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# The Effect of an Integrative Skills Program on Developing Jordanian University Students' Select Multiple Intelligences

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**Abstract**—The purpose of this study was to investigate the effect of an integrative skills program on developing Jordanian university students' select- multiple intelligences. It also aimed at investigating the effect of gender and the interaction between gender and the instructional program on intelligences. The participants were 122 university students. The study adopted a quasi-experimental design. The experimental group was instructed using the integrative program. An analysis of covariance (ANCOVA) was used to analyze the students' full degrees on the intelligence test. The results showed that there was a statistically significant difference between the adjusted mean scores of students' intelligences due to the teaching method in favor of the experimental group. The data revealed that there was a statistically significant difference between the adjusted mean scores of students' intelligences due to gender in favor of the females in the linguistic and interpersonal intelligences and the males in the logical and intrapersonal intelligences. The results showed that there was a statistically significant difference between the adjusted mean scores of intelligences due to the interaction between the teaching method and gender in favor of the females in the linguistic intelligence and the males in the logical intelligence.

**Index Terms**—multiple intelligences, linguistic intelligence, logical intelligence, interpersonal intelligence, intrapersonal intelligence, MIT, Jordan

## I. INTRODUCTION

In recent years, the idea of the integration of the four skills has greatly influenced second language education in order to help learners attain the ultimate goal of communicative competence and performance. Dawid (2004) stresses that the integration of the four skills invites the learner to become active and responsible for learning, provides students with opportunities to use the language collaboratively in realistic settings with authentic content and helps the teacher to shift focus from quantity covered in a lesson to the quality of learning that takes place.

Gardner challenged the traditional definition of intelligence which is measured by intelligence quotient (IQ) that measures only a narrow range of verbal/ linguistic and logical/mathematical abilities of a person. Gardner (1993), however, in his book entitled "Frames of Mind: the Theory of Multiple Intelligences" provides an alternative definition of intelligence according to which intelligence is defined as "the ability to solve problems or to create products that are valued within one or more cultural settings" (P.11). Gardner proposed a theory that defined human intelligence as multiple abilities. Gardner suggested verbal-linguistic, logical-mathematical, musical, bodily- kinesthetic, spatial-visual, interpersonal, intrapersonal, natural, existential, spiritual, moral and laser intelligences.

Gardner and many other researchers and educationalists believe in the teachers' roles to develop learners' intelligences by using a variety of approaches to the subject matter (Armstrong, 2000; Gardner, 1994; Gunst, 2004). Furthermore, other researchers suggest that improving language acquisition for diverse students through the application of multiple intelligences strategies is possible (Armstrong, 2005; Barrington, 2004; Brim and Wooten, 2004; Chan, 2006; Diaz- Lefebvre, 2006; Komhaber, 2004; Madkour, 2009; Wallace, 2010).

According to Gardner, linguistic intelligence refers to the sensitivity to the spoken and written language and the ability to learn languages. Logical-mathematical intelligence refers to the capacity to analyze problems logically, solve mathematical problems, and investigate issues scientifically. Gardner believes that these two intelligences dominate intelligence tests. He adds that there are also two personal intelligences: interpersonal intelligence which is the capacity to understand the intentions, motivations and desires of other people and to work effectively with them; and intrapersonal intelligence which refers to the ability to understand oneself, including one's weaknesses, strengths, moods, intentions and desires.

Gardner (1983) argues that students should use multiple intelligences in order to increase academic achievements. Haley (2004) reveals that the use of the MIT in language learning benefits learners and has a positive impact on the achievement of the students. Gardner and Seana (2006) suggest that using multiple intelligences as integrated abilities

can help students develop cognitive and metacognitive skills which are important for language proficiency. On the other hand, Bas (2010) finds that students who are educated by multiple intelligences are more successful and have better attitude toward learning English.

Gardner encourages teachers to incorporate multiple intelligences to teach language skills. According to Gardner (1983), linguistic intelligence is a mental ability that allows understanding, explaining, and using the language effectively. Gardner (1983) argues that students use the logical-mathematical intelligence to solve problems, understand syntax, and analyze the semantics of the language. Gardner (1999) asserts that students who use interpersonal intelligence enhance social and language skills, Gardner (1999) adds that the use of intrapersonal intelligence helps people use language skills in order to communicate successfully as groups, he stresses that interpersonal intelligence helps people apply the language in various real-life situations while intrapersonal intelligence is important for improving metacognitive skills that are necessary for self-reflection and self-assessment. Gardner (1983, 1999, and 2004) notes that students can use logical- mathematical intelligence to understand the deep structures of the sentences and solve grammatical problems. He emphasizes that learning a language involves using linguistic intelligence along with the other multiple intellectual domains in order to enhance language performance through interactions with various social settings.

Since the four language skills are rarely used in segregation in everyday life, the researchers aim to integrate them in a proposed instructional program in order to investigate the effect the integrative program on developing Jordanian university students' linguistic, interpersonal, intrapersonal and logical mathematical intelligences and improving the students' abilities to communicate efficiently various situations.

#### **Problem, Purpose, Questions, and significance of the study**

Despite the fact that English is a key language taught in the Jordanian EFL context, the researchers noticed a salient weakness in Jordanian university students' communicative competence during their experience as instructors of English; the students lack the ability to communicate effectively and easily in English. Despite the major goal of integrating the four language skills, it seems that there is a gap between theory and practice with regard to transferring those skills to the out-of classroom practices.

Based on the MIT suggested by Gardner, everyone may be able to develop all the intelligences to a reasonably high level if given appropriate encouragement, enrichment, and instruction. In light of the findings of the reviewed literature, the researchers aim to implement a program of integrative skills to investigate its effect on developing the students' intelligences. To the researchers' best knowledge, the effect of an integrative skills program on developing Jordanian University students' select multiple intelligences has never been researched.

The purpose of this study is to investigate the effect of an integrative skills program on developing Jordanian University students' select multiple intelligences. More specifically, the authors seek answers to the following questions:

1. Are there statistically significant differences in students' intelligences (at  $\alpha.05$ ) due to the instructional program?
2. Are there statistically significant differences in students' intelligences (at  $\alpha = 0.05$ ) due to gender?
3. Are there statistically significant differences in students' intelligences (at  $\alpha = 0.05$ ) due to the interaction between gender and the instructional program?

The findings are potentially significant for the students since they are expected to develop their linguistic, logical, interpersonal and intrapersonal intelligences. The professors in the Jordanian educational context may reconsider the syllabus with regard to increasing the number and quality of integrative skills.

## II. PREVIOUS LITERATURE

Whole Language Approach (WLA) is considered an effective methodology in foreign language teaching classes. It has been emphasized as one of the recent approaches that develop students' communicative ability within real contexts and attain the ultimate goal of communicative competence.

Many specialists emphasize the importance of MIT in English Language teaching. Gardner (1983) stresses that humans use interpersonal intelligence to understand and relate to other people. Moreover, Gardner (1999) adds that those learners who develop the intrapersonal intelligence, develop their intrinsic motivation and reflect on personal performance to develop their academic standards. With regards to the same issue, Cummins (1981) stresses the close relationship between developing conversational language proficiency and interpersonal skills. Likewise,

Many educationalists believe that it is important to develop the various intelligences (Gardner, 1983; Armstrong, 2003). Many different research papers were conducted in different educational contexts and the researchers found that the linguistic intelligence as well as the other types of intelligences adopted by Gardner can be developed (Bellflower, 2008; Fink, 1991; Harriman, 2010; Harris, 1991; Janes, Koutsopanagos, Mason and Villaranda, 2000; Lazear, 1999; Silver, Strong and Perini, 2000).

Other researchers argue that there are differences in the various domains of intelligences which can be attributed to the gender of the participants. When women are asked to estimate their own intelligence, they tend to give themselves lower scores than men, both within and across particular cultures (Furnham, 2001; Rammstedt and Rammseyer, 2002). With regards to the same issue, Halpern (1997) reviews gender differences in intelligence and notes that women tend to outperform men in verbal fluency, spelling, reading comprehension, writing synonym generation, and knowledge of foreign languages. Halpern adds that men, on average, outperform women on tests in the logical\mathematical domain.

In their study of differences in the various domains of intelligences according to gender, Furnham, Hosoe and Tang (2001) reported that male participants reported significantly higher estimates of IQ than female participants. The researchers explain these gender differences by indicating that males may overestimate their gender factor intelligence as a matter of male pride emerging from sociocultural influences. In their study about the relationship among gender, attitude toward intelligence, and self-estimation of multiple intelligences for self and parents among Portuguese adolescents in secondary schools, Neto, Ruiza and Furnham (2008) reported that males rated themselves higher on overall, mathematical, spatial, intrapersonal, spiritual, and naturalistic IQ compared with females. In another study about cross-cultural differences in beliefs about intelligence and self- and other-estimated intelligences among 172 British and 272 Turkish students, Furnham, Artech, Chamorro-Premuzic, Keser and Swami (2009) reported that, among other results, males rated their overall, verbal, logical, spatial, creative and practical intelligence higher than females when they were asked to complete a three-part questionnaire.

In a study about the use of multiple intelligences in George Washington University second language classroom, Shore (2001) indicates that utilizing multiple intelligences based lessons has led to a higher self-efficacy and therefore a greater achievement in English language learning. In his study of the effect of a multiple-intelligences- based teaching program on Jordanian tenth grade students' paragraph writing ability in English, Khamis (2005) reported a statistically significant difference in all students' paragraph writing ability on English. In her study of the effect of multiple intelligences strategies comprising logical/mathematical intelligence, verbal/linguistic intelligence, intrapersonal intelligence and interpersonal intelligence on EFL ninth graders' achievement in reading comprehension, Jallad (2006) reported difference in the students' reading comprehension due to the teaching strategies while she reported no significant difference in the students' reading comprehension due to the students' gender.

In another study that explored the relationship between gender and multiple intelligences, Snyder (1999) reported that females tended to be stronger than males in the intrapersonal, linguistic and musical intelligences while the male students were more gifted than the females in the bodily-kinesthetic, logical/ mathematical and visual-spatial intelligences. In their study of different intelligence types among Jordanian students at different public and private universities in Jordan, Al-Faoury, Khataybeh and Al-Sheikh (2011) reported that there were significant differences among Jordanian students in the linguistic and interpersonal intelligence in favor of the females.

Gardner (2004) argues that every intelligence can be nurtured and strengthened or ignored and weakened. He adds that every intelligence can be developed in different degrees and students may excel at only one or two of the intelligences and so he emphasizes that students should not be penalized for that. Thus, applying an integrative program in foreign language classes might help develop the communicative abilities and the intelligences of the students.

### III. METHOD AND PROCEDURES

This research is essentially quantitative. The sample of the study consisted of 122 students studying English Communication Skills (102) at Philadelphia University in the first semester of the academic year 2011/ 2012 and were chosen purposefully. The researchers chose the students in the courses which one of them taught in order to apply the program of the integrative skills, the first group (N= 62) was the control group (male and female students). The second group (N= 60) was the experimental group (male and female students). The experimental group was instructed using the integrative skills program. The participants were informed about the experiment in the sense that it was a study about an integrative skills program. The distribution of the sample according to the variables of gender and teaching method is presented in Table 1.

TABLE 1:  
THE DISTRIBUTION OF THE PARTICIPANTS DUE TO INDEPENDENT VARIABLES (GENDER AND TEACHING METHOD)

Teaching Method	Gender				Total	
	Male		Female			
	#	%	#	%	#	%
<b>Traditional</b>	34	27.9	28	23.0	62	50.8
<b>Integrative</b>	35	28.7	25	20.5	60	49.2
<b>Total</b>	<b>69</b>	<b>56.6</b>	<b>53</b>	<b>43.5</b>	<b>122</b>	<b>100.0</b>

A content analysis research tool was conducted to find out the percentages of integrative skills and logical, linguistic, interpersonal and intrapersonal intelligences in the first six chapters in Intermediate *New Headway Plus*. The criteria of analysis in this research included the extent of incorporating the four skills in the units and activities under study and the extent of incorporating the logical, linguistic, interpersonal and intrapersonal intelligences in the units and activities under study. The unit of analysis in this study was the activity and the categories of analysis were the integrative skills and the linguistic, logical, interpersonal and intrapersonal intelligences in the Students' book.

An analysis of the activities under study was conducted by one of the researchers in light of the categories of the analysis in order to establish the reliability of the content analysis of integrative skills and the linguistic, interpersonal and intrapersonal intelligences. Regarding the intra-rater reliability, a repetition of the analysis three weeks later was attempted using the same unit and categories of analysis. The percentage coefficient of the whole analysis of the integrative skills was 98%, and the percentage coefficient of the whole analysis of the linguistic, interpersonal and

intrapersonal intelligences was (97.6), which are considered very high. Regarding the inter-rater reliability of integrative skills and the four intelligences, the other researcher with another analyst familiar with content analysis conducted the content analysis on all of the activities under study using the same categories and unit of analysis. The three coefficients of the whole analysis of the integrative skills are (97.8%, 98% and 97%) and the three coefficients of the intelligences are (97%, 98.1%, 97.9%), which are considered very high.

As for testing the linguistic, logical, interpersonal and intrapersonal intelligences, the researcher benefited from the related literature about multiple intelligences and included items that measure linguistic intelligence, logical intelligence, interpersonal intelligence and intrapersonal intelligence. In the linguistic intelligence domain, students were asked to write two possible meanings for the given sentences which measure the students' ability to analyze the semantics of the language in order to express the meanings of the surface and the deep structure of the sentence. In the first question of the logical intelligence, they were asked to put the jumbled letters in the right order in order to find out five words that mean almost the same as angry. In the second question of the logical intelligence, they were asked to figure out what the given letters mean in order to figure out a very old English puzzle "I see you are too wise for me), In the third question of the logical intelligence, they were asked to carry out basic arithmetic operations logically in order to find out the right answers for the given questions. In the first question of the interpersonal intelligence, they were asked to write the correct functions for the given sentences. In the second question of the interpersonal intelligence, they were asked to respond correctly and appropriately for the given situations. In the third question of the interpersonal intelligence, they were asked to select the best polite choice of the choices offered for each of the given situations. In the intrapersonal intelligence, the students were given a 10 -item questionnaire adapted from Gardners' MI model, they were asked to complete each section by placing a "1" next to each statement they feel accurately describes them and to leave the space provided blank if they do not identify with a statement.

The intelligence test was used in order to collect the data of the present study; it was compiled, modified at some points and rewritten by the researchers. A jury of experts judged the content validity of the multiple intelligences test which consisted of five questions measuring the students' linguistic intelligence, ten questions measuring the students' logical intelligence, ten questions measuring the students' interpersonal intelligence and ten statements measuring the students' intrapersonal intelligence. The jury had a few suggestions and recommendations which were taken by the researcher and modified accordingly.

Difficulty and Discrimination Coefficients were calculated for each individual part of the test: linguistic, logical, interpersonal and intrapersonal intelligences. The items of linguistic intelligence were related to each other with correlations ranging between .44 and .77. The items of logical intelligence were related to each other with correlations ranging between .50 and .77. The items of interpersonal intelligence were related to each other with correlations ranging between .40 and .66. The items of intrapersonal intelligence were related to each other with correlations ranging between .41 and .73as shown in Table 2 below.

TABLE 2:  
DIFFICULTY AND DISCRIMINATION COEFFICIENTS FOR THE INDIVIDUAL PARTS OF THE INTELLIGENCE TEST

<b>Dimension</b>	<b>Item ID</b>	<b>Difficulty Index</b>	<b>Corrected Item-Total Correlation</b>
<b>Linguistic Intelligence</b>	1	0.75	<b>0.48</b>
	2	0.36	<b>0.44</b>
	3	0.66	<b>0.63</b>
	4	0.32	<b>0.48</b>
	5	0.40	<b>0.70</b>
	6	0.32	<b>0.45</b>
	7	0.57	<b>0.69</b>
	8	0.32	<b>0.47</b>
	9	0.43	<b>0.77</b>
	10	0.35	<b>0.65</b>
<b>Logical Intelligence</b>	1	0.65	<b>0.59</b>
	2	0.74	<b>0.62</b>
	3	0.75	<b>0.70</b>
	4	0.59	<b>0.64</b>
	5	0.64	<b>0.55</b>
	6	0.36	<b>0.50</b>
	7	0.41	<b>0.71</b>
	8	0.32	<b>0.77</b>
	9	0.32	<b>0.63</b>
	10	0.41	<b>0.73</b>
<b>Interpersonal Intelligence</b>	1	0.75	<b>0.50</b>
	2	0.71	<b>0.63</b>
	3	0.36	<b>0.57</b>
	4	0.56	<b>0.46</b>
	5	0.38	<b>0.40</b>
	6	0.38	<b>0.66</b>
	7	0.32	<b>0.53</b>
	8	0.74	<b>0.63</b>
	9	0.74	<b>0.58</b>
	10	0.36	<b>0.52</b>
<b>Intrapersonal Intelligence</b>	1	0.56	<b>0.46</b>
	2	0.35	<b>0.57</b>
	3	0.60	<b>0.41</b>
	4	0.40	<b>0.70</b>
	5	0.60	<b>0.45</b>
	6	0.54	<b>0.60</b>
	7	0.40	<b>0.42</b>
	8	0.68	<b>0.55</b>
	9	0.40	<b>0.73</b>
	10	0.41	<b>0.63</b>

To establish the internal consistency, the test was applied on a pilot group of 30 male and female students studying English Communication skills (102) who were excluded from the study sample using test/ retest method. The value of stability index for the intelligence test was computed using Cronbach's Alpha, as shown in Table 3 below.

TABLE 3:  
STABILITY INDEX AND INTERNAL CONSISTENCY COEFFICIENTS FOR THE ACHIEVEMENT TEST

<b>Pearson Correlation</b>	<b>Linguistic Intelligence</b>	<b>Logical Intelligence</b>	<b>Interpersonal Intelligence</b>
<b>Logical Intelligence</b>	0.14		
<b>Interpersonal Intelligence</b>	0.19	0.15	
<b>Intrapersonal Intelligence</b>	0.05	0.15	0.16
<b>MI</b>	Cronbach's Alpha	Stability Index	N of Items
<b>Linguistic Intelligence</b>	0.89	0.88	10
<b>Logical Intelligence</b>	0.84	0.94	10
<b>Interpersonal Intelligence</b>	0.86	0.87	10
<b>Intrapersonal Intelligence</b>	0.82	0.89	10

Table 3 shows that the value of stability index ranged between .82 and .89. The value of the retest reliability was .89 and it ranged between .87 and .94. The values of interconnections range between .5 and .19; it is less than .3, which proves that the domains of the intelligence test are independent.

Having analyzed the integration of the skills in Intermediate *New Headway Plus*, the researchers developed an integrative skills program which was used in the present study. The instructional program was carried out during the first semester of the academic year 2011/ 2012 for the experimental group and lasted for four months. Likewise, the control group was taught by one of the researchers using the material in *Intermediate New Headway Plus* during the same semester. To answer the questions of the study, an analysis of covariance (ANCOVA) was used to analyze the students' whole achievement in the intelligence test.

A systematic content analysis for the integrative skills and the logical, linguistic, interpersonal and intrapersonal intelligences in New Intermediate Headway Plus textbook was carried out by the use of frequencies and percentages and repeated three weeks later by one of the researchers. The other researcher conducted separate content analyses with another analyst on all of the activities of the Students' Textbooks using the same unit and categories of analysis. The linguistic, logical, interpersonal and intrapersonal intelligence test was constructed. Validity and reliability of the instruments were established. The multiple intelligences test was rewritten by the researchers and distributed to the sample of the study. The instructional program was constructed in which the activities were redesigned in light of the findings of the content analysis and according to the integrative method. The integrative skills program was applied by the researchers in the experimental group for four months while the controlled group was taught the textbook conventionally. The multiple intelligences test was reapplied as post tests in order to investigate the effect of the integrative skills program on developing the students' linguistic, interpersonal, intrapersonal and logical intelligences.

#### IV. FINDINGS AND DISCUSSION

To answer the research questions, which seek to identify whether or not there are any statistical differences in Jordanian students' linguistic, logical, interpersonal and intrapersonal intelligences due to the teaching method, the gender of the students and the interaction between the teaching method and the gender of the students, means and standard deviations of the pre and posttest scores were investigated, as shown in Table 4.

TABLE 4:  
MEANS AND STANDARD DEVIATIONS OF THE PRE AND POSTTEST SCORES IN INTELLIGENCE TEST  
AS A RESULT OF THE TEACHING METHOD AND GENDER

MI	Teaching Method	Gender	Pretest		Posttest			
			Mean	Std. Dev.	Mean	Std. Dev.	Adj. Mean	Std. Error.
Linguistic Intelligence	Traditional	Male	2.912	2.21	4.059	2.36	4.209	0.29
		Female	2.607	1.69	4.071	1.61	4.341	0.32
		Total	2.774	1.98	4.065	2.04	4.275	0.22
	Integrative	Male	4.057	2.27	7.771	1.99	7.473	0.29
		Female	3.520	2.86	9.280	1.09	9.192	0.33
		Total	3.833	2.53	8.400	1.83	8.333	0.22
	Total	Male	3.493	2.30	5.942	2.86	4.558	0.21
		Female	3.038	2.34	6.528	2.96	5.841	0.20
	Logical Intelligence	Traditional	Male	4.500	2.77	5.588	2.41	6.349
Female			6.571	2.62	6.575	2.77	6.210	0.31
Total			5.435	2.87	6.000	2.60	6.279	0.21
Integrative		Male	6.200	2.44	9.257	1.17	9.156	0.28
		Female	7.120	2.22	8.272	1.60	7.704	0.33
		Total	6.583	2.37	8.847	1.44	8.430	0.22
Total		Male	5.362	2.72	7.449	2.63	7.752	0.20
		Female	6.830	2.43	7.336	2.44	6.957	0.23
Interpersonal Intelligence		Traditional	Male	5.794	2.57	6.441	2.23	6.997
	Female		7.143	2.10	7.500	2.44	7.342	0.29
	Total		6.403	2.45	6.919	2.37	7.169	0.20
	Integrative	Male	7.543	1.99	8.543	1.62	8.173	0.26
		Female	6.960	2.23	9.312	1.13	9.251	0.31
		Total	7.300	2.09	8.863	1.47	8.712	0.20
	Total	Male	6.681	2.44	7.507	2.20	7.585	0.19
		Female	7.057	2.14	8.355	2.12	8.296	0.21
	Intrapersonal Intelligence	Traditional	Male	5.206	1.98	6.235	2.18	6.525
Female			7.179	2.16	7.180	2.01	6.237	0.31
Total			6.097	2.27	6.468	2.10	6.381	0.20
Integrative		Male	5.400	2.38	9.183	1.34	9.393	0.27
		Female	6.200	2.04	8.720	1.54	8.605	0.32
		Total	5.733	2.26	8.990	1.44	8.999	0.21
Total		Male	5.304	2.18	7.730	2.32	7.959	0.20
		Female	6.717	2.14	7.679	2.05	7.421	0.22

Table 4 indicates an observed difference between the means of the students' linguistic, logical, interpersonal and intrapersonal intelligences in the posttest due to the teaching method and gender. To examine whether or not this

difference between the mean scores of the aforementioned groups was significant, two-way interaction ANCOVA was used for the scores of the students' linguistic, logical, interpersonal and intrapersonal intelligences in the posttest, based on IVs after avoiding the students' scores in linguistic, logical, interpersonal and intrapersonal intelligences in the pretest, as shown in Table 5.

TABLE 5:  
ANCOVA FOR THE STUDENTS' MEAN SCORES OF THE INTELLIGENCE POSTTEST DUE TO THE TEACHING METHOD, GENDER AND THE INTERACTION BETWEEN THEM

MI	Source	Sum of Squares	df	Mean Square	F	Sig.	Partial $\eta^2$
Linguistic Intelligence	Linguistic Intelligence (Covariate)	93.304	1	93.304	<b>33.667</b>	0.000	22.35%
	Teaching Method	468.319	1	468.319	<b>168.986</b>	*0.000	59.09%
	Gender	25.392	1	25.392	<b>9.162</b>	0.003	7.26%
	Teaching Method * gender	18.824	1	18.824	<b>6.792</b>	0.010	5.49%
	Error	324.247	117	2.771			
	<b>Total</b>	<b>1023.879</b>	<b>121</b>				
Logical Intelligence	Logical Intelligence (Covariate)	194.620	1	194.620	<b>72.887</b>	0.000	38.38%
	Teaching Method	131.798	1	131.798	<b>49.359</b>	*0.000	29.67%
	Gender	17.365	1	17.365	<b>6.503</b>	0.012	5.27%
	Teaching Method * gender	12.734	1	12.734	<b>4.769</b>	0.031	3.92%
	Error	312.411	117	2.670			
	<b>Total</b>	<b>781.040</b>	<b>121</b>				
Interpersonal Intelligence	Interpersonal Intelligence (Covariate)	165.327	1	165.327	<b>69.294</b>	0.000	37.20%
	Teaching Method	69.051	1	69.051	<b>28.941</b>	*0.000	19.83%
	Gender	15.029	1	15.029	<b>6.299</b>	0.013	5.11%
	Teaching Method * gender	3.830	1	3.830	1.605	0.208	1.35%
	Error	279.148	117	2.386			
	<b>Total</b>	<b>585.546</b>	<b>121</b>				
Intrapersonal Intelligence	Intrapersonal Intelligence (Covariate)	90.608	1	90.608	<b>36.148</b>	0.000	23.60%
	Teaching Method	203.390	1	203.390	<b>81.143</b>	*0.000	40.95%
	Gender	7.830	1	7.830	3.124	0.080	2.60%
	Teaching Method * gender	1.841	1	1.841	0.734	0.393	0.62%
	Error	293.270	117	2.507			
	<b>Total</b>	<b>585.052</b>	<b>121</b>				

Table 5 shows that there was a statistically significant difference at  $\alpha = 0.05$  between the adjusted mean scores of students' linguistic, logical, interpersonal and intrapersonal intelligences due to the teaching method in favor of the students in the experimental group who were taught using the integrative method. The size of effect was 59.09% for the linguistic intelligence, 29.67% for the logical intelligence, 19.83% for the interpersonal intelligence and 40.95% for the intrapersonal intelligence which indicates that there exists a high correlation between the teaching method and the linguistic, logical, interpersonal and intrapersonal intelligences.

The same table also shows that there was a statistically significant difference at  $\alpha = 0.05$  between adjusted mean scores of students' linguistic, logical, interpersonal and intrapersonal intelligences due to gender in favor of females in the linguistic and interpersonal intelligence and the males in the logical intelligence.

The same table also shows that there was a statistically significant difference at  $\alpha = 0.05$  between adjusted mean scores of students' linguistic, logical, interpersonal and intrapersonal intelligences due to teaching method and gender. To clarify the interaction, figures 1 and 2 were presented below.

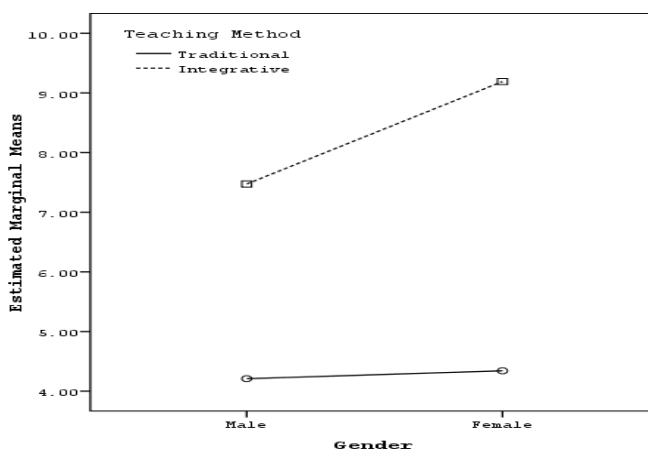


Figure 1: The Interaction between Gender and the Teaching Method and on the Linguistic Intelligence

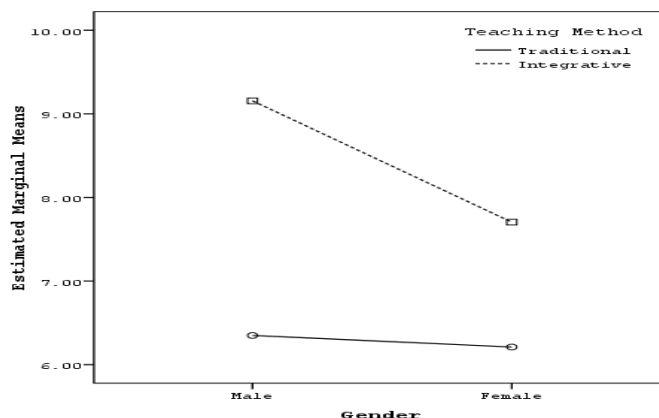


Figure 2: The Interaction between Gender and the Teaching Method and on the Logical Intelligence

Figure 1 shows that female students have made more progress than male students in the experimental group in the linguistic intelligence, while figure 2 shows that male students have made more progress than female students in the experimental group in the logical intelligence.

#### V. CONCLUSIONS, PEDAGOGICAL IMPLICATIONS, RECOMMENDATIONS AND LIMITATIONS

It was clear from the findings of the study that there was a statistically significant difference at  $\alpha = 0.05$  in the adjusted mean scores of students' linguistic, logical, interpersonal and intrapersonal intelligences in the posttest due to of the teaching method in favor of the students in the experimental group who were taught using the integrative program. The size of effect was 59.09% for the linguistic intelligence, 29.67% for the logical intelligence, 19.83% for the interpersonal intelligence and 40.95% for the intrapersonal intelligence which indicates that there exists a rational correlation between the teaching method and the linguistic, logical, interpersonal and intrapersonal intelligences. As can be concluded from these numbers, there was a significant difference between the mean scores in favor of the experimental group due to the effect of teaching students according to the proposed teaching program.

It is clear by the scores of the experimental group that the instructional program does have a positive impact on the students' linguistic, logical, interpersonal and intrapersonal intelligences. Utilizing WLA and the integrative method might contribute a lot to improving the linguistic intelligence that is represented in the students' abilities to understand, explain, and use the language effectively during English lessons in the classroom. In the linguistic intelligence of this study, some students were able to find out that the sentence "The chicken is too hot to eat" might either mean that "the chicken is spicy" or "the temperature of the chicken is high", other students expressed that the word "chicken" might be tricky because it might mean "bird" or "meal". In the second sentence of the linguistic intelligence "Flying kites can be dangerous", some students were able to recognise that the sentence might either mean that "the process of flying kites can be dangerous" or "the kites which are flying can be dangerous". In the third sentence of the linguistic intelligence "The students were asked to stop smoking on campus", some students were able to recognise that this sentence might either mean "students were commanded to stop smoking on campus" or "it was a request for students to stop smoking on campus", or "students were allowed to smoke in the past but they are not allowed now" or "on campus only, students were not allowed to smoke". Other students wrote that the word "smoking" is tricky and they suggested the two following meanings "students were asked to extinguish the fire on campus" and "students were asked to extinguish the cigarettes on campus". In the fourth sentence of the linguistic intelligence "Visiting relatives can be boring", some students were able to recognise that this sentence might either mean "the process of visiting relatives might be boring" or "relatives who visit might be boring". In the fifth sentence of the linguistic intelligence "Old men and women went first", some students were able to recognise that the adjective "old" might either describe men only or describe men and women.

WLA might contribute a lot to improving the logical-mathematical intelligence that is represented in students' abilities to study problems, carry out basic arithmetic operations logically and analytically, understand syntax, analyze the semantics of the language and solve problems. In the logical intelligence of this study, many students were able to find the answers for the given arithmetic operations. In the logical intelligence test, the researcher found that the fifth part of the first question and the second question were the most difficult parts in the logical domain; few students were able to find out that the word "irritated" means almost the same as angry, and few students were able to solve the puzzle "I see you are too wise for me". Despite the fact that males performed better than females in this domain, there were some females who got the full mark in this domain.

WLA might contribute a lot to improving the interpersonal intelligence that is represented in students' abilities to understand the intentions, needs and desires of others made in varying social contexts, interpret expressions and situations accurately and work effectively with them. In the first question of the interpersonal intelligence test, many students were able to write the right functions for the given sentences. In the second question, many students responded



well for the given situation “I am dying for a drink”; students responded with “I will get you one”, “Do not worry! I will bring you one”, “I have to bring you one” and “Ok, we can go to the shop and buy one”. Other students changed the statement into interrogative form and responded with “Shall I get you one?”. In the second situation, many students responded well for the given situation “I’ve had a quarrel with my parents”; students responded with “You have to talk to them”, “I am going to talk to them”, “I have to talk to them”, “I advise you to talk to them”, “It is better to talk to them”, “I want to talk to them”, “That’s too bad, try to talk to them” and “Calm down and go to talk to them”. Other students changed the statement into interrogative form and responded with “Do you want me to talk to them?” and “Why do not you try to talk to them?”. In the third situation, many students responded well for the given situation “My hair looks terrible”; students responded with “You must go to the hairdresser”, “You should go to the hairdresser”, “You had better go to the hairdresser” and “It is necessary to go to the hairdresser”. Other students changed the statement into interrogative form and responded with “Why do not you go to the hairdresser?”. In the third question, many students were able to choose the best of the choices offered for the given situations.

WLA might contribute a lot to improving the intrapersonal intelligence that is represented in students’ ability to judge their own desires, fears, their relative strengths and weaknesses and use this information to make sound life decisions.

These results are supported by the theoretical assumptions cited in the background of the study (Bellflower, 2008; Fink, 1991; Harriman, 2010; Harris, 1991; Janes, Koutsopanagos, Mason and Villaranda, 2000; Lazear, 1999; Silver, Strong and Perini, 2000) which emphasize that all types of intelligences adopted by Gardner can be developed. The afore-mentioned findings are in line with the findings of other researchers (e.g. Cummins, 1981; Gardner, 1999; Madkour, 2009) who emphasize the positive correlation between developing linguistic, logical, intrapersonal and interpersonal intelligences and helping students use social skills and produce meaningful communicative dialogues.

It was clear from the findings of the study that there was a statistically significant difference at  $\alpha = 0.05$  between the adjusted mean scores of students’ linguistic, logical, interpersonal and intrapersonal intelligences due to gender and the interaction between gender and the teaching method. It was clear from the findings of the study that there was a statistically significant difference at ( $\alpha = 0.05$ ) between the adjusted mean scores of students’ interpersonal intelligence in favor of females. (Al-Faoury, Khataybeh and Al\_Sheikh (2011) stress that females outperform males on a test in the interpersonal intelligences.

It was clear from the findings of the study that there was a statistically significant difference at  $\alpha = 0.05$  between the adjusted mean scores of students’ logical intelligence in favor of males. This result is supported by the findings of other researchers (e.g. Snyder, 1999). Furthermore, this result agrees with the theoretical assumptions cited in the background of the study. Halpern (1997) stresses that men, on average, outperform women on tests in the logical/mathematical domain.

It was clear from the findings of the study that there was a statistically significant difference at  $\alpha = 0.05$  between the adjusted mean scores of students’ linguistic intelligence in favor of females in the linguistic intelligence. This result is supported by the findings of other researchers (e.g. Al-Faoury, Khataybeh and Al\_Sheikh, 2011; Snyder, 1999). Furthermore, this result agrees with the theoretical assumptions cited in the background of the study. Halpern (1997) note that women tend to outperform men in verbal fluency, spelling, reading comprehension, writing synonym generation, and knowledge of foreign languages. This result is different from the findings of some other studies (e.g. Furnham, Arteche, Chamorro-Premuzic, Keser and Swami, 2009) who conducted survey paper research and their results showed that males rated themselves higher than females. The disagreement between the results of the studies in the linguistic intelligences could be due to the differences in the sample and the context of the study.

It was clear from the findings of the study that there was a statistically significant difference at  $\alpha = 0.05$  between the adjusted mean scores of students’ intrapersonal intelligences in favor of males. This result is supported by the findings of other researchers (e.g. Neto, Ruiza and Furnham, 2008). This result is different from the findings of some other studies (e.g. Snyder, 1999) whose results indicated significant differences in students’ intrapersonal intelligences in favor of females. It is also different from the findings of Khamis (2005) which indicate no statistically significant difference due to program/gender interaction. The disagreement between the results of the studies in the intrapersonal intelligence could be due to the differences in the sample and the context of the study.

To sum up, the findings of the current study came in line with many of the theoretical and practical studies. The findings also provide evidence for the close relationship between developing students’ multiple intelligences and developing students’ language abilities in general and students’ linguistic, logical, interpersonal and intrapersonal intelligences, in particular. In conclusion, within the limitations of this study, it appears that integrating listening, speaking, reading and writing develops students’ logical, linguistic, interpersonal and intrapersonal intelligences.

Based on the findings of this study, researchers are recommended to analyze the extent of integration in syllabuses of English communication skills taught in different language centers and to conduct further research studies on the significance of teaching integrative skills on developing other intelligences. Furthermore, Jordanian universities are recommended to design training courses and workshops for EFL teachers on the strategies of developing the multiple intelligences of students and to include multiple intelligence tests and integrative tests in the syllabuses. Local Textbook writers are recommended to incorporate activities that stimulate students’ different multiple intelligences while learning

English as a foreign language and to design more integrative activities that provide students with opportunities to use the four skills meaningfully in every exercise.

EFL teachers are recommended to recognize the importance of WLA which calls for student-centered learning environment, to provide students with more activities in order to help them develop their multiple intelligences, to provide students with more activities that stimulate students' ability to use the four skills in an integrative manner and to incorporate integrated activities in assessment practices in order to develop the students' intelligences and academic linguistic achievement in English.

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