC?

Here the within-subjects factor was time. Subjects' GPAs from two successive educational semesters were used as the scale for the within-subjects variable of the study (i.e., previous-semester GPAs and semester-end GPAs). As such, the within-subjects variable of the study can be described as (GPA-1 or time-1) and GPA-2 (or Time-2); the between-subjects variable was LoC. This

SPANOVA was conducted to see if there were main effects for each of the independent variables (i.e., Main effect for subjects' loci of control and main effect for time (i.e., semester)) and also for their interaction to tell if the change in GPA over time was different for the loci-of-control groups.

Table 2.
Box's Test of Equality of Covariance Matrices

Box's M	1.867
F	.615
df1	3
df2	1323262.860
Sig.	.605

Design: Intercept+LOC
Within Subjects Design: Time

It was necessary to check for *Homogeneity of intercorrelations*—to see if for each of the levels of the between-subjects variable (i.e., locus of control) the pattern of intercorrelations among the levels of within-subjects variable (i.e., GPA) were the same. To test this assumption, Box's M statistic with the *alpha* level of .05 was used with the hope that the statistic would not be significant (i.e., that the *p* level would be greater than 0.055). In other words, Box's M statistic tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups Table 2 displays the result and indicates that this assumption was met (*Sig.*=0.605).

A look at the Multivariate Tests table also indicated that there was a change in GPA across time. The main effect for time was significant. There was, however, an indication that the two groups were not different in terms of GPA across time. The main effect for the interaction between time and locus of control was not significant. These findings are indicated by Wilks' Lambda values and the associated probability values given in the column labeled *Sig.* in Table 3 below.

Based on the values in the Wilks' Lambda's part of the "Multivariate Tests" table (See table 3) it was found that there was a statistically significant change in GPA as a result of locus of control. The value for Wilks' Lambda for time was 0.970, with a *Sig.* value of .015 (which means $p<.0155$). Because the *p* value was less than .05, it was concluded that there was a statistically significant effect for time. This suggested that there was a change in GPA across time; technically speaking, it showed the effect of locus of control on GPA. The value for partial Eta squared for time was 0.030. Using the commonly used guidelines proposed by Cohen's (1988) (0.01=small effect,

0.06=moderate effect, and 0.14=large effect), this result suggested a small effect size for time.

Table 3.
Multivariate Tests

Effect		Value	F	Sig.	Partial Eta^2
Time	Pillai's Trace	.030	6.023(b)	.015	.030
	Wilks' Lambda	.970	6.023(b)	.015	.030
	Hotelling's Trace	.031	6.023(b)	.015	.030
	Roy's Largest Root	.031	6.023(b)	.015	.030
Time * LOC	Pillai's Trace	.000	.055(b)	.814	.000
	Wilks' Lambda	1.000	.055(b)	.814	.000
	Hotelling's Trace	.000	.055(b)	.814	.000
	Roy's Largest Root	.000	.055(b)	.814	.000

Computed using alpha = .05 (Exact statistic, Design: Intercept+Treatment, Within Subjects Design: Time)

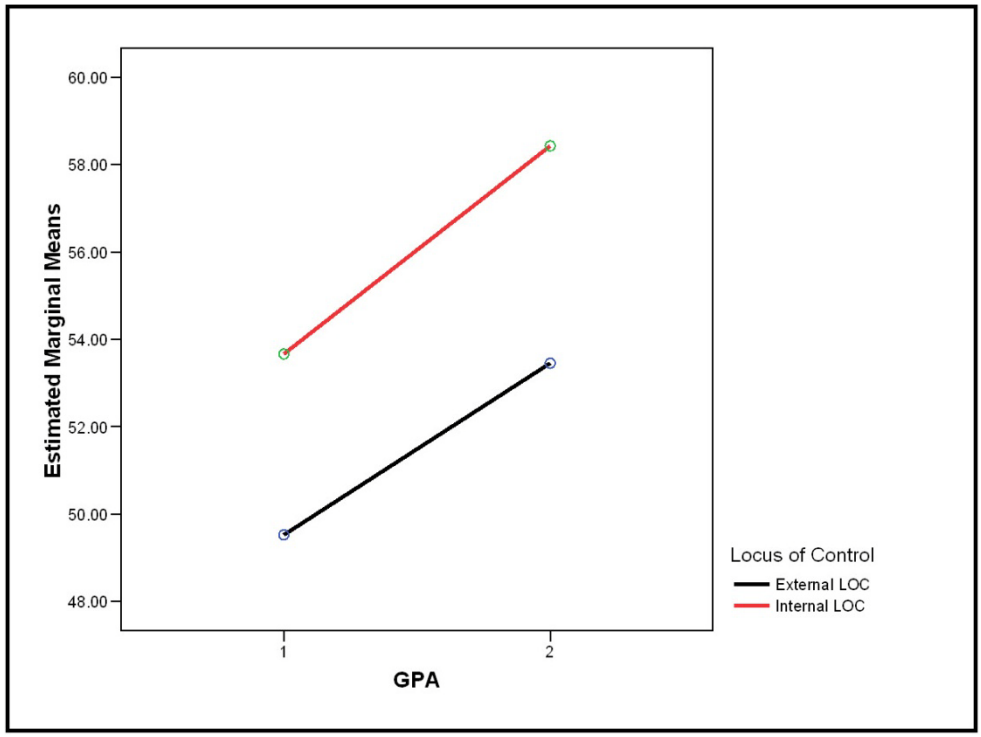

Figure 1. Comparison of gains in GPA across subject groups.

Furthermore, the value for Wilks' Lambda for time-LOC interaction was 01.00, with a *Sig.* value of .814 (which means p<.8145). Because the p value

was bigger than .05, it was concluded that there was no statistically significant effect for time-LOC interaction. The partial Eta squared value for the interaction effect was 0.000. This suggests no effect for time-LOC interaction. This means that there was the same change in GPA over time for the two LOC groups. In other words, gain in GPA for the External-LOC group was the same as that for the Internal-LOC group. Figure 1 above visualizes this similarity in GPA gains in across subject groups.

Table 4.
Descriptive Statistics for LOC Groups across Time

	Locus of Control	Mean	Std. Deviation	N
Pre-test (GPA-1)	External	49.5238	31.26188	120
	Internal	53.6630	35.53282	78
Post-test (GPA-2)	External	53.4524	29.07691	120
	Internal	58.4249	32.33028	78

Table 4 presents the descriptive statistics for the two treatment groups across time. As table 4 indicates, the pre-test (GPA-1) mean for Ex-LOC was 49.52 while the post test (GPA-2) mean was 53.45; the pre-test mean for In-LOC was 53.66 whereas the post test mean was 58.42. The mean change was mathematically small but the researcher had to check it for statistical significance; to this end, the researcher looked at the data displayed in Table 5.

Table 5.
Tests of Between-Subjects Effects

Source	Type II Sum of Squares	df	Mean Square	F	Sig.	Partial Eta^2
Intercept	1093242.521	1	1093242.521	636.730	.000	.765
LOC	1962.373	1	1962.373	1.143	.286	.006
Error	336525.052	196	1716.965			

Transformed Variable: Average & Computed using alpha = .05

As table 5 indicates, the Sig. value for LOC was not statistically significant (*Sig.*=0.286). The Sig. value was not less than the alpha level of 0.05. Therefore, the researcher concluded that the main effect for group was not significant. That is, there was no significant difference in gains in GPA for the two groups (those with External LOC and those with Internal LOC). The effect size of the between-subject effect also supported this finding; the eta-squared value for LOC (or group) was 0.006. This is very small. It is therefore not surprising that it did not reach statistical significance.

4.2. SPANOVA for proficiency level

The second question addressed in this study was:

- Is there a change in subjects' GPA across two time phases (Previous semester and this semester) as a result of the effect of their proficiency level?

Here the within-subjects factor was time, and the between-subjects variable was students' proficiency level. Another SPANOVA was conducted to see if there were main effects for each of the independent variables (i.e., Main effect for subjects' loci of control and main effect for time (i.e., semester)) and also for their interaction to tell if the change in GPA over time was different for the loci-of-control groups.

It was necessary to check for *Homogeneity of intercorrelation*s—to see if for each of the levels of the between-subjects variable (i.e., locus of control) the pattern of intercorrelations among the levels of within-subjects variable (i.e., GPA) were the same. To test this assumption, Box's M statistic with the *alpha* level of .05 was used with the hope that the statistic would not be significant (i.e., that the *p* level would be greater than 0.055). In other words, Box's M statistic tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups

Table 6.
Box's Test of Equality of Covariance Matrices

Box's M	29.198
F	3.183
df1	9
df2	365243.757
Sig.	.001

Design: Intercept+LOC

Within Subjects Design: Time

Table 6 displays the result and indicates that this assumption was not met (*Sig.*=0.001). This is not that important since this assumption is often violated (see Pallant, 2001, p. 214).

A look at the Multivariate Tests table also indicated that there was a change in GPA across time. The main effect for time was significant. There was, however, an indication that the four proficiency groups were not different in terms of GPA across time. The main effect for the interaction between time and proficiency was not significant. These findings are indicated by Wilks' Lambda values and the associated probability values given in the column labeled *Sig.* in Table 7.

Table 7.
Multivariate Tests

Effect		Value	F	Sig.	Partial Eta^2
Time	Pillai's Trace	.032	6.395(b)	.012	.032
	Wilks' Lambda	.968	6.395(b)	.012	.032
	Hotelling's Trace	.033	6.395(b)	.012	.032
	Roy's Largest Root	.033	6.395(b)	.012	.032
Time * proficiency	Pillai's Trace	.034	2.267(b)	.082	.034
	Wilks' Lambda	.966	2.267(b)	.082	.034
	Hotelling's Trace	.035	2.267(b)	.082	.034
	Roy's Largest Root	.035	2.267(b)	.082	.034

Computed using alpha = .05 (Exact statistic, Design: Intercept+Treatment, Within Subjects Design: Time)

Based on the values in the Wilks' Lambda's part of the "Multivariate Tests" table, it was found that there was a statistically significant change in GPA as a result of proficiency. The value for Wilks' Lambda for time was 0.968, with a *Sig.* value of .012 (which means $p<.0125$). Because the p value was less than .05, it was concluded that there was a statistically significant effect for time. This suggested that there was a change in GPA across time; technically speaking, it showed the effect of proficiency on GPA. The value for partial Eta squared for time was 0.032. Using the commonly used guidelines proposed by Cohen's (1988) (0.01=small effect, 0.06=moderate effect, and 0.14=large effect), this result suggested a small effect size for time.

Furthermore, the value for Wilks' Lambda for time-proficiency interaction was 0.966, with a *Sig.* value of .082 (which means $p<.0825$). Because the p value was bigger than .05, it was concluded that there was no statistically significant effect for time-proficiency interaction. The partial Eta squared value for the interaction effect was 0.034. This suggests the existence of a small effect for time-proficiency interaction. This means that there was a very small change in GPA over time for the four proficiency groups indicating that the different groups did not achieve exactly the same gains in GPA across time. In other words, gain in GPA for the proficiency groups were not the same although the observed differences were very small in size. Figure 2 visualizes this small difference in GPA gains across subject groups.

Figure 2 shows that the advanced proficiency group had, in fact, lost some points in GPA over time. This loss was, however, so small that it could be neglected. Table 8 presents the descriptive statistics for the four proficiency groups across time.

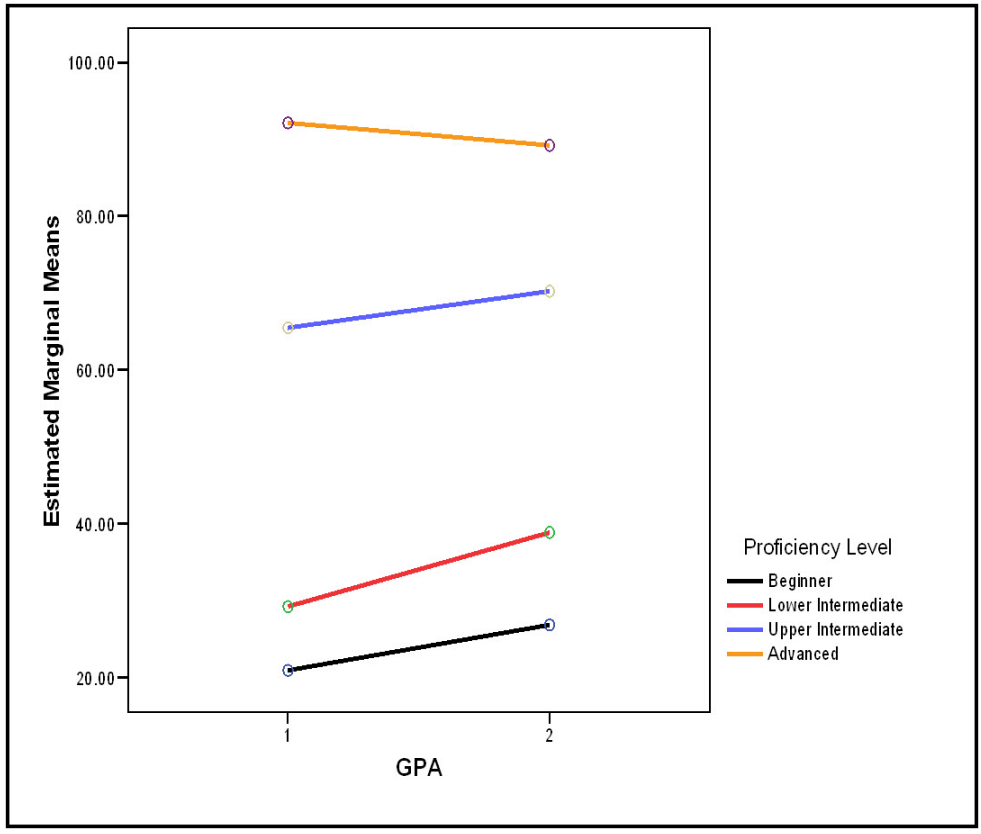

Figure 2. Comparison of gains in GPA across subject groups.

Table 8.
Descriptive Statistics for Proficiency Groups across Time

	Independent Variable	Mean	SD	N
Pre-test (GPA-1)	Beginner	20.9360	16.96979	58
	Lower Intermediate	29.2359	17.62185	43
	Upper Intermediate	65.4762	17.14117	48
	Advanced	92.1283	10.53873	49
Post-test (GPA-2)	Beginner	26.8473	17.56326	58
	Lower Intermediate	38.8704	20.75485	43
	Upper Intermediate	70.2381	17.39264	48
	Advanced	89.2128	11.85607	49

As table 8 indicates, the pre-test (GPA-1) mean for beginners was 20.93 while the post test (GPA-2) mean was 26.84; the pre-test mean for lower-intermediate was 29.23 whereas the post test mean was 38.87; the pre-test

mean for upper-intermediate was 65.47 whereas the post test mean was 70.23; and finally the pre-test mean for advanced was 92.12 whereas the post test mean was 89.21. It was noticed that the advanced proficiency group had lost some GPA over time. The mean change was mathematically small but the researcher had to check it for statistical significance; to this end, the researcher looked at the data displayed in Table 9.

Table 9.
Tests of Between-Subjects Effects

Source	Type II Sum of Squares	df	Mean Square	F	Sig.	Partial Eta^2
Intercept	1146588.820	1	1146588.820	4530.253	.000	.959
proficiency	289386.810	3	96462.270	381.129	.000	.855
Error	49100.615	194	253.096			

Transformed Variable: Average
Computed using alpha = .05

As table 9 indicates, the Sig. value for proficiency was statistically significant (*Sig.*=0.000). The Sig. value was less than the alpha level of 0.05. Therefore, the researcher concluded that the main effect for proficiency group was significant. That is, there was a significant difference in gains in GPA for the four proficiency groups across time. The effect size of the between-subject effect also supported this finding; the eta-squared value for proficiency level (or group) was 0.855. This is very large. It is therefore concluded that different proficiency groups had different GPA gains across time.

The results of data analysis presented above indicated that language proficiency was the most important factor in GPA gain across time. It can therefore be argued that kind of LoC is not a predictor of GPA gain. That is, students achieve more as they gain a greater level of language proficiency. It was also noticed that advanced proficiency students had somewhat lost their GPAs. This indicates that other factors such as LoC, if at all, interact with proficiency only at the advanced level. Moreover, their effect is negative in that their interception with proficiency results in loss of GPA across time. This loss at the advanced proficiency level may also be due to participants' loss of motivation. Further studies that intercept motivation, LoC, and proficiency will reveal which factor is responsible for this small negative change in achievement at the advanced proficiency level.

5. Conclusion

It was found in this study that internalizers were better achievers than externalizers although the observed difference between the two groups was not large enough to reach statistical significance. It was further noticed that

externalizers at the advanced proficiency level lost some points on their GPAs while this happened to internalizers at the upper-intermediate level. Moreover, fluctuations in achievement were greater for externalizers than for internalizers. These fluctuations could not, however, be solely credited to LoC. Other factors such as learners' motivation and teachers' inconsistency in scoring may also explain these GPA changes. Lower-intermediate participants showed the greatest effect for LoC; as such, teachers and materials developers who work with lower-intermediate students are recommended to pay closer attention in their profession to the impact of LoC on achievement at this language proficiency level.

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