



Personality Traits and Multiple Intelligences as Predictors of Reading Proficiency among Iranian EFL learners

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Abstract

The present study investigated the relationship between personality traits and multiple intelligences, and learners' reading proficiency. To this end, 384 graduate EFL students participated in the present study. Two questionnaires, namely the NEO personality inventory-revised, and McKenzie's (1999) MI inventory as well as a sample TOFEL reading comprehension test were used to collect the data. Three regression models, backward, forward, and stepwise were used to determine prediction equations for the reading performance of EFL graduate students. Path analysis technique was employed to assess the magnitude of direct and indirect relationship of the variables. The result of the statistical analysis showed that there were only positive as well as direct relationships between interpersonal intelligence and reading proficiency, while the other intelligences such as intrapersonal, existential, naturalist, etc. would account for negative relationship with the criterion variable, reading proficiency. Agreeableness was found to be the only personality trait which had direct and negative relationship with the criterion variable. Additionally, the relationship among conscientiousness and extroversion traits as well as spatial, verbal, and mathematical intelligences with the criterion variable proved to be indirect. All the mentioned relationships between graduate EFL learners' personality traits and multiple intelligences with their reading proficiency would lead the researchers to conclude that although various individuals have a tendency to do differently while reading in spite of the different reading preferences, readers tend to be relatively consistent in their performance.

Keywords: Multiple intelligence, Personality traits, Reading proficiency

INTRODUCTION

One of the current and dominant issues in the area of teaching English as a foreign and/or

second language is attending to the learners' individual differences; Further, because of the numerous learner variables that seem to impinge on the process of language learning, the emphasis on the individual differences among learners is

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still relevant and applicable in modern language teaching and its associated learning environments (Blair, 1982).

Furthermore, an EFL/ESL learner should be considered as a whole individual with his /her own needs, interests, strengths, and pitfalls as being different from one another (Brown, 2001; Cook, 2001). Among varied learners' individual differences and characteristics, two perspectives which contributed to the consideration of language learners as different are Multiple Intelligences (MI) and Trait theories which have received remarkable attention from L2 practitioners and second language acquisition researchers in the last two decades.

Intelligence and personality are enduring and stable traits across situations and over time (Bartels et al., 2012), and they indicate to undeniable contributions of genetic factors to individual differences. Although personality and intelligence are considered as separate constructs (Maltby, Day, & Macaskill, 2007), intelligence has been considered as the cognitive part of the construct of personality (Brody, 1992; Cattell, 1941; Eysenck, 1997). Wechsler (1950) viewed intelligence to be a manifestation of personality as a whole and claimed that certain affective and motivational factors are integral parts of the construct of intelligence.

Intelligence is viewed as the capacity to solve problems or to fashion products that are valued in one or more cultural setting by Theory of Multiple Intelligences (Gardner & Hatch, 1989). McAdams and Pals (2006) defined personality as "a unique part of individual, developing model of dispositional features and traits, characteristic adaptations, and stories of life, complexly and differentially situated in culture and social context"(p. 204). Trait is a description of constant models of motivational, behavioral, emotional, and cognitive factors. McCrae and Costa (1995) define traits as "dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings, and action" and which "transcend situational constraints" (p. 235).

Also, Reading is considered as the perception of a written text for understanding its content; this understanding is named reading comprehension (Wiener & Bazerman, 2006), gaining sufficient skills in reading comprehension is a substantial requirement of EFL learners (Khalili Sabet & Mesbah Kiaee, 2016) which helps them gain much more information in English language and get better scores in English international tests like TOEFL and IELTS as reading comprehension has always been one of the main components of such exams. More, it is said that without improving reading skill, students are not able to compete in the progressive world (Ozdemir, 2010). As such, it is worth considering the impact of some factors (i.e., intelligence & personality) that might influence learners' reading comprehension performance as an important language skill for EFL students.

Some studies have investigated the relationship between multiple intelligence and Big Five personality in academic settings in the past two decades (Chamorro-Premuzic & Furnham, 2008; Debicki, Kellermanns, Barnett, Pearson, & Pearson, 2016; Zhou, 2015), but none of them has focused on the predictive roles of personality and intelligence in reading proficiency by EFL learners.

In this study, an attempt is made to investigate the possible relationship among personality, intelligence and reading proficiency. To do so, three research questions were proposed: 1) Can the Big Five personality traits predict EFL learners' reading comprehension proficiency? 2) Can the multiple intelligences predict EFL learners' reading comprehension proficiency? 3) Can the Big Five personality traits and Multiple Intelligences predict EFL learners' reading comprehension proficiency?

Review of Literature

As mentioned earlier, the importance of individual differences in the process of second and/or foreign language learning has been highlighted for decades up to recent years. The issue of individual differences and their impact on learners' L2

performance has always been the subject of discussion and research amongst researchers and practitioners up to now.

To date, many studies (Chamorro-Premuzic & Furnham, 2005; Ehrman & Oxford, 1995; Furnham, Nuygards, & Chamorro-Premuzic, 2013; Ismatullina & Voronin, 2017; Khalili Sabet & Mesbah Kiaee, 2016) have been done to explore the relationship between personality traits, multiple intelligence, and academic performance in university and/or secondary high school settings. Further, recent studies have specifically shown that there is a significant relationship between learners' personality traits and types of intelligence, and how personality and intelligence can predict a range of academic outcomes (Furnham & Monsen, 2009).

For example, Furnham et al. (2013) examined the relationship between personality and two different academic performance (AP) assessment methods, namely exams and coursework. The results highlighted that Personality variables like Conscientiousness, Openness and Agreeableness were stable, robust and predictable correlates and determinants of students' final term performance.

In the study by Chamorro-Premuzic and Furnham (2004), the relationship between Big Five personality traits, several cognitive ability tests, and two statistics examination grades (SEG) at the university level was examined. The results revealed that some traits like Extraversion, Openness, Conscientiousness and, to a lesser extent, general intelligence, showed incremental validity in the prediction of statistics grades. In a further study, T. Chamorro-Premuzic and A. Furnham (2003) looked at the correlation between personality traits and academic performance between two samples of British university students. The results showed that personality is significantly related to academic performance and that the Big Five traits accounted for approximately 15% of the variance in students' grades.

In a further research, Farsides and Woodfield (2003) studied 432 university students and found that Openness to Experience and Agreeableness

predicted students' final grades. They also showed that verbal intelligence and Openness to experience account for 40% of the variance in final scores. Further, Ismatullina and Voronin (2017) investigated the relationships between Big Five Personality Traits and Intelligence and also tried to find the gender dependencies. They reported that there is only a significant correlation between openness and intelligence in the female cases.

Kök (2013) in a research on exploring the correlation between learners' listening comprehension performance and their multiple Intelligence groups reported no statistically significant difference between the experimental and control group students regarding their multiple intelligence groups. Finally, Kök (2013) concluded that the research results on the above mentioned field (i.e., intelligence and academic performance) were not that conclusive and consistent and more studies were needed to be done on the issue. In line with Kök (2013), Adrian and Shagabutdinova (2012) argued that logical, verbal, and spatial intelligences were the prevalent predictors of multiple intelligences among 230 Russian college students; Whereas, Adrian, Agata, and Petrides (2005) in another study on 258 Polish students concluded that mathematical, interpersonal, and verbal intelligence were the best predictors of the overall multiple intelligences.

Similarly, Piaw and Don (2014) initiated their study to show the predictors of multiple intelligence abilities for Malaysian school leaders; the findings of the research highlighted that interpersonal and intrapersonal intelligences were the two best predictors of overall multiple intelligence abilities. So far, the results of the studies in search for finding out the predictors of multiple intelligence abilities are inconclusive and, to some extent, controversial meaning that different scholars argued for different findings.

Also, a few studies focused on finding the relationship between multiple intelligences and reading comprehension performance and vocabulary knowledge; for example, Jokar and Hesabi

(2014) study on 100 Iranian high school students showed that among eight types of multiple intelligences four abilities, namely linguistic-verbal, logical-mathematical, spatial, and interpersonal intelligences had statistically positive correlations with students' reading comprehension performance. Further, the findings of another similar study (Khalili Sabet & Mesbah Kiaee, 2016) on multiple intelligence components and reading comprehension performance revealed that medical students' verbal-linguistic intelligence was positively correlated with learners' reading comprehension abilities

In a further research, Shearer and Karanian (2017) reviewed 318 neuroscience studies and attempted to implicate multiple intelligence theory as a bridge between instruction and cognitive neuroscience. Also, some researchers (Tezer, Ozturk, & Ozturk, 2015) applied the theory of multiple intelligences in high school classrooms and found out that learners' type of intelligence is positively correlated with students' final grades on geometry course.

In another study, Furnham and Monsen (2009) sought to examine the extent to which personality traits and intelligence scores predict school level academic performance (AP). The results showed that the scores in different exams were positively correlated with intelligence and personality. However, in their study, females outperformed males on nearly all tests despite having lower scores on the intelligence measure. Moreover, Rindermann and Neubauer (2001) in their study concluded that personality and intelligence both were significantly correlated with processing speed which was in turn strongly related to high school grades.

Overall, the fact that cognitive ability tests (i.e., intelligence tests) predict academic performance (AP) is well-documented (Chamorro-Premuzic, Furnham, & Lewis, 2007) and much of the research in the realm of personality has shown the link between personality traits and academia performance in university settings (Furnham & Monsen, 2009). However, as indicated earlier, no study has exclusively focused on

finding the relationship between personality and intelligence as predictors of EFL learners' reading comprehension scores. As such, the current study aims at filling the above mentioned gap.

METHOD

Participants

The participants of the research were 384 MA students of both translation and teaching majors studying at Sirjan universities of Payam Noor, Islamic Azad and Kerman Bahonar universities. The rationale for choosing English MA students was to reach a likely homogeneous population; all participants passed at least two years of education in English language classes. Moreover, it is logical to assume that the research participants have little difficulty in understanding the TOEFL reading comprehension tests since their major is English language.

Instrumentation

The NEO Personality Inventory—Revised NEO-FFI (Costa & McCrae, 1992) was used to collect the information. This questionnaire has 60 items and is a non-timed, which measures the “Big Five” personality traits, Extraversion, Neuroticism, Agreeableness, conscientiousness and Openness to Experience. Items are about conventional behaviors and consist of five-point Likert type statements, ranging from “strongly agree” to “strongly disagree”.

The Persian version of McKenzie (1999) MI Inventory also employed to assess multiple intelligence of participants. The inventory includes 9 intelligences, namely Logical intelligence, Linguistic intelligence, Musical intelligence, Naturalist intelligence, Bodily intelligence, Interpersonal intelligence, Visual intelligence, Intrapersonal intelligence, and Existential Intelligence. The participants of the study had to answer 90 items by yes/no. Finally, a paper-based TOEFL reading comprehension test was administered to the sample members. The test consisted of four short passages; each one had 5 to 8 multiple-choice questions, and totally 28 questions.

RESULTS**Results of Descriptive Statistics**

This study aimed at examining the relationship between MI, personality trait and reading com-

prehension ability of a group of Iranian EFL learners. The demographic information of the participants including sex, age, and English proficiency level are presented in Table 1

Table1.**Demographic information**

	variables	frequency	percent
sex	Male	213	55.5
	Female	171	44.5
age	22-25	236	61.5
	26-29	118	30.7
	30-33	30	7.8
level	Intermediate	89	23.2
	Upper intermediate	130	33.9
	advance	165	43.0

The mean scores, standard deviations, minimum and maximum for all the independent variables and the dependent variable were presented in Ta-

ble 2. The following is based on the data from Table 2:

Table 2.**Mean scores and standard deviations of the criterion and predictor variables**

Variables	mean	Std. Deviation	minimum	maximum
N	22.1224	6.83701	3.00	43.00
E	26.1250	7.29784	6.00	44.00
A	26.7396	6.46096	4.00	44.00
O	26.4193	6.54598	3.00	62.00
C	29.4141	7.96060	3.00	73.00
Spatial	5.9271	2.29539	.00	10.00
Verbal	5.9323	2.16200	.00	10.00
Math	6.4167	2.53916	.00	10.00
Kinetic	5.9375	2.29570	.00	10.00
Musical	5.6797	2.06652	.00	10.00
intrapersonal	5.8151	2.09430	1.00	10.00
interpersonal	6.1563	2.33076	.00	10.00
Natural	5.6328	2.47704	1.00	10.00
Existential	5.8385	1.99164	.00	10.00
TOEFL	17.7005	3.65145	8.00	27.00

1. The mean score for TOEFL reading comprehension test was 17.70 ($M = 17.70$; $SD = 03.65$)
2. The learners' minimum test score on the TOEFL reading comprehension test was 8 ($M=8.00$) and the maximum score was 27 ($M=27.00$).

3. The highest mean score is for the conscientiousness among the others personality traits ($M = 29.41$; $SD = 7.96$).
4. The mean score for mathematical and interpersonal intelligences was approximately the same ($M= 6.4167$ and $M=6.1563$ respectively). They also had the highest mean score among the other intelligences.

Table 3 represents frequency and percent of five personality traits among the research sample.

Table 3.
Frequency and percent of traits

NEOSCORE		
traits	Frequency	Percent
N	41	10.7
E	81	21.1
O	73	19.0
A	54	14.1
C	135	35.2
Total	384	100.0

By attending to the table 3, it can be concluded that conscientiousness was regarded as dominant intelligence among EFL graduate students and included around one third of the sample (135 graduate students), and neuroticism had the smallest frequency number (41 EFL graduate students) in this study.

Table 4 shows frequency and percent of nine different types of intelligences among the research sample.

Table 4.
Frequency and percent of intelligences

Gardner		
intelligences	Frequency	Percent
logical	41	10.7
spatial	38	9.9
verbal	83	21.6
kinetic	39	10.2
interpersonal	25	6.5
intrapersonal	63	16.4
musical	24	6.3
natural	19	4.9
existential	52	13.5
Total	384	100.0

As shown in table 4, verbal intelligence had the highest frequency among graduate EFL students by 83 percent, and the least one belonged to natural intelligence by 19 percent.

Examining Research Questions

The three research questions of this study were:

- 1) can the Big Five personality traits predict EFL learners' reading comprehension proficiency?
 - 2) Can the multiple intelligences predict EFL learners' reading comprehension proficiency?
 - 3) Can the Big Five personality traits and Multiple Intelligences predict EFL learners' reading comprehension proficiency?
- In order to answer the mentioned aims the following steps were done.

Regression

To initially establish the relationships between the criterion variable and the predictor set of variables, a correlation matrix was computed; the results of this computation were presented in Tables 5 and 6. Moreover, the relationships among the predictor variables (inter-correlations) were also listed and presented. According to table 5, it can be revealed that relations among four predictors variable, Agreeableness, Interpersonal, Intrapersonal and existential, and criterion variable is significant ($p=0.05$).

Table 5.
Correlation coefficient matrix for predictor and criterion variables

	N	E	O	A	C	TOEFL	spatial	verbal	math	kinetic	musical	interpersonal	intrapersonal	natural	existential	
Correlation	N	1.00														
	E	-.192	1.00													
	O	-.139	.117	1.00												
	A	-.130	.327	.012	1.00											
	C	-.237	.141	-.136	.265	1.00										
	TOEFL	.023	.004	-.020	-.170	-.078	1.00									
	spatial	-.022	-.126	-.050	-.071	-.015	.013	1.00								
	verbal	.044	.096	.008	-.029	-.154	.015	-.112	1.00							
	math	.001	-.113	.022	-.019	-.011	-.086	-.014	-.081	1.00						
	kinetic	-.011	-.002	-.052	.059	.073	.053	-.083	-.036	-.155	1.00					
	musical	.079	-.057	.000	.061	-.004	-.038	.017	-.063	.013	-.027	1.00				
	interpersonal	.028	.087	-.004	.017	.034	.416	-.083	-.127	-.083	-.035	-.041	1.00			
	intrapersonal	.023	.099	.066	-.043	-.023	-.196	-.090	.077	.013	.004	-.061	-.025	1.00		
	natural	.179	-.004	-.079	.007	-.072	-.065	.071	-.002	.013	-.111	-.087	-.028	-.070	1.00	
	existential	.012	.095	.049	.153	.019	-.184	-.092	-.013	-.108	-.058	-.009	-.054	.025	-.022	1.00
	Sig. (1-tailed)	N														
E		.000														
O		.003	.011													
A		.005	.000	.407												
C		.000	.003	.004	.000											
TOEFL		.325	.470	.345	.000	.064										
spatial		.337	.007	.163	.082	.85	.402									
verbal		.194	.030	.434	.287	.001	.383	.014								
math		.496	.014	.331	.354	.413	.046	.395	.057							
kinetic		.415	.488	.153	.123	.076	.152	.052	.240	.001						
musical		.060	.134	.497	.118	.469	.229	.369	.110	.403	.300					
interpersonal		.290	.044	.467	.371	.250	.000	.053	.006	.052	.245	.214				
intrapersonal		.328	.027	.099	.199	.328	.000	.040	.067	.399	.468	.115	.316			
natural		.000	.469	.061	.447	.079	.100	.084	.483	.398	.015	.044	.291	.087		
existential		.404	.032	.167	.001	.352	.000	.036	.401	.017	.127	.433	.148	.313	.337	

Backward regression

Backward regression was used to select the best possible independent variables for predicting reading performance of EFL graduate students using four predictors variable namely, agreeableness,

interpersonal, intrapersonal, and existential for the prediction equation. Table 6 presents coefficients part of the variables. It will be helpful to present the values that are needed to write the regression equation.

Table 6.
Beta coefficients for the actual regression equation

Variables	Coefficients				Sig.
	Unstandardized Coefficients		Standardized	t	
	B	Std. Error	Beta		
(Constant)	19.608	2.103		9.323	.000
N	.002	.026	.004	.092	.926
E	.029	.025	.057	1.169	.243
O	-.009	.026	-.015	-.337	.737
A	-.093	.027	-.166	-3.392	.001
C	-.027	.022	-.059	-1.232	.219
spatial	.042	.073	.027	.583	.560
verbal	.104	.078	.062	1.331	.184
math	-.065	.066	-.045	-.985	.325
kinetic	.099	.073	.062	1.362	.174
musical	-.041	.080	-.023	-.512	.609
interpersonal	.640	.071	.409	8.977	.000
intrapersonal	-.356	.078	-.204	-4.535	.000
natural	-.132	.084	-.072	-1.573	.117
existential	-.199	.067	-.135	-2.959	.003

a. Dependent Variable: TOEFL

Four variable prediction equations

To predict the dependent variable with four variables (Agreeableness (X₁), Interpersonal (X₂), Intrapersonal (X₃) and existential (X₄)) the regression equation was used.

Where

$$Y = b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_0$$

Y = reading performance of graduate students

X₁ = agreeableness

X₂ = Interpersonal

X₃ = Intrapersonal

X₄ = existential.

The regression coefficient values of the four variables were as follows according to Table 7:

$$B_1 = -.092$$

$$B_2 = .637$$

$$B_3 = -.330$$

$$B_4 = -.195$$

From these values, the raw score prediction equation in symbolic mathematical form became:

$$Y = -.092 X_1 + .637 X_2 + .330 X_3 - .195 X_4 + 19.26$$

Table 7.**Backward regression: The regression coefficient values of the four variables**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
11	(Constant)	19.26	.973		19.789	.000
	A	-.092	.025	-.164	-3.665	.000
	interpersonal	.637	.069	.407	9.176	.000
	intrapersonal	-.330	.077	-.190	-4.278	.000
	existential	-.195	.066	-.132	-2.950	.003

a. Dependent Variable: TOEFL

Table 8 shows that the multiple correlation coefficients squared indicated that the four variable models accounted for 25 percent of the variance involved. A multiple correlation of 0.508 and a standard error of 3.16108 were obtained.

Table 8.**Model summary**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.508	.258	.251	3.16108

The conclusions and results of the four variables multiple regression analysis were listed in Table 9. The information in this table basically explains the regression equation is describing statistically significant portion of the variability in the dependent variable from variability in the independent variables (The F ratio that was obtained, 33.011, was significant).

Table 9.**Backward regression: analysis of multiple regressions**

	ANOVA				
	Sum of Squares	df	Mean Square	F	Sig.
Regression	1319.431	4	329.858	33.011	.000
Residual	3787.129	379	9.992		
Total	5106.560	383			

Forward regression

The questions to be tested in this section were similar to those of listed in the backward solution. It stated that no combination of these variables: openness, conscientiousness, inter-personal, intra-personal, existential, extroversion, neuroticism, naturalist, linguistic, mathematic, spatial, bodily-Kinesthetic, musical, extroversion were of significant value when used as predictors of EFL graduate students. The forward regression methods required a ranking, by partial correlation

coefficients, of the predictor variables. The independent variables were ranked by their correlation with the criterion and these results were recorded in Table 10.

Close inspection of Table 10 indicated that the existential intelligence was the strongest variable (.508) and that agreeable trait followed it with (.491). The third one was the intrapersonal variable, (.455); interpersonal was considered to be the last variable (.416). The variables coefficients were listed in Table 11.

Table 10.**Ranking correlations between predictors' variables and criterion**

Ranking	Predictors variable	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	existential	.508	.258	.251	3.16108
2	agreeable	.491	.241	.235	3.19296
3	intrapersonal	.455	.207	.203	3.25967
4	interpersonal	.416	.173	.171	3.32536

Table 11.**Forward regression: regression coefficients**

variables	1	2	3	4
interpersonal	.651	.644	.649	.634
intrapersonal		-.324	-.337	-.332
agreeable			-.103	-.092
Existential				-.195

The forward regression equation, in raw score form, became:

$$Y = b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_0$$

Where

Y = reading performance of graduate students

X₁ = agreeableness

X₂ = Interpersonal

X₃ = Intrapersonal

X₄ = existential

The regression coefficient values of the four variables were as follows:

$$B_1 = .634$$

$$B_2 = -.332$$

$$B_3 = -.092$$

$$B_4 = -.195$$

$$B_0 = 18.394$$

From these values, the final forward prediction equation became:

$$Y = -.092 X_1 + .634 X_2 + -.332 X_3 + -.195 X_4 + 18.394$$

The final results of the forward model have been presented in Table 12, a predictive model with four variables (X₁, X₃, X₄, and X₅). Therefore, it is concluded that the predictor variables do form a measure of reading proficiency of EFL graduate students. Therefore, the four variable combinations, listed previously, formed a predictive measure of the expressed criterion.

Table 12.**Forward regression: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.416 ^a	.173	.171	3.32536	.173	79.797	1	382	.000
2	.455 ^b	.207	.203	3.25967	.034	16.551	1	381	.000
3	.491 ^c	.241	.235	3.19296	.034	17.086	1	380	.000
4	.508 ^d	.258	.251	3.16108	.017	8.704	1	379	.003
a. Predictors: (Constant), interpersonal									
b. Predictors: (Constant), interpersonal, intrapersonal									
c. Predictors: (Constant), interpersonal, intrapersonal, A									
d. Predictors: (Constant), interpersonal, intrapersonal, A, existential									

Stepwise regression

An alternative procedure for data analysis would be stepwise regression technique. Like the forward technique, but unlike the backward technique, stepwise regression is a forward procedure where variables are added rather than eliminated from the analyses. Essentially, the same questions will be tested for this technique as was tested in the forward technique. Its results and equation was like forward regression, as it comes below.

$$Y = -.092 X_1 + .634 X_2 + -.332 X_3 + -.195 X_4 + 18.394$$

Path analysis The data analysis has been given new dimensions with the introduction of path analysis. This technique allows analysis of a complex network of direct and indirect configurations of variables and considering all possible relationships among the variables

included in the set. The purpose of this section of this chapter is to apply the path analysis technique to the research data. The analyses will differ because of the effects of predictor variables on other predictor variables will be considered in the indirect relationships of the model.

Direct impact

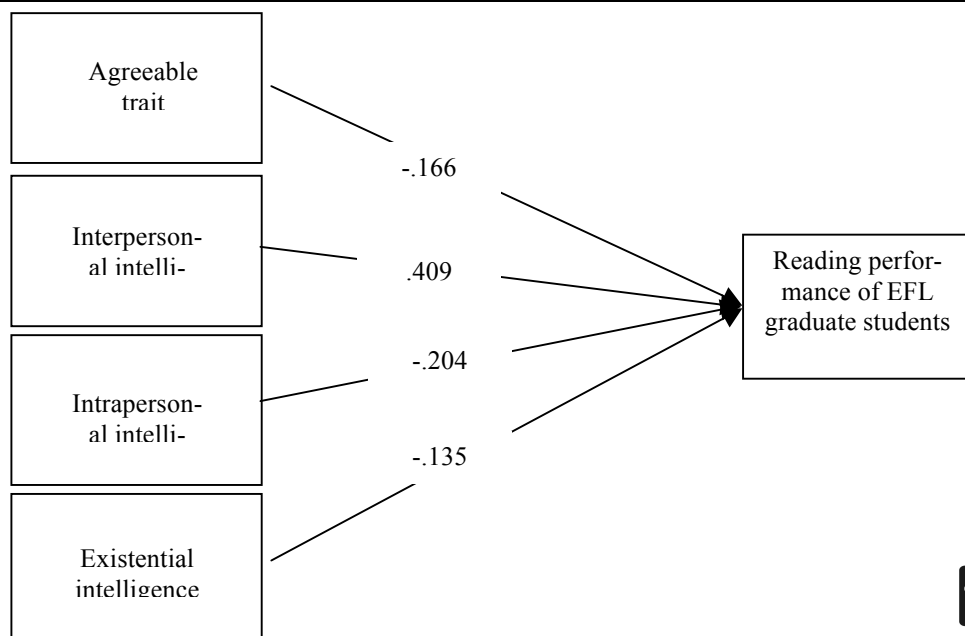
The first step in the computation of a path coefficient is to calculate the value of the partial regression coefficients. After the calculation of regression coefficients (see Table 13) a "t" test was applied to each coefficient. Those coefficients with a calculated t value lower than the table t value at .05 levels were eliminated and then all significant paths are recorded in Figure 2. By attending to Fig. 1, it can be seen that just four direct routes to the dependent variable still exist.

Table 13.
Regression coefficients

variables	Coefficients			t	Sig.
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta		
(Constant)	19.608	2.103		9.323	.000
A	-.093	.027	-.166	-3.392	.001
interpersonal	.640	.071	.409	8.977	.000
intrapersonal	-.356	.078	-.204	-4.535	.000
existential	-.199	.067	-.135	-2.959	.003

a. Dependent Variable: TOEFL

Figure 1.
Direct effects



Direct, indirect, and total impact of research model

Table 14 presents the results of the indirect, direct and total impact of each independent variable. After the path analysis, it is revealed that the

direct impacts of agreeable trait, interpersonal intelligence, intrapersonal intelligence and existential intelligence, respectively -0.166, 0.409, -0.204 and -0.135, $P < 0.001$, are significant.

Table 14.
Results of direct, indirect, and total impact of research model

Independent variables	Direct impact	Indirect impact	Total impact
Agreeable trait	-.166	-.017	-.183
Interpersonal intelligence	.409	-	.409
Intrapersonal intelligence	-.204	-	-.204
Existential intelligence	-.135	-	-.135
Mathematics intelligence	-	-.025	-.025
Extroversion trait	-	-.071	-.071
Conscientious trait	-	.034	.034
Spatial intelligence	-	-.041	-.041
Linguistic intelligence	-	-.066	-.066

Empirical model of research

Finally, empirical research model was gained through path analysis and is represented by Fig. 2. This figure shows all direct and indirect relationships of predictor variables with criterion variable.

Comparison of the three multiple regression techniques

Since a major goal or objective of this study is the identification of variables related to EFL graduate students' proficiency in reading, a comparison is centered upon: (1) the actual variables included in each technique, and (2) the relative degree of importance of the variables that were included in the three techniques. Four different variables were included in the three equations. Four variables (X_1 , X_2 , X_3 , and X_4) were common to all three equations. These variables were four strong predictor variables.

Implications of the Regression Models

After viewing the results of the three regression techniques, it would appear that only one trait among big five personality traits had relationship with proficiency in reading, and also just three types of intelligences among multiple intelligences would predict reading proficiency of EFL graduate students.

This may appear to be in sharp contrast to some present thinking on the matter. Theory have indicated that the big five personality would have been the most important variable to predict reading proficiency (Brow, 2008; Pulford & Sohal, 2006). The regression analyses, however, contradicted this theoretical approach.

The study also found that certain personality traits correlate with other types of personality traits. This proves that people generally would have more than one personality traits. It is also true about multiple intelligences.

Implications from Path Analysis

The results of the path analysis revealed several additional insights that were not apparent with the regression models. Similar to the regression analyses, existential intelligence (X_4) was considered as having the strongest direct path to the dependent variable.

All of the three multiple regression methods gave the prediction equation as including variables X_1 , X_2 , X_3 , X_4 and X_0 .

The indirect effects offered even more interesting inferences. The regression models indicated that some indication of performance on variables X_1 , X_2 , X_3 , X_4 were necessary for prediction of EFL graduate students' proficiency in reading.

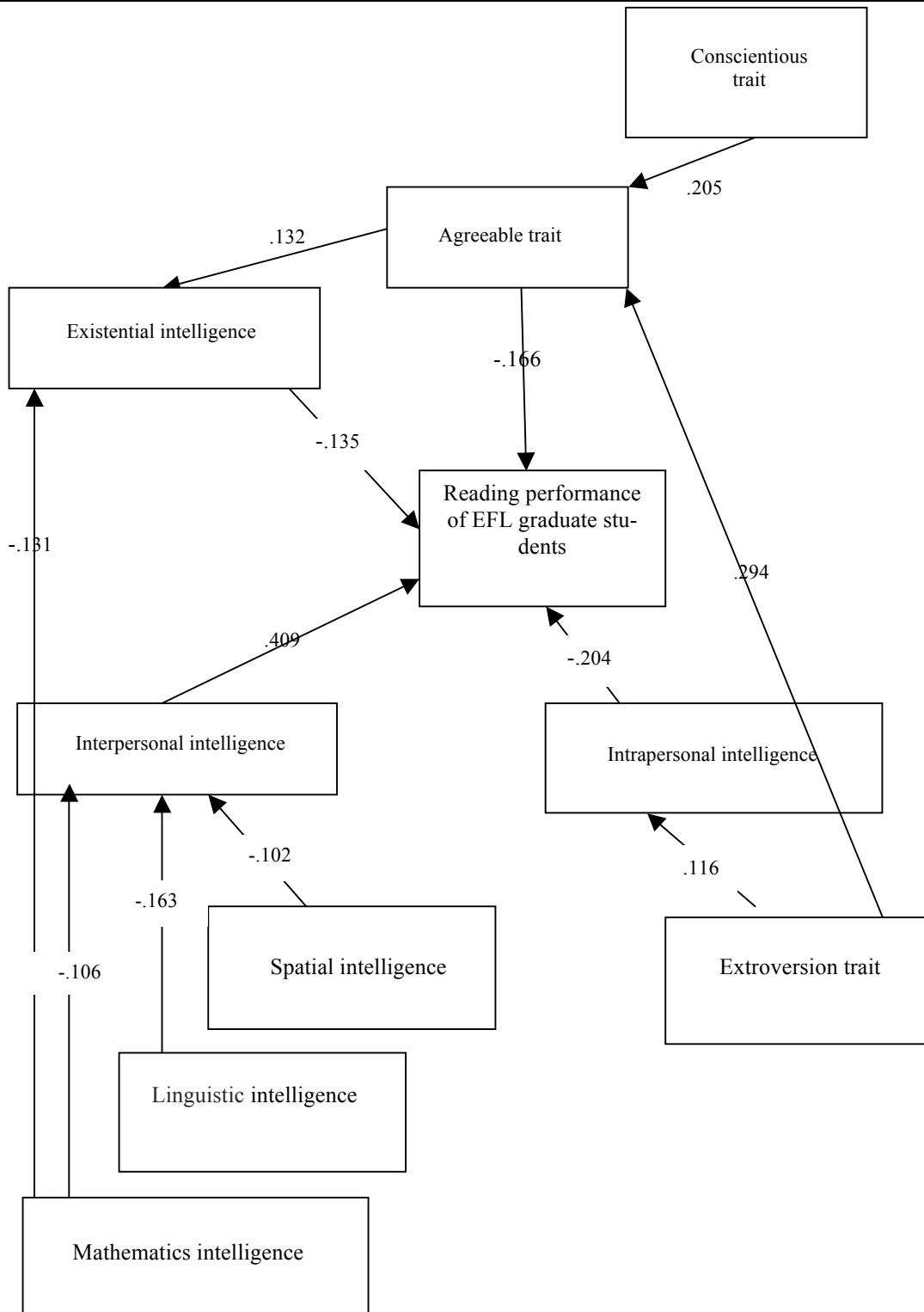


Figure 2. Empirical model of research

Extroversion and conscientiousness traits, which theory might support as the top variables, became more important when considering indirect effects. In other words, as it might be expected, extraversion and conscientiousness traits appeared to have positive effects on performance in other variables. Therefore, extraversion and conscientiousness traits could give additional insights into student proficiency in reading. Others variables which had relatively no predictive value in regression analyses were mathematic intelligence, verbal intelligence and spatial intelligence.

Path analysis, then, was able to offer some interpretation of relationships which the regression techniques had not featured. It showed that there are relationship between big five traits and multiple intelligences. Extraversion had relationship with Intrapersonal intelligence and there was a correlation between agreeable trait and existential intelligence as well. Another insight that could gain by path analysis is the correlations among 4 multiple intelligences (i.e., interpersonal, mathematic, verbal and spatial intelligences).

DISCUSSION and CONCLUSION

The current study was designed to provide information regarding the use of big five personality traits and multiple intelligences in relationship to reading performance. Although personality variables have been studied extensively throughout the last 20- 30 years, the present study was focused on the relationship between personality traits and multiple intelligences and reading proficiency of EFL graduate students. It still exists a significant gap in the literature regarding the relationship of personality and intelligence variables to reading performance; there is relatively little empirical information regarding factors affecting student success in reading performance.

The majority of research has been focused on the impact of personality traits and multiple intelligences on academic performance and a few of them have paid attention to reading performance. For example, De Fruyt and Mervielde (1996), Digman (1989), and Dollinger and Orf (1991) all

showed a relationship between the personality factor of conscientiousness and general academic success. Also, the research results regarding the relationship between extraversion and academic success has been much less consistent (Barrick & Mount, 1991; Kline & Gale, 1971) like our results that found there was no correlation between extraversion and reading proficiency.

Lee-Bagglely, Preece, and Delongis (2013) also declared that extraversion did not have a role in academic success; it did not have a direct or indirect role on the letter grade students received. Its result was similar to our results, but we found that extraversion had indirect impact on reading proficiency of EFL graduate students. Tomas Chamorro-Premuzic and Adrian Furnham (2003) found that students who were Conscientious had better academic performance than other personality types. Their finding was in contrast with ours, because we concluded that conscientiousness trait cannot directly predict reading proficiency among EFL graduate students, while its impact is indirect. It was similar to Lee's conclusion (Lee-Bagglely et al., 2013) .

The analysis of data shows that conscientiousness contributes to reading proficiency through the agreeableness trait. Spatial intelligences, verbal intelligences, mathematics intelligence, conscientious trait and extroversion trait are others variable which have indirect roles in reading proficiency. Four variables, namely agreeable trait, existential intelligence, intrapersonal intelligence and interpersonal intelligence, have direct impact on reading proficiency. While, the correlation of interpersonal intelligence with reading proficiency was positive, the other ones were negative. In addition to the above mentioned results, it was also found that five variables- that is to say, neurotic trait, openness to experience trait, musical intelligence, kinetic intelligence and naturalist intelligence did not have any roles – both direct and indirect – in reading proficiency of EFL graduate students. The final analysis (i.e., path analysis) met all criteria difference between the theatrical model and empirical data and therefore it was concluded that the

empirical model does not fit and it could be said that the model is inconsistent with the theatrical method.

Specifically, the final re-revised model included the four variables, namely agreeable trait, existential intelligence, intrapersonal intelligence and interpersonal intelligence; the R^2 for the regression of them was statistically significant ($p < .001$). The present study found that neurotic trait, openness to experience trait, musical intelligence, kinetic intelligence, and naturalist intelligence did not have a significant impact on reading proficiency; while, in research initial model, they were hypothesized to have an effect on reading proficiency.

After the reproduced correlations were completed and compared to the observed correlations, it was determined that these above mentioned variables were playing non-significant roles and, thus, they were removed from the model. Further, before they were deleted, regression analyses were conducted to determine if they had impacts on other variables; none of these variables produced significant results and therefore were not added as new paths in the empirical model. These findings are consistent with previous research such as Hattie (2009) which has concluded that personality traits and learning have a low relationship.

The results of this study are both consistent and opposite of studies in this area. For example, Krach, McCreery, Loe, and Jones (2016) concluded that personality trait of openness to experience is a positive predictor of reading fluency ability even when accounting for variance associated with cognitive ability; while in the current study Openness to experience does not have correlation with reading proficiency and the intelligences.

Babaeikhou (1995) also studied the relationship between extroversion/introversion personalities and Iranian EFL learners' English proficiency; the results showed that extrovert learners outperformed their introvert peers. But the present study shows that extroversion had indirectly impact on reading proficiency. Astika, Carrell, and

Prince (1996) also studied the relationship between extroversion-introversion and English proficiency of students; they did not report any relationship with other measures of English proficiency.

Nemat Tabrizi (2016) indicated that all types of the learners' multiple intelligences have significant relationship with the reading comprehension scores; also he mentioned that the verbal-linguistic intelligence is the most significant predictor of the learners' reading comprehension abilities while visual-spatial and interpersonal intelligences are the second and third predictors of the learners' reading comprehension respectively. Nemat Tabrizi (2016) findings are in contrast with current research results; however, his research also showed that kinesthetic intelligence could not predict the reading comprehension of EFL learners which indicates that, at least, Nemat Tabrizi (2016) research results are similar to present research findings in the above mentioned case.

Some researchers verified the relationship between multiple intelligences and performance in reading comprehension (Abdulkader, Gundogdu, & Eissa, 2009); their results are not completely different from our results, but current study found that only three intelligence types could predict reading proficiency.

Moreover, another study (Rahimi, Mirzaei, & Heidari, 2012) found a positive significant relationship between linguistic, logical, mathematical, spatial, interpersonal and intrapersonal intelligences and reading performance. The present study's findings are partially consistent with Rahimi et al. (2012) findings because interpersonal and intrapersonal intelligences were correlated with reading proficiency while the correlations of mathematical, spatial intelligences were not confirmed.

Briefly put, the literature on learners' individual differences (e.g., personality, intelligence, styles and strategies, etc.) highlights the issue that students initiate the learning process with their own predispositions, peculiarities, and differences; each learner, in the process of learning a

second and/or foreign language, follows his/her own way of learning based on their learning styles, strategies, personality traits and intelligence types (Sadeghi, Kasim, Tan, & Abdullah, 2012). As such, in order to provide an effective and sensitive instruction, teachers of L2 should learn to identify, understand and give importance to their learners' significant individual differences (Carrel, Prince, & Astica, 1996).

To end, concerning the inconsistencies in the findings of research in the area of personality, intelligence and L2 learning, further empirical

research needs to be conducted with a larger sample in order to generalize the findings of the current study. Further the Multiple Intelligence (MI) and personality measuring inventories are a limiting factor in this study in a sense that though serious consideration has been given to collecting and analyzing data, human qualities and attitudes are so complex, intrigue, and profound that it is rather difficult to exactly assess them by any standardized measuring instruments (Sadeghi et al., 2012).

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