Chapter 4

Results

4.1 Introduction

Data was collected from participants in twelve sections to determine whether second language learners of English who receive frequent assessments during their course of study perform better on final assessments of ability when compared to learners who receive zero assessment. Learners were also surveyed for their opinions to understand whether and how they would vary based upon assessment received.

Learners were measured prior to instruction using a pre-instructional placement examination. The data collected using the placement examination was used to sort learners into bands representing four equal ranges of proficiency. Table 26 summarizes the percentiles generated to formulate proficiency ranges.

Table 26 Statistically Generated Proficiency Ranges

N	Valid		200
	Missing		0
Percentiles		25	31.25
		50	36.25
		75	39.75

In order to facilitate accurate data analysis, a purposeful sample of 200 learners was randomly generated with 100 learners representing treated participants and 100 learners representing untreated participants and 25 learners representing each band of proficiency for each treatment category. Table 27 demonstrates the constitution of the final, purposefully designed sample.

Table 27 Final Purposefully Designed Sample

	Data Based on Performance Examination Scores						
Proficiency Band	Range		Range		Number of Students per Band		Total N of Students
	(Mean)		(%)				
Description	Low	High	Low	High	Treatment	Control	Total
Lowest	21	31.25	46.67	69.44	25	25	50
Lower-Middle	31.26	36.25	69.47	80.56	25	25	50
Upper-Middle	36.26	39.75	80.58	88.33	25	25	50

Data Based on Performance Examination Scores						
Proficiency Band	Range (Mean)		Range (%)		Number of Students per Band		Total N of Students
Highest	39.76	45	88.36	100	25	25	50
Total	21	45	46.67	100	100	100	200

4.2 Results Pertaining to the First Research Objective

The first research objective sought to determine whether the inclusion of frequent assessment would cause learners to score differently on a final examination of ability. The objective was correspondingly subdivided into sections discussing whether the results would vary according the proficiencies, ages, and genders of learners and how well they performed relative to given sections of the final examination. The results pertaining to the first objective are presented in the following order:

Table 28 Schedule of Results Pertaining to the First Research Objective

Objective	Domain Comparison	Instrument		
		Placement Examination	Performance Examination	Treatment Instruments
1.1	Overall Performance	×	×	
1.2	Performances by Ability		×	
1.3	Performance by Section		×	
1.4	Performance by Age	×	×	×
1.5	Performance by Gender	×	×	×

4.2.1 Comparison of Total Mean Scores of Treated and Untreated Learners

On the final examination, *The English Language Performance Examination*, the scores of all learners who had received treatment were compared to the scores of all learners in the control group (i.e., those who had not received treatment). Overall, on the final examination of ability (the performance examination) there was no significant difference in the scores of treated learners (n=100, $\bar{x}$=20.67, σ=4.12) and untreated learners (n=100, $\bar{x}$=20.41, σ=3.58); t(198)= 0.48, p=0.635.

Table 29 Performance Examination: All Learners

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	100	20.67	4.12	0.48	198	0.635
Control	100	20.41	3.58			

4.2.2 Comparisons Pertaining to the First Objective and Ability

The scores of learners who were treated and not treated were compared with respect to comparable proficiencies measured using the pre-instructional placement examination. Results of such comparisons are presented in this section.

4.2.2.1 Comparison of Means among Learners in the Lowest Ability Range

Among lowest proficiency participants, there was no significant difference in scores between learners who had received treatment (n=25, $\bar{x}$=18.14, σ=4.55) and learners who had not received treatment (n=25, $\bar{x}$=17.36, σ=3.27); t(48)= 0.70, p=0.78. Learners who were treated scored somewhat higher, but the difference in scores was not significant.

Table 30 Performance Examination: Lowest Ability

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	25	18.14	4.55	0.70	48	0.78
Control	25	17.36	3.27			

4.2.2.2 Comparison of Means among Learners in the Second Lowest Ability Range

Among learners who had originally scored within the lower-middle range of ability, there was no significant difference in scores between learners who had received treatment (n=25, $\bar{x}$=20.20, σ=3.86) and learners who had not received treatment (n=25, $\bar{x}$=19.25, σ=2.54); t(48)=1.03, p=0.309. Learners who had received treatment scored somewhat though not significantly higher.

Table 31 Performance Examination: Second Lowest Ability

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	25	20.20	3.86	1.03	48	0.309
Control	25	19.25	2.54			

4.2.2.3 Comparison of Means among Learners in the Second Highest Ability Range

For learners who originally scored within the upper-middle range of ability, there was no significant difference in scores between learners who had received treatment (n=25, $\bar{x}$=22.65, σ=3.82) and learners who had not received treatment (n=25, $\bar{x}$=21.30, σ=2.69); t(48)=1.44, p=0.155. Again, learners who had received treatment scored marginally higher, but the difference was not significant.

Table 32 Performance Examination: Second Highest Ability

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	25	22.65	3.82	1.44	48	0.155
Control	25	21.30	2.69			

4.2.2.4 Comparison of Means among Learners in the Highest Ability Range

There was however a significant difference in scores between learners who originally placed into the highest range of ability who were treated ($n=25$, $\bar{x}=21.68$, $\sigma=2.82$) and learners who originally placed into the highest range of ability who were not treated ($n=25$, $\bar{x}=23.72$, $\sigma=2.27$); t(48)= -2.82, $p=0.007$. Untreated learners in this category scored significantly higher than treated learners in this category.

Table 33 Performance Examination: Highest Ability

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	25	21.68	2.82	-2.82	48	0.007*
Control	25	23.72	2.27			

*The mean difference is significant at the .05 level

4.2.2.5 Illustration of Differences

The following table summarizes the differences in performance on the final examination based on starting proficiency.

Table 34 Summary of Differences by Ability

Proficiency	Mean		df	t	p
	Treatment	Control			
Lowest	18.14	17.36	48	0.70	0.490
Lower-Middle	20.2	19.25	48	1.03	0.309
Upper-Middle	22.65	21.3	48	1.44	0.155
Highest	21.68	23.72	48	-2.82	0.007*
Total	20.67	20.41	198	0.48	0.635

*The mean difference is significant at the .05 level

Differences in Final Ability by Ability Range

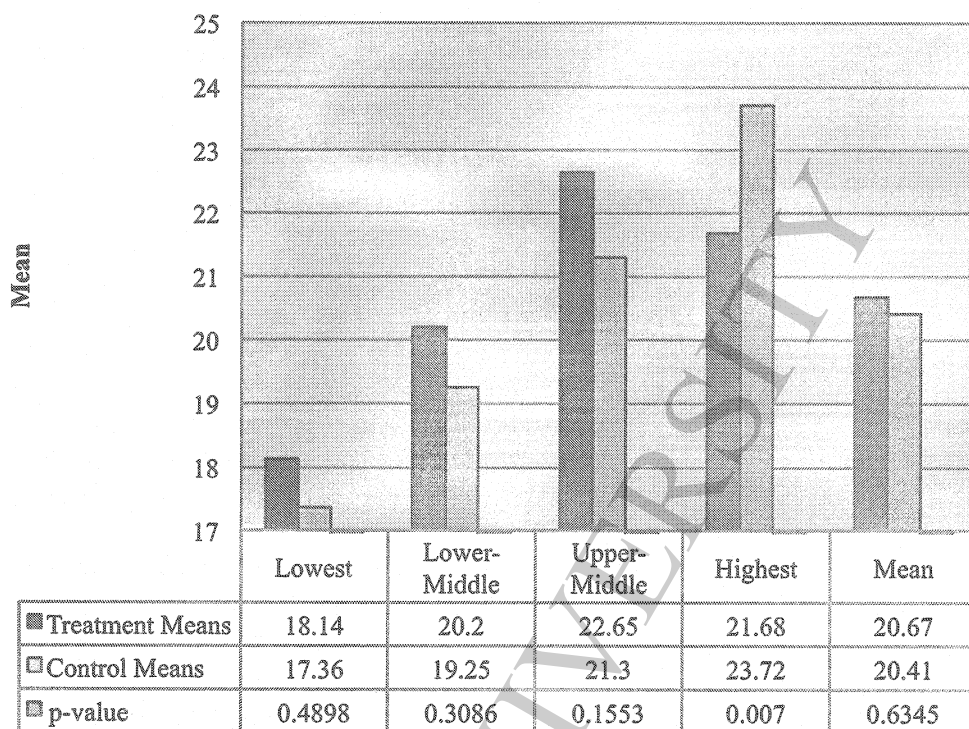|	Lowest	Lower-Middle	Upper-Middle	Highest	Mean
Treatment Means	18.14	20.2	22.65	21.68	20.67
Control Means	17.36	19.25	21.3	23.72	20.41
p-value	0.4898	0.3086	0.1553	0.007	0.6345

Figure 2 Performance Examination: Differences by Ability

4.2.3 Differences on the Final Examination by Section

Differences in performance were measured relative to sections of the final examination.

Differences in Performance of Treated and Untreated Learners on the First Section of the Final Examination of Ability

There were no significant differences in scores on the first section of the final examination of ability between treated (n=100, $\bar{x}$=3.42, σ=1.51) and untreated learners (n=100, $\bar{x}$=3.35, σ=1.28); t(198)=0.33, p=0.743.

Table 35 Performance Examination: First Section

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	100	3.42	1.51	0.33	198	0.743
Control	100	3.35	1.28			

Differences in Performance of Treated and Untreated Learners on the Second Section of the Final Examination of Ability

There were no significant differences in scores on the second section of the final examination of ability between treated (n=100, $\bar{x}$=2.78, σ=1.22) and untreated learners (n=100, $\bar{x}$=2.72, σ=1.37); t(195.326)=0.33, p=0.744.

Table 36 Performance Examination: Second Section

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	100	2.78	1.22	0.33	195.33	0.744
Control	100	2.72	1.37			

Differences in Performance of Treated and Untreated Learners on the Third Section of the Final Examination of Ability

There were no significant differences in scores on the third section of the final examination of ability between treated (n=100, $\bar{x}$=4.39, σ=1.46) and untreated learners (n=100, $\bar{x}$=4.20, σ=1.21); t(198)=1.00, p=0.319.

Table 37 Performance Examination: Third Section

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	100	4.39	1.46	1.00	198	0.319
Control	100	4.20	1.21			

Differences in Performance of Treated and Untreated Learners on the Fourth Section of the Final Examination of Ability

There were no significant differences in scores on the fourth section of the final examination of ability between treated (n=100, $\bar{x}$=4.17, σ=1.48) and untreated learners (n=100, $\bar{x}$=4.45, σ=1.44); t(198)= -1.36, p=0.177.

Table 38 Performance Examination: Fourth Section

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	100	4.17	1.48	-1.36	198	0.177
Control	100	4.45	1.44			

Differences in Performance of Treated and Untreated Learners on the Fifth Section of the Final Examination of Ability

There was a significant difference in the scores on the fifth section of the final examination of ability between treated (n=100, $\bar{x}$=5.91, σ=0.25) and untreated learners (n=100, $\bar{x}$=5.69, σ=0.89); t(114.649)=2.44, p=0.016.

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	100	5.91	0.25	2.44	114.65	.016*
Control	100	5.69	0.89			

*The mean difference is significant at the .05 level

Differences by Exam Section

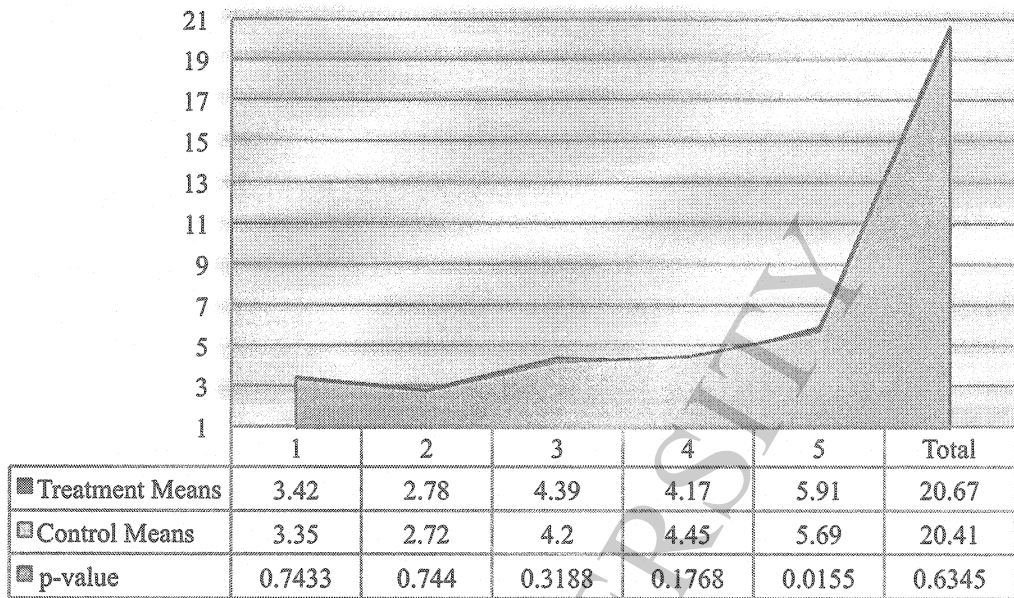|	1	2	3	4	5	Total
■ Treatment Means	3.42	2.78	4.39	4.17	5.91	20.67
□ Control Means	3.35	2.72	4.2	4.45	5.69	20.41
■ p-value	0.7433	0.744	0.3188	0.1768	0.0155	0.6345

Figure 3 Performance Examination: Differences by Section

Analyses of Differences on Final Examination Sections by Proficiency Range

Table 39 and Table 40 and summarize differences occurring on each of the five sections of the final examination according to the levels of ability into which learners were originally sorted on the pre-instructional placement examination of ability.

Table 39 Means and Standard Deviations by Section and Ability

Range		Section 1		Section 2		Section 3		Section 4		Section 5		Total	
		T	C	T	C	T	C	T	C	T	C	T	C
Lowest	Mean	2.56	2.76	2.56	2.08	3.64	3.4	3.6	3.94	5.78	5.18	18.14	17.36
	SD	1.58	1.13	1.45	1.41	1.7	1.04	1.56	1.53	0.29	1.44	4.55	3.27
Lower-Middle	Mean	2.92	3.08	2.72	2.44	4.24	3.64	4.4	4.39	5.92	5.7	20.2	19.25
	SD	1.5	1.32	1.1	1.23	1.48	1.08	1.2	1.33	0.19	0.8	3.86	2.54
Upper-Middle	Mean	4.1	3.44	2.72	3.44	5.08	4.68	4.77	3.84	5.98	5.9	22.65	21.3
	SD	1.54	1.33	1.24	1.36	1.08	1.18	1.51	1.39	0.1	0.2	3.82	2.69
Highest	Mean	4.08	4.12	3.12	2.92	4.6	5.08	3.92	5.64	5.96	5.96	21.68	23.72
	SD	0.57	0.97	1.05	1.15	1.19	0.64	1.45	0.62	0.32	0.29	2.82	2.27
Total	Mean	3.42	3.35	2.78	2.72	4.39	4.2	4.17	4.45	5.91	5.69	20.67	20.41
	SD	1.51	1.28	1.22	1.37	1.46	1.21	1.48	1.44	0.25	0.89	4.12	3.58

Table 40 Results of t-tests by Ability Range

Range		Section 1	Section 2	Section 3	Section 4	Section 5	Total
		Results of *t*-Test (*p* value) by Bandwidth and Section (95% Confidence Interval)					
Lowest	t	0.51	1.19	0.60	0.78	2.04	0.70
	p value	0.609	0.241	0.551	0.440	0.047	0.490
Lower-Middle	t	0.40	0.85	1.64	0.03	1.33	1.03
	p value	0.690	0.400	0.108	0.978	0.189	0.309
Upper-Middle	t	1.62	1.96	1.25	2.27	1.76	1.44
	p	0.111	0.056	0.217	0.028*	0.085	0.155
Highest	t	0.18	0.64	1.78	5.46	0.00	2.82
	p value	0.860	0.525	0.082	0.000*	1.000	0.007*
Total	t	0.33	0.33	1.00	1.36	2.44	0.48
	p value	0.743	0.744	0.319	0.177	0.016	0.635

*The mean difference is significant at the .05 level

There was a significant difference in scores on section four between highest proficiency learners who were treated ($\bar{x}$=3.92, σ=1.45) and not treated ($\bar{x}$=5.64, σ=0.62). Untreated learners scored significantly higher; *t*=5.4631, *p*=0.0001. Among upper-middle ability learners there was another significant difference between the scores of treated ($\bar{x}$=4.77, σ=1.51) and untreated learners ($\bar{x}$=3.84, σ=1.39). Treated learners scored significantly higher *t*=2.2712, *p*=0.0277.

4.2.4 Analysis of Differences in Scores by Age

Means were compared using *t*-tests to determine whether differences in scores by age were statistically significant. The results of two instruments are presented: the placement and performance examinations. For each instrument, younger and older groups were first compared relative to the entire sample. Second, younger and older learners within treatment groups were compared to one another. Third, younger and older learners in treated and untreated groups were compared.

4.2.4.1 Analysis of Differences in Scores on the Placement Examination by Age

A Comparison of Differences by Age on the Placement Examination for the Entire Sample

On the placement examination there was a significant difference between the mean scores of younger learners (*n*=100, $\bar{x}$=32.83, σ=5.67) and older learners (*n*=100, $\bar{x}$=37.23, σ=4.96); t(198)= -5.85, *p*=0.000.

Table 41 Placement Examination: Age

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Younger	100	32.83	5.67	-5.85	198	.000*
Older	100	37.23	4.96			

*The mean difference is significant at the .05 level

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A Comparison of Differences by Age on the Placement Examination for Treated Learners

On the placement examination there was a significant difference between the mean scores of treated younger learners (n=46, $\bar{x}$=32.64, σ=5.67) and treated older learners (n=54, $\bar{x}$=37.15, σ=5.34); t(98)= -4.09, p=0.000.

Table 42 Placement Examination: Treated Learners by Age

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Younger	46	32.64	5.67	-4.09	98	.000*
Older	54	37.15	5.34			

*The mean difference is significant at the .05 level

A Comparison of Differences by Age on the Placement Examination for Untreated Learners

On the placement examination there was a significant difference between the mean scores of untreated younger learners (n=54, $\bar{x}$=32.98, σ=5.72) and untreated older learners (n=46, $\bar{x}$=37.33, σ=4.54); t(98)= -4.15, p=0.000.

Table 43 Placement Examination: Untreated Learners by Age

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Younger	54	32.98	5.72	-4.15	98	.000*
Older	46	37.33	4.54			

*The mean difference is significant at the .05 level

A Comparison of Differences on the Placement Examination for Younger Learners

On the placement examination there was no significant difference between the scores of treated younger learners (n=46, $\bar{x}$=32.64, σ=5.67) and untreated younger learners (n=54, $\bar{x}$=32.98, σ=5.72) learners; t(98)= -0.30, p=0.767.

Table 44 Placement Examination: Younger Learners

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	46	32.64	5.67	-0.30	98	0.767
Control	54	32.98	5.72			

A Comparison of Differences on the Placement Examination Among Older Learners

On the placement examination there was no significant difference between the scores of treated older learners (n=54, $\bar{x}$=37.15, σ=5.34) and untreated older learners (n=46, $\bar{x}$=37.33, σ=4.54); t(98)= -0.18, p=0.859.

Table 45 Placement Examination: Older Learners

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	54	37.15	5.34	-0.18	98	0.859
Control	46	37.33	4.54			

4.2.4.2 Analysis of Differences in Scores on the Performance Examination by Age

A Comparison of Differences on the Final Performance Examination by Age

On the performance examination there was no significant difference between the scores of treated younger learners (n=100, $\bar{x}$=20.12, σ=4.11) and treated older learners (n=100, $\bar{x}$=20.95, σ=3.56); t(198)= -1.53, p=0.128.

Table 46 Performance Examination: Age

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Younger	100	20.12	4.11	-1.53	198	0.128
Older	100	20.95	3.56			

A Comparison of Differences on the Final Performance Examination among Treated Learners by Age

On the performance examination there was no significant difference between the scores of treated younger learners (n=46, $\bar{x}$=21.09, σ=5.08) and treated older learners (n=54, $\bar{x}$=20.31, σ=3.09); t(98)=0.92, p=0.363.

Table 47 Performance Examination: Treated Learners by Age

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Younger	46	21.09	5.08	0.92	71.72	0.363
Older	54	20.31	3.09			

A Comparison of Differences on the Final Performance Examination among Untreated Learners by Age

On the performance examination there was a significant difference between the scores of untreated younger learners (n=54, $\bar{x}$=19.30, σ=2.84) and untreated older learners (n=46, $\bar{x}$=21.71, σ=3.94); t(98)= -3.56, p=0.001.

Table 48 Performance Examination: Untreated Learners by Age

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Younger	54	19.30	2.84	-3.56	98	0.001*
Older	46	21.71	3.94			

*The mean difference is significant at the .05 level

A Comparison of Differences on the Final Performance Examination among Younger Learners by Treatment Received

On the performance examination there was a significant difference between the scores of treated younger learners (n=46, $\bar{x}$=21.09, σ=5.08) and untreated younger learners (n=54, $\bar{x}$=19.30, σ=2.84); t(98)= 2.13, p=0.037.

Table 49 Performance Examination: Younger Learners

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	46	21.09	5.08			
				2.13	67.96	0.037*
Control	54	19.30	2.84			

*The mean difference is significant at the .05 level

A Comparison of Differences on the Final Performance Examination among Older Learners by Treatment Received

On the performance examination there was a significant difference between the scores of treated older learners (n=54, $\bar{x}$=20.31, σ=3.09) and untreated older learners (n=46, $\bar{x}$=21.71, σ=3.94); t(98)= -2.00, p=0.048.

Table 50 Performance Examination: Older Learners

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	54	20.31	3.09			
				-2.00	98	0.048*
Control	46	21.71	3.94			

*The mean difference is significant at the .05 level

4.2.5 Analysis of Differences in Scores by Gender

Scores on placement and performance examinations were compared by gender, within and between groups and correspond to Objective 1.5. Results are presented below.

A Comparison of Differences by Gender on the Placement Examination

On the placement examination, among all learners, there was a significant difference between the scores of male learners (n=56, $\bar{x}$=33.62, σ=6.75) and female learners (n=130, $\bar{x}$=36.10, σ=4.72); t(79.100)= -2.50, p=0.014.

Table 51 Placement Examination: Gender

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Male	56	33.62	6.75			
				-2.50	79.10	0.014*
Female	130	36.10	4.72			

*The mean difference is significant at the .05 level

A Comparison of Differences by Gender on the Performance Examination

On the performance examination, among all learners, there was a significant difference between the scores of male learners (n=56, $\bar{x}$=19.77, σ=4.23) and female learners (n=130, $\bar{x}$=21.15, σ=3.56); t(184)= -2.30, p=0.023.

Table 52 Performance Examination: Gender

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Male	56	19.77	4.23			
				-2.30	184	0.023*
Female	130	21.15	3.56			

*The mean difference is significant at the .05 level

A Comparison of Differences on the Placement Examination by Gender within Treated Groups

On the placement examination, within treated groups, there was a significant difference between the scores of treated male learners ($n=34$, $\bar{x}=33.21$, $\sigma=6.94$) and treated female learners ($n=65$, $\bar{x}=36.25$, $\sigma=4.83$); t(50.155)= -2.29, $p=0.026$.

Table 53 Placement Examination: Treated Groups by Gender

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Male	34	33.21	6.94	-2.29	50.16	0.026*
Female	65	36.25	4.83			

*The mean difference is significant at the .05 level

A Comparison of Differences on the Final Performance Examination by Gender within Treated Groups

On the performance examination, within treated groups, there was no significant difference between the scores of treated male learners ($n=34$, $\bar{x}=19.98$, $\sigma=4.46$) and treated female learners ($n=65$, $\bar{x}=21.14$, $\sigma=3.84$); t(97)= -1.36, $p=0.178$.

Table 54 Performance Examination: Treated Groups by Gender

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Male	34	19.98	4.46	-1.36	97	0.178
Female	65	21.14	3.84			

A Comparison of Differences on the Placement Examination by Gender within Untreated Groups

On the performance examination, within untreated groups, there was no significant difference between the scores of untreated male learners ($n=22$, $\bar{x}=34.25$, $\sigma=6.56$) and untreated female learners ($n=65$, $\bar{x}=35.95$, $\sigma=4.64$); t(85)= -1.12, $p=0.272$.

Table 55 Placement Examination: Untreated by Gender

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Male	22	34.25	6.56	-1.12	28.46	0.272
Female	65	35.95	4.64			

A Comparison of Differences on the Performance Examination by Gender within Untreated Groups

On the performance examination, within untreated groups, there was a significant difference between the scores of untreated male learners ($n=22$, $\bar{x}=19.44$, $\sigma=3.93$) and untreated female learners ($n=65$, $\bar{x}=21.17$, $\sigma=3.29$); t(85)= -2.02, $p=0.046$.

Table 56 Performance Examination: Untreated by Gender

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Male	22	19.44	3.93	-2.02	85	0.046*
Female	65	21.17	3.29			

*The mean difference is significant at the .05 level

A Comparison of Differences on the Placement Examination among Males

On the placement examination, among males, there was no significant difference between the scores of treated males (n=34, $\bar{x}$=33.21, σ=6.94) and untreated males (n=22, $\bar{x}$=34.25, σ=6.56); t(54)= -0.56, p=0.577.

Table 57 Placement Examination: Males

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	34	33.21	6.94	-0.56	54	0.577
Control	22	34.25	6.56			

A Comparison of Differences on the Performance Examination among Males

On the performance examination, among males, there was no significant difference between the scores of treated males (n=34, $\bar{x}$=19.98, σ=4.46) and untreated males (n=22, $\bar{x}$=19.44, σ=3.93); t(54)= 0.46, p=0.648.

Table 58 Performance Examination: Males

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	34	19.98	4.46	0.46	54	0.648
Control	22	19.44	3.93			

A Comparison of Differences on the Placement Examination among Females

On the placement examination, among females, there was no significant difference between the scores of treated females (n=65, $\bar{x}$=36.25, σ=4.83) and untreated females (n=65, $\bar{x}$=35.95, σ=4.64) learners; t(128)=0.37, p=0.712.

Table 59 Placement Examination: Females

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	65	36.25	4.83	0.37	128	0.712
Control	65	35.95	4.64			

A Comparison of Differences on the Performance Examination among Females

On the performance examination, among females, there was no significant difference between the scores of treated females (n=65, $\bar{x}$=21.14, σ=3.84) and untreated females (n=65, $\bar{x}$=21.17, σ=3.29) learners; t(128)= -0.04, p=0.971.

Table 60 Performance Examination: Females

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	65	21.14	3.84	-0.04	128	0.971
Control	65	21.17	3.29			

4.2.5.1 Analysis of Differences in Scores by Gender and Proficiency Band

There was a significant difference between the mean scores of female learners in the highest range of ability who received treatment ($n=18$, $\bar{x}=21.49$, σ=2.77) and female learners in the highest range of ability who had not received treatment ($n=17$, $\bar{x}=24.13$, σ=2.16); t(33)= -3.14, $p = .004$. Untreated female learners in the highest proficiency range scored significantly higher than treated female learners in the same proficiency range.

Table 61 Performance Examination: Highest Ability Females by Gender

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	18	21.49	2.77	-3.14	33	0.004*
Control	17	24.13	2.16			

*The mean difference is significant at the .05 level

4.2.6 Analysis of Differences in Scores on Treatment Instruments by Age

With respect to performance on the treatment instruments, there was a significant difference between the scores of younger learners ($n=46$, $\bar{x}=13.85$, σ=3.54) and older learners ($n=54$, $\bar{x}=17.08$, σ=2.67) on the treatment instruments Older learners scored significantly higher; t(82.637)= -5.09, $p=0.001$.

Table 62 Treatment Instruments: Age

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Younger	46	13.85	3.54	-5.09	82.64	.000*
Older	54	17.08	2.67			

*The mean difference is significant at the .05 level

4.2.7 Analysis of Differences in Scores of Treatment Instruments by Gender

On the treatment instruments there were no significant differences between the scores of male ($n=34$, $\bar{x}=15.0000$, σ=4.13) and female learners ($n=65$, $\bar{x}=15.9846$, σ=3.04); t(52.109)= -1.23, $p=0.226$.

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Table 63 Treatment Instruments: Gender

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Male	34	15.00	4.13	-1.23	52.11	0.226
Female	65	15.98	3.04			

4.3 Results Pertaining to the Second Objective

The second objective of the research study was to determine whether learners who received frequent assessments as part of their learning platform would respond differently with respect to opinions and reactions toward the course of learning that learners who did not receive frequent assessments in their course of study (2.1). The results were then factored by section (2.2), age (2.3), and gender (2.4).

Table 64 Domains of the Second Research Objective

Objective 2.0	Domain Comparison	Instrument
		Opinion Survey Questionnaire
2.1	Total Mean Opinion	X
2.2	Opinion by Section	X
2.3	Opinion by Age	X
2.4	Performance by Gender	X

There was no significant difference of opinion between learners who were treated (n=110, $\bar{x}$=72.29, σ=9.24) and learners who were not treated (n=110, $\bar{x}$=72.67, σ=10.47); t(218)= -0.29, p=0.775).

Table 65 Opinions by Treatment

Domain	N of Students	$\bar{x}$	σ	t	df	Sig. (2-tailed)
Treatment	110	72.29	9.24	-0.29	218	0.775
Control	110	72.67	10.47			

Table 66 depicts differences in responses between treated and untreated learners as well as differences relative to the five sections of the survey. Treatment and control groups varied relative to one response (*I could understand the teacher*) where untreated learners reported a greater magnitude of agreement.

Table 66 Opinions by Section

#	Statement	Treatment Mean	Control Mean	Total Mean	t(218)	Sig. (2-tailed)	Comparison of Opinions
I	**Opinions of the Class**	3.60	3.59	3.57	0.20	0.839	Similar
1	I enjoyed this class.	3.46	3.42	3.44	0.42	0.675	Similar
2	This class challenged me.	3.62	3.55	3.59	0.60	0.552	Similar
3	I felt this class was a productive use of time.	3.71	3.61	3.66	1.06	0.288	Similar
4	I felt this class provided ample opportunity to speak English.	3.25	3.32	3.29	0.59	0.558	Similar
5	I felt this class provided ample opportunity to listen in English.	3.89	3.98	3.94	0.82	0.415	Similar

#	Statement	Treatment Mean	Control Mean	Total Mean	t(218)	Sig. (2-tailed)	Comparison of Opinions
2	**Opinions of Lessons**	**3.85**	**3.86**	**3.86**	**0.21**	**0.833**	Similar
6	The lessons were well prepared.	3.87	3.83	3.85	0.46	0.644	Similar
7	The sequence of the lessons was good.	3.73	3.76	3.75	0.36	0.723	Similar
8	The lessons were interesting.	3.85	3.86	3.85	0.16	0.874	Similar
9	The lessons were fun.	3.96	3.96	3.96	0.00	1.000	Similar
3	**Opinions of Assessment**	**3.55**	**3.57**	**3.56**	**0.41**	**0.685**	Similar
10	The testing strategy was successful.	3.66	3.59	3.63	0.94	0.349	Similar
11	I learned by taking the tests.	3.46	3.48	3.47	0.16	0.874	Similar
12	My English improved by taking the tests.	3.49	3.57	3.53	0.78	0.434	Similar
13	The tests were necessary to the class.	3.71	3.78	3.74	0.60	0.548	Similar
14	The tests were difficult.	3.45	3.45	3.45	0.30	0.762	Similar
4	**Opinions of Instructor**	**3.56**	**3.62**	**3.59**	**1.07**	**0.287**	Similar
15	I could understand the teacher.	3.03	3.22	3.12	2.03	0.043*	Statistically Different
16	The teacher was organized and well prepared.	3.78	3.73	3.75	0.52	0.602	Similar
17	The teacher helped me to learn English.	3.69	3.71	3.70	0.17	0.864	Similar
18	The teacher was approachable.	3.75	3.84	3.80	0.72	0.473	Similar
5	**Confidence**	**3.54**	**3.59**	**3.56**	**0.54**	**0.589**	Similar
19	I speak English better now than before the class.	3.20	3.31	3.25	1.10	0.271	Similar
20	I will use what I have learned in the future.	3.89	3.86	3.88	0.08	0.937	Similar
	TOTAL	**3.61**	**3.63**	**3.62**	**0.29**	**0.775**	Similar

*The mean difference is significant at the 0.05 level.

Table 67 Interpretations of Survey Responses

Range	Interpretation
4.21–5.00	Strongly Agree
3.41–4.20	Agree
2.61–3.40	Neutral
1.81–2.60	Disagree
1.00–1.80	Strongly Disagree

Overall, responses indicated general agreement with the statements provided, which on the whole reflects general moderate favorability towards the class for both treated and untreated learners, but no significant variance between the two groups.

4.4 Correlation of Instruments

Bivariate correlations between instruments relative to treatment group were measured to determine whether relationships across instruments would remain stronger for treated on untreated learners. For treated learners, the correlations between placement examination scores and treatment instrument scores (r=0.575) were slightly higher than the correlation between the placement examination and the final performance examination (r=0.456) or the correlation between the treatment instruments and the final performance examination (r=0.490).

Table 68 Correlations between Instruments for Treated Learners

Correlations		Midterm Placement Examination	Treatment Instruments	Final Performance Examination
Placement Examination	Pearson Correlation	1	.575**	.456**
	Sig. (2-tailed)		.000	.000
	N	100	100	100
Treatment Instruments	Pearson Correlation	.575**	1	.490**
	Sig. (2-tailed)	.000		.000
	N	100	100	100
Final Performance Examination	Pearson Correlation	.456**	.490**	1
	Sig. (2-tailed)	.000	.000	
	N	100	100	100
**. Correlation is significant at the 0.01 level (2-tailed).				

The correlation between placement examination scores and final performance examination scores was stronger for untreated learners ($r = 0.621$) than treated learners ($r = 0.456$), suggesting a change occurred as a result of the treatment.

Table 69 Correlation between Instruments for Untreated Learners

Correlations		Midterm Placement Examination	Final Performance Examination
Placement Examination	Pearson Correlation	1	.621**
	Sig. (2-tailed)		.000

	N	100	100
Final Performance Examination	Pearson Correlation	.621**	1
	Sig. (2-tailed)	.000	
	N	100	100
**. Correlation is significant at the 0.01 level (2-tailed).			

4.5 Instructor Observations

Instructor observations were recorded incidentally and retrospective of classes in the *Field Journal* instrument, which also included a checklist with a five statement, four-point rating scale of the instructor's perception of student investment in each lesson.

Table 70 Field Journal Results

		Session						Total	
		1		2		3			
	Observation	Tr.	Cnt.	Tr.	Cnt.	Tr.	Cnt.	Tr.	Cnt.
1	Students are engaged in every task.	1.33	2.33	2.33	2.4	2.33	2.67	2	2.47
2	Students completed every task assigned.	1.33	2	2.33	2.2	2.33	2.67	2	2.29
3	Students appear to be challenged.	1	1	1.67	1.2	1.67	1.33	1.45	1.18
4	Students appear to be enjoying themselves.	1.67	3	2.33	2.8	2.33	2.33	2.11	2.71
5	Students are collaborating.	0.33	0.33	1	0.4	0.67	0.67	0.67	0.47
TOTAL		1.13	1.73	1.93	1.8	1.87	1.93	1.64	1.82

Table 71 Observation Checklist

		Not At All	Somewhat	Adequately	Well
	OBSERVATIONS	0	1	2	3
1	Students are engaged in every task.				
2	Students completed every task assigned.				
3	Students appear to be challenged.				
4	Students appear to be enjoying themselves.				
5	Students are collaborating.				

Table 72 Interpretations of Observations

Range	Interpretation
2.26–3.00	Well
1.51–2.25	Adequately
0.76–1.50	Somewhat
0.00–0.75	Not at All

Incidents recorded in the field journal and the general tone of responses indicated that younger learners in most classes enjoyed the inclusion of assessments and were eager to learn their scores during the following session. The treatment served as a useful means of organizing younger learners during classes and treated younger learners were generally enthusiastic about receiving the assessments. Older learners, on the other hand, were unenthusiastic with treatment assessments and on one specific occasion expressed explicit displeasure with the assessment strategy.

The observations recorded by the instructor do not correlate with responses on the opinion survey, where treated and untreated learners rated the class equally. The instructor's notes do however correlate with the variances in ability manifested on the final examination of ability. Younger learners who were assessed, and whom the teacher observed to view treatment with more enthusiasm than older learners and untreated learners, indeed scored higher than treated older and untreated younger learners.

4.6 Summary of Findings

Younger learners scored significantly higher when the treatment was issued. Older learners scored significantly higher when the treatment was withheld. High proficiency leaners scored significantly higher when the treatment was withheld. Female leaners scored significantly higher on nearly every assessment, but not as a result of the treatment. Differences based upon task performance were not significant. Opinions of learners did not vary by treatment group. Instructor observations correlate with ability performances by age.