

# Proposing a Cognitive EFL Writing Model Based on Personality Types and Narrative Writing Intelligence: A SEM Approach

**Sima Ziaei\***

*Assistant Professor of Applied Linguistics, Bahar Institute of Higher Education,  
Mashhad, Iran*

**Behzad Ghonsooly**

*Professor of Applied Linguistics, Ferdowsi University of Mashhad, Iran*

**Zargham Ghabanchi**

*Associate Professor of Applied Linguistics, Ferdowsi University of Mashhad, Iran*

**Hesamoddin Shahriari**

*Assistant Professor of Applied Linguistics, Ferdowsi University of Mashhad, Iran*

## Abstract

The significance of writing in academic and career success seems to be undeniable. Several studies have investigated the effect of linguistic factors on writing quality, but cognitive factors seem to be nearly neglected. This paper aimed to investigate the role of two cognitive factors, namely, personality traits and narrative writing intelligence (NWI) in L2 writing. For this study, a narrative writing intelligence scale (NWIS) was designed and used to score the writings of the first group of participants which included 200 Iranian learners of English. A writing task, which was a film recounting, contributed to designing this scale based on Randall's (1999) definition of narrative intelligence. Two experienced raters rated all 200 written versions of film recounting, using this scale. SPSS (version 18) was used to analyze the data, and Exploratory Factor Analysis was run to identify the underlying factors. The results of EFA yielded a three-factor solution: *Unity of the plot, Identification (of characters, objects, and ideas)*, and *Voice and Rhetoric*. The second group, who were female university students of EFL, were asked to write a memory and to fill the Big-Five Personality Inventory. Their writings were evaluated twice; once by employing the NWIS and once by a tailor-made writing scoring guide taken from Weigle's (2002) guidelines. Afterward, an SEM model was proposed. The results show the proposed model has good fit indices, which confirms the influence of cognitive factors on writing ability.

**Keywords:** Big-Five personality traits inventory, EFL writing ability, Exploratory Factor Analysis, L2 writing SEM model, narrative writing intelligence, narrative writing intelligence scale

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\*Corresponding author's email: s\_ziaei\_doc@yahoo.com

## INTRODUCTION

Considering the importance of cognitive factors, one can easily criticize the common method of teaching writing which lays emphasis only on linguistic factors. Writing as one of the skills which are taught at schools, higher education, and institutes can be an important, and challenging component of literacy (McKay & Hornberger, 1996), which influences academic literacy and later achievements (Defazio, Jones, Tennant, & Hook, 2010). However, it is a hard skill to deal with for both students and teachers, especially in L2. It seems detecting and solving writing problems is not an easy job for the learners who are in tight corners of writing and helping hands of teachers should be given. However, the overriding concern of teachers is usually problems with linguistic factors. They try to find grammatical or semantical mistakes and go to great length to address this sort of problem and may easily forget the effect of cognitive factors such as intelligence. Accordingly, not only is teaching writing skill important but also assessing this skill efficiently is significant, because assessment gives students an outlook of how adroit they are in different skills and what extra practices they need to enhance their abilities. Several guidelines help raters assess writing papers in a more organized way, but these guidelines lay emphasis basically on the mechanism of writing, vocabulary range, correct grammar, content relevance, and spelling (Weigle, 2002). But, two of the factors which can draw distinctions between people in different activities—intelligence and personality—which are both innate and trainable (Heidari, Khoshsaligheh & Hashemi, 2016) are usually ignored in both teaching and assessing writing skill.

On the other hand, since the acquisition of literacy requires people to function on their own, and writing is an individual task, which needs an independent functioning (Cumming, 1990 as cited in McKay & Hornberger, 1996) a good approach to the learners' writing problems could be detecting the cognitive processes involved in writing tasks (e.g., Erkan & Saban, 2011 as cited in Pishghadam & Shams, 2012). To fulfill this aim, some writing

models have been proposed, nevertheless, studying these writing models reveals the fact that linguistic factors have been the major focus of these models and cognitive factors such as personality and intelligence have been almost ignored. However, some models such as Skehan and Foster's (2001) Limited Attentional Capacity Model; Robinson's (2005) Cognition Hypothesis; and Pishghadam and Shams' (2012) Hybrid model of intelligence and linguistic factors have shed light on cognitive models of writing. These models were among those rare models which take cognitive factors into account. Therefore, to ease the shortage of cognitive models of L2 writing, this paper sets out to assess the effect of intelligence (narrative) and personality (Big Five) on L2 writing to propose a new model.

## LITERATURE REVIEW

### Narrative Intelligence (NI)

One of the most developed ideas of narrative intelligence (NI) could date back to Randall (1999), although as he indicated some other works in the realm of the narrative had been already done, like that of McAdams (1994) or Randall (1995). Randall discussed how narrative intelligence is involved in four key areas:

- (i) the way we can express the novelty of our lives, (ii) its origins in our childhood, (iii) its dynamics in terms of the many familiar story conventions at play in the construction of our life stories, and (iv) the changes in the experience and expression with how we “story” our lives in later life. (Hiles, Čermák, and Chrz's, 2010, p.109)

Randall (1999) proposed that “narrative intelligence is the capacity to formulate and follow a story employing such intertwining *sub*-capacities as the ability to emplot, characterize, narrate, genre-ate, and thematize” (p. 15). His definitions (1999, pp.16-19) of the terms above are as follows:

**Emplotment** is to edit, to summarize, to cope with conflict, to prioritize and to select from the reality perceived by our senses, to perceive events as events, to connect events, to comprehend, to fill in the blanks, and to generate alternatives to construct a variety of versions to account for specific events and to see a situation from several sides.

**Characterization** is to characterize ourselves and to form a moving picture of what we are like, and to characterize others and to construct working pictures of what they are like.

**Narration** is to communicate, to impose order on events, to sustain interest by managing the fundamentals of grammar and rhetoric, to narrate and character, and to employ a particular narrative tone.

**Genre-ation** is to organize events into more or less predictable patterns or types and to intuit or imagine, and possibly to articulate the dramatic shape of our life course.

**Thematization** is to be aware of recurring patterns of meaning in particular events and to identify symbols or motifs.

Randall (1999) also pointed out that narrative development depends on three types of intelligence mentioned by Gardner, i.e., interpersonal, interpersonal, and linguistic. In addition to these types of intelligence, NI is also related to memory as well, since creation, storage, and retrieval of stories are the major processes of memory (Schank, 1990, p.66).

### ***Studies on Narrative Intelligence in Educational Context***

Narrative intelligence has been in limelight in the context of education in recent years. NI has recently been among the dominant priorities for researchers to investigate the influential factors in L2 writing. However, NI has been studied in different realms of education, for instance, in some studies, the relationship between teachers' NI and their pedagogical success was investigated which revealed a significant association (e.g., Pishghadam,

Golparvar, Khajavi & Iranrad, 2011; Khordkhili & Mall-Amiri, 2015). Even in translational studies, high NI reflected a higher congruency with narrative features (Heidari, Khoshsaligheh & Hashemi, 2016).

In some other studies, the relationship between NI and learning language, in general, has been under study. The study by Pishghadam and Motakef (2012) is a case in point, in which 110 high school students were hired to do two different narrative tasks. As a result, significant correlations among students' NI scores and their achievements in three languages, namely, English, Farsi, and Arabic were found. Also, in another study, Royaei and Evazzade (2012) showed that NI is associated with the type of strategies that learners implement to learn languages.

Taking the previous research into account, one may be able to suggest NI is a significant factor in language learning. However, more studies seem to be needed to prove its effect specifically on L2 writing. In this regard, the study done by Pishghadam and Shams (2012) could be a harbinger. They administered six tests of grammar knowledge, depth of vocabulary knowledge, breadth of vocabulary, verbal intelligence, narrative intelligence, and writing ability to 347 Iranian EFL learners. By proposing and comparing two SEM models, they showed that their second model, which included verbal and narrative intelligence in addition to linguistic factors, had better fit indices than Model 1, which included only linguistic factors. Verbal intelligence's casual relationship with L2 writing ability was also found by Pishghadam (2009). He emphasized verbal intelligence, which is a NI's component, should not be overlooked in L2 writing ability, which can imply that cognitive factors such as NI merit further consideration as influential factors in L2 writing.

## **Personality Types**

Personality is one of the factors which can distinguish people has been addressed in many studies as one of the contributing factors of success. Language learning is one of the areas in which various studies have been

carried out to reveal the possible effects of personality on learners' success. In line with the aim of this paper, the studies in which writing, as one of the important skills in language learning, has been the focus are shortly reviewed. This can be exemplified in the work undertaken by Marefat (2006), which put the relationship between students' writing and their personality type under study, and the results indicated that among all bipolar types of personality, only the Sensitive/Intuitive preference showed a significant impact on writing ability. Mansouri Nejad, Bijami, and Ahmadi (2012) also carried out an EFL case study on the capability of personality traits to predict writing ability. However, they found no significant relationship between personality and writing ability.

In some studies, personality has not been investigated as a whole, but different traits have been addressed (e.g., Qomarudin, 2010). For example, the effect of extroversion and introversion as a bipolar personality type was addressed in the work undertaken by Boroujeni, Roohani, and Hasanimanesh (2015). As a result, they discovered although extroverts were considered better at expressing themselves in speaking, in writing introverts outperform their counterparts, in most subsets of writing such as content, mechanics, vocabulary, and language, which was in line with the findings of Carrell, Prince, and Astika (1996) and those of Jensen and Ditiberio (1984). Jensen and Ditiberio (1984) found that extraverts write what they come up with immediately and planning is of no or little account for them, and they understand the oral presentation better than the written one, which implies that their writing can be improved through oral feedback (Boroujeni, Roohani, & Hasanimanesh, 2015). Besides, in another study, Mohammadi Dalari and Moinzade (2014) investigated the relationship between assertiveness as a type of personality and writing ability. As they claimed a significant relationship was found between assertiveness and writing ability, as the assertive group outperformed on the writing test.

## Big Five Inventory

There are various models and instruments to study personality. The one used for the aim of this study is the Big-Five model. "The Big-Five model is a hierarchical model of personality traits with five broad factors, which represent personality at the broadest level of abstraction. Each bipolar factor (e.g., Extraversion vs. Introversion) summarizes several more specific facets" (Gosling, Rentfrow & Swann Jr., 2003, p. 506).

There is more than one instrument to measure the Big Five dimensions. Costa and McCrae's (1992) which includes 240 items, NEO Personality Inventory, Revised (NEO-PI-R), 44-item Big-Five Inventory, 60-item NEO Five-Factor Inventory, and Goldberg's 100-item TDA are the cases in point (Gosling et al., 2003). However, among them all, the 44-item Big-Five Inventory seemed to be more popular since it is more economical and time-saving; it takes about 5 minutes as John and Srivastava (1999) have estimated.

Each of the five factors is briefly explained to familiarize the reader with what each may refer to. Interested readers can refer to Ibrahimoglu, Unaldi, Samancioglu, and Baglibel (2013) for a fuller treatment.

**Conscientiousness** is related to hard-working, success, and responsibility which can result in being ambitious, determined, and organized (Barrick & Mount, 2001; Costa & McCrae, 1995; Erdheim, Wang & Zickar, 2006).

**Extraversion** encompasses some feelings and desires such as assertiveness, sociability, cheerfulness, dominance, and aggressiveness opposite of timidity and solitude preference of introverts (Barrick & Mount 2001; Bond et al., 2002).

**Openness** which involves the highest cognitive aspects among all five factors includes creativity, novelty, divergent thinking, imagination, and a high sense of wonder in contrast to the ones with lower levels of openness who are conservative and traditional (Barrick & Mount, 2001; Costa & McCrae, 1995; Erdheim, Wang & Zickar, 2006).

**Neuroticism** which is against comfort and confidence is a state of anxiety, hatred, and mistrust and can be a synonym for negative feelings and emotions such as insecurity, irritability, guilt, fear, and anger (Barrick & Mount, 2001; Costa & McCrae, 1995).

**Agreeableness** brings compassion, self-sacrifice, and support with it, which may end to reliability and humbleness of the people, while lack of it brings up indifference, jealousy, and self-centeredness which can lead to unreliability, stubbornness, hostility, and rudeness (Barrick & Mount, 2001; Erdheim, Wang & Zickar, 2006).

The relation between these dimensions and cognitive abilities has been studied in some research. For instance, conscientiousness has been proved to be negatively correlated with intelligence (Moutafi, Furnham & Paltiel, 2004; Rammstedt, Danner & Martin, 2016). Emotional stability (opposite of neuroticism) and openness have demonstrated a positive association with cognitive abilities such as intelligence (Rammstedt, Danner & Martin, 2016). However, the association of these Big-Five dimensions with NI needs further investigation.

## **PURPOSE OF THE STUDY**

Considering the results of the previous studies in the realm of NI and personality traits, the present study aims to detect the relationship between these two cognitive factors and EFL writing ability. As for NWI, a scale was to be designed and validated to measure Iranian's L2 NWI. Therefore, the main questions addressed in the present study read as follows:

1. Does the newly-developed narrative writing intelligence scale (NWIS) enjoy acceptable psychometric characteristics?
2. Does the model of EFL writing based on narrative writing intelligence and personality traits fit the learners' writing scores?



## **METHOD**

### **Participants**

This study was conducted on 416 students in two phases. In the first phase, 200 EFL learners of an English institute were recruited. They included male and female students aged between 20-30, who were passing FCE courses in an English language institute between 2013 and 2016. The reason for including these students was two-fold: firstly, to the knowledge of the researchers, learners at this level are more likely to be able to communicate in written English than the ones studying in the previous levels; learners in the selected institute need to pass 16 levels with 21 100-minute sessions to reach FCE level, or they may skip some levels if the result of their placement exam is satisfactory for upper levels.

Secondly, according to the researchers' experience of teaching in EFL institutes, selecting participants from upper-level courses like CAE or CPE would run the risk of insufficiency of participants. Generally, these levels are not crowded enough and it would take much longer to collect data.

In the second phase, 216 female undergraduates majoring in English (Teaching English as a Foreign Language and English Translation) at an exclusively female university- Imam Reza University of Mashhad, Iran, participated in the present study. The age of the participants, who were freshmen or sophomores, ranged from 18 to 28.

### **Instrumentation**

The research instruments of the first phase of this study included the NWIS (Narrative Writing Intelligence Scale), which was developed and validated for this study, and the 4-minute short animation called "Geri's Game", as a prompt for eliciting the participants' narrative performance in writing. Besides the brevity, one advantage of this movie is that it does not hinder understanding the events, since it is only based on actions, not

conversations, and as the focus of this research is on producing- not receiving language- this movie could be a right choice. Moreover, the presence of details in scenes and characters makes it possible to examine whether describing details and characters could be the elements of NI, as Randall (1999) has claimed.

After scoring the participants' film recounting based on the newly-designed scale, SPSS 18 was employed for the statistical procedure to discover how many of the 13 items in the designed scale can fit the whole scale and how many factors can be found with eigenvalues greater than one, which is fully explained in next part.

In the second phase, in addition to NWIS, a 20-item analytic writing scoring guideline (Weigle, 2002) was employed to score students' writing. This scoring guideline was a tailor-made one whose items had extracted from the descriptions by Weigle (2002) of how to score writings analytically.

Moreover, the English version of the Big Five Inventory was used to score five dimensions of participants' personality. However, this question may remain whether the Big Five Personality questionnaire is a reliable scale in the Iranian educational context. Based on Barekat and Tabatabaei (2013), the Big Five Personality questionnaire is a reliable scale in the Iranian educational scale. To investigate the reliability of the Big Five Personality traits inventory, they calculated the Cronbach's coefficient alpha for the items of this scale and 0.937 was the outcome, which reveals quite high reliability of this scale in the Iranian educational context.

Finally, to the aim of the study, AMOS statistical package (v.20) was employed to contribute to the statistical procedure of the second phase, i.e., proposing a model.

## **Data Collection Procedure**

A 13-item scale was designed based on Randall's (1999) definition of NI to evaluate L2 learners' narrative performance in writing. That is, for any

characteristics defined for NI, an item was composed. For instance, for “summarizing”, as an element of Emplotment, the following item was made up: “The writer summarized the story to a brief but the point story. The important events were mentioned, while the unnecessary things were not.” To disambiguate the items for the content validity, in a pilot program, 34 students watched a movie and narrated it in writing. Two experts rated their performance giving scores ranging from 1 to 5 for each of the 13 items of the scale.

To validate the NWIS, the participants were asked to watch the movie—Geri’s Game. To clarify all the procedures for the participants, everything was fully explained by the researchers in the participants’ mother tongue—Persian. The learners watched the movie, which took about four minutes, while they were not allowed to take notes, to ask for the vocabulary and grammatical items, or to use any language sources like dictionaries, since using the right vocabulary and keeping things in memory are considered to be parts of NI. They were asked to write the story as they recount it to their friends. There was no time restriction and they could hand in their paper as they had finished writing. However, in none of the classes, the time for the whole procedure exceeded 40 minutes. In addition, there was no word limit and the length of their writing was completely their choice.

In the second phase of the study, the university students were asked to write their memory of “University Entrance Exam Day” in English and fill out an English version of Big Five Inventory subsequently in order to obtain three sets of scores, namely, those of their writing ability, NWI, and their personality traits.

## **Data Analysis**

In the first phase, to validate the newly-designed NWIS, all papers of film recounting were scored based on that; that is, for each of the 13 items of the scale, a score from 1 to 5 was given to each paper. After transferring the

scores to SPSS 18, the construct validity of the NWIS was examined through employing Exploratory Factor Analysis, and underlying factors were extracted and were given names. Afterward, the reliability for each factor and the whole scale was computed.

In the second stage, the students' writings were checked and scored twice; once by the validated NWIS and once by the 20-item analytic writing scoring guide. As for the reliability of the scores, two raters scored the papers and coefficient alpha was computed to estimate inter-rater reliability, which turned out to be 7.9 and 8.1 for NWI's and writing performance's scores respectively. Finally, the data including two scores of writing and the Big Five scores were transferred to AMOS 20 for analysis and for proposing a writing model via Structural Equation Modeling.

## RESULTS

The table below demonstrates whether EFA is suitable for the present data. The high value of the KMO (close to 1.0) and small value of the significance level of Bartlett's Test of Sphericity ( $<0.05$ ) indicate sampling adequacy, i.e., factor analysis may be useful with the data.

**Table 1:** KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.843
Bartlett's Test of Sphericity	Approx. Chi-Square	1452.744
	Df	78
	Sig.	.000

To validate the newly-developed scale, EFA was conducted. As Table 2 shows, the underlying dimensions causing correlation among the observed variables can be reduced in three factors, and these three factors account for 57.47% of the variance of the scale.

**Table 2:** Total variance explained by the items of the scale

Factor	Initial eigen values			Extraction sums (of squared loadings)			Rotation sums		
	Total	Variance %	Cumulative %	Total	Variance %	Cumulative %	Total	Variance %	Cumulative %
1	5.7	44.25	44.25	5.39	41.49	41.49	2.71	20.88	20.88
2	1.85	14.25	58.51	1.50	11.59	53.08	2.51	19.30	40.18
3	1.07	8.25	66.76	.57	4.38	57.47	2.24	17.28	57.47
4	.93	7.20	73.97						
5	.70	5.41	79.38						
6	.63	4.85	84.24						
7	.45	3.49	87.73						
8	.42	3.26	90.99						
9	.30	2.33	93.32						
10	.28	2.15	95.48						
11	.22	1.73	97.21						
12	.21	1.64	98.86						
13	.14	1.14	100.00						

Extraction Method: Principal Axis Factoring

The slope of the scree-plot changes from steep to shallow after the first three factors (Figure 1). This also suggests that a three-factor solution can be the right choice.

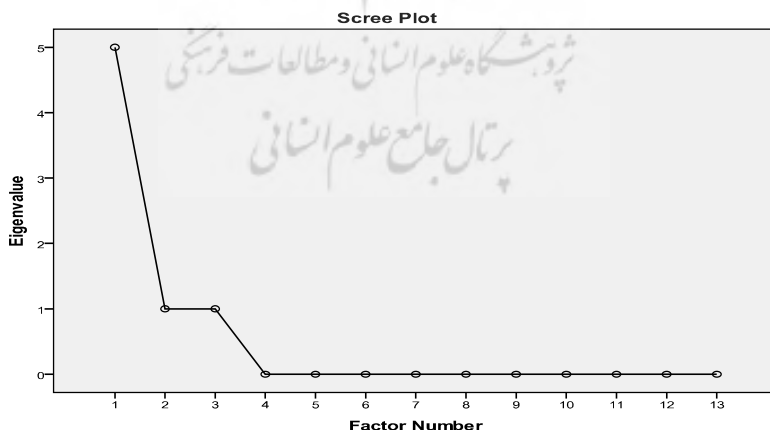


Figure 1: Scree Plot for the factor solution

Table 3 indicates which of the items of the NWIS are loaded to any of the three factors. As it is seen, items 2,3,5, and 9 are loaded to factor 1; items 7, 10, and 12 are loaded to factor 2; and factor 3 is loaded with items 8, 11, and 13. In addition, items 1, 4, and 6 are not associated with the dimensions of NWI which these three factors cover.

**Table 3:** Rotated factor matrix

	Factor		
	1	2	3
Q2	.846		
Q3	.743		
Q9	.634		
Q5	.625		
Q1			
Q12		.818	
Q10		.816	
Q7		.714	
Q4			
Q6			
Q8			.774
Q11			.681
Q13			.640
Extraction Method: Principal Axis Factoring			
Rotation Method: Varimax with Kaiser Normalization			

Alpha estimated the reliability of the whole scale as 0.88. Besides, all three factors yielded good reliability estimates as 0.88, 0.84, and 0.85 for factors 1, 2, and 3 respectively, which means the newly-developed scale does enjoy the acceptable psychometric properties.

All in all, the newly developed scale was confirmed to be valid and reliable. Having investigated the items embrace each factor, these three factors were named to display the main constituents of NWI as follows:

F1) *Unity of the plot*, which is an aggregate of items 2, 3, and 5 identifying emplotment, in addition to item 9, which refers to narration.

F2) *Identification (of characters, objects, and ideas)*, which encompasses items 7, 10, and 12, which refer to characterization, narration, and thematization respectively.

F3) *Voice and Rhetoric*, which consists of narration including items 8 and 13, and genre-ation including item 11.

To assess the second research question, Structural Equation Modeling was run. Structural equation modeling (SEM) is a family of statistical methods designed to test a conceptual or theoretical model. Figure 2 indicates the schematic representation of the model of writing based on NWI and personality type.

To examine the structural relations, the proposed model was tested using the Amos statistical package. Many fit indices were examined to evaluate the model fit: the chi-square magnitude which shouldn't be significant, the chi-square/*df* ratio which should be lower than 2 or 3, the comparative fit index (CFI), the good fit index (GFI) with the cut value greater than .90, and the Root Mean Square Error of Approximation (RMSEA) of about .06 or .07 (Schreiber, Nora, Stage, Barlow, & King, 2006). From these fit indices, only RMSEA (.077,) and CFI (.907s), lie within the acceptable fit thresholds based on Schreiber, Nora, Stage, Barlow, and King (2006). Hence, it can be concluded that the proposed model had an acceptable fit with the empirical data. The goodness of fit indices is shown in Table 4.

**Table 4:** Goodness of fit indices

	$X^2$	Df	X2/df	GFI	CFI
<b>Acceptable fit Model</b>	14.35	4	3.587	.844	.907

To check the strengths of the causal relationships among the components, the standardized estimates were examined. As indicated in Figure 2, an estimate is displayed on each path. This standardized estimate is the standardized coefficient or beta coefficients ( $\beta$ ) resulting from an analysis carried out on independent variables that have been standardized. It explains the predictive power of the independent variable and the effect size. The closer the magnitude to 1.0, the higher the correlation, and the greater the predictive power of the variable is.

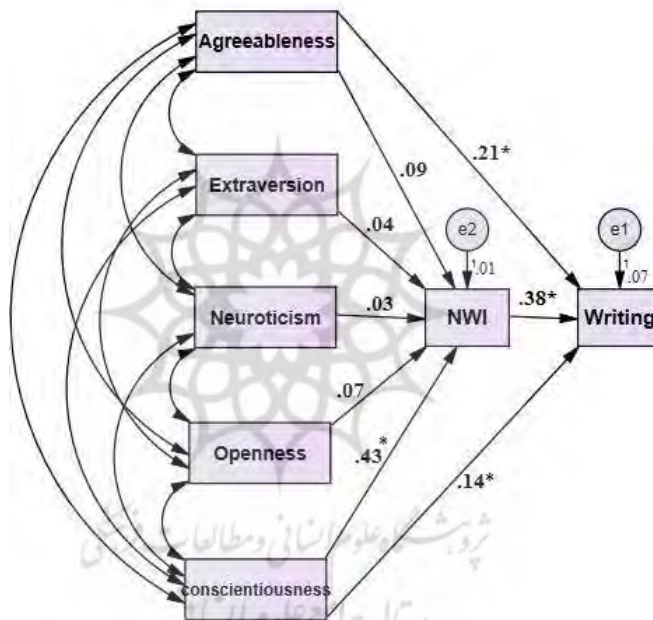


Figure 2: Model of writing based on NWI and personality

As can be seen in Figure 2, among the five personalities, only conscientiousness ( $\beta = .43$ ,  $p = .00$ ) is a positive predictor of narrative writing intelligence. In addition, Writing ability, is influenced by agreeableness ( $\beta = .21$ ,  $p = .00$ ) and conscientiousness ( $\beta = .14$ ,  $p = .00$ ). It was also found that narrative writing intelligence and writing ability are positively associated ( $\beta = .38$ ,  $p = .00$ ).



## DISCUSSION

As for the first research question of the study, the obtained outcome of the study indicated that the newly-developed NWIS consisting of three factors with eigenvalues greater than 1.0 and involving 10 items is valid and reliable to assess NWI.

Studying the removed items from the scale can help us find the discrepancies between Randall's (1999) theoretical definition of NI and its real manifestation. All the items eliminated from the final version of the NWIS were those referring to emplotment (items 1, 4, 6). However, item 6 was designed as it referred to both emplotment and Genre-ation. Accordingly, it can be concluded that the participants of this study, who were Iranian EFL learners, did not intend to go through the details of the scene such as shape, size, and the color of objects. What is more, the participants' focus of attention in this study was on retelling events. That is, they considered the important events of the plot as an important part of their narration.

Moreover, the participants were more interested in recounting the events as sequences rather than consequences. Therefore, in line with the definition of narrative by Bruner (1991, cited in Dautenhahn, 2001) and Dautenhahn (2001) and in contrast to Randall's (1999) definition, in the narration of plot, a sequence of actions that convey meaning is more important than the consequence of actions. Therefore, linking words like *as a result, therefore, and since* are less likely to happen in their writing. Consequently, the nature of story-telling seems to be the ability to put the actions in sequence. Even, in children with autism, who have difficulty in organizing their experiences in a narrative format, the correct sequence is preserved although the emphasis on important events is to some degree lost (Bruner & Feldman, 1993, cited in Dautenhahn, 2001). Hence, it was not surprising to find sequencers more than linking words in the collected writings.

Another point that can be concluded from the removed items is that it was rare for the participants to use a title for their written narrative. Most of the participants started by moving straight to the narrative itself and did not select any title for their writing. It may suggest that they prefer to start their narration as they do it in speaking, i.e., without a specific title.

Furthermore, along with Baham'on and Young's (2012) emphasis on the role of a character in a narrative, the relevant item remained in the final scale. The presence of such effective characters allows the audience to realize their beliefs and frame of references, which can lead to a deeper understanding of the story and its messages (Baham'on & Young, 2012). Therefore, it was not surprising when almost all participants resorted to the character's personality to push the story forward.

All in all, it seems the Persian speaking EFL learners' narrative includes the factors which Randall (1999) had already referred to as parts of Narrative Intelligence. In other words, his theory can make sense for this context of education although some of his sub-factors did not; for example, displaying events as consequences rather than sequences or referring to any characteristics of the scene such as color, size, and shape of objects, and using an appropriate title are not parts of the participants' NWI.

The results in the second phase may imply part of the reason that learners with almost the same knowledge of English have different writing ability, could lie in their NWI and personality type. The more conscientious and agreeable and also narratively intelligent they are, the more successful they can be in producing L2 writing. Moreover, the results of the SEM modeling in this study display non-linguistic factors can play an important role in L2 writing, since the links between good writing and high narrative intelligence and personality types are statistically significant, which can be in line with the outcome of the study done by Pishghadam and Shams (2012), in which NI was introduced as a factor with negligible effect on L2 writing.

Summing up, the outcome of this study can be in line with those of some other studies like Anani Sarab and Amini Farsani (2014); Boroujeni,

Roohani and Hasanimanesh (2015); and Farrokhi, Nourelahi, and Noure Elahi (2015) who found a relation between personality type and writing performance. On the other hand, the results contrast with those of Mansouri Nejad, Bijami and Ahmadi (2012) who argued that there is no significant relation between personality and writing ability, while in this study an association was found between these two variables, as conscientious and agreeable learners are more likely to produce better writing. In prior studies, the conscientiousness factor has also been found as the best predictor of other aspects of academic success such as speaking ability as Barekat and Tabatabaei (2013) claimed. As speaking is a language productive skill, this can confirm the results of the present study, in which writing, as another productive skill, is correlated with conscientiousness.

Another important finding was that conscientiousness was a good predictor of NWI. To justify this relation, we can refer to John and Srivastava's (1999) definition of consciousness. They argued that a conscientious person is competent, organized, dutiful, active, deliberate, and striving for achievement. Accordingly, it might be interpreted that when a conscientious person is going to narrate a story since he is organized, his script is more likely to show the relativity of events in a way that you do not get confused and distracted, as item 3 of the 13-item NWIS stipulates. In addition, due to his striving and great efforts to achieve his goal, he probably uses enough details to get his point across (item 2 of NWIS).

## **CONCLUSION AND IMPLICATIONS**

As the results of this study indicate, EFL writing ability is not restricted to linguistic mastery, but cognitive factors such as personality and NWI must be taken into account as well. Therefore, teachers can improve L2 learners' writing ability through some intervention programs. If including intelligence and personality factors in a model of EFL writing makes sense, excluding them from teaching and testing methods may be wrong.

Hence, writing teachers are recommended to update their knowledge by studying various articles and journals in their field to learn more about different factors that can influence writing performance. Furthermore, principals of institutes need to provide the teachers with in-service training to inform them about the recent research findings. In this way, EFL writing teachers may transform their single method of teaching and assessing writing in which grammar, vocabulary, and spelling get the most weight.

As for the limitations of the study, limited time and place are the major restrictions which should be taken into consideration. Having access to the classes in an exclusively female university in Mashhad and the classes of one EFL institute can reduce the potential generalizability of the study; however, the researchers tried to compensate with gathering data in about three years to have access to various types and levels of learners in the institute. In addition, the first phase of the study was conducted only on EFL learners at FCE level. Further studies may be done on other levels to show whether there is an accordance between results. Moreover, there is abundant room for further progress in determining the influence of gender as a variable influencing NWI and writing performance.

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