Research Article   🔴 10.30495/JAL.2020.674520

The Impact of Multiple Intelligence-Oriented Writing Tasks on the Accuracy, Fluency, and Organization of ELT St' dents' rr tti' g

Mitra Zeraatpishe [1], Zohreh Seifoori [2*], Nasrin Hadidi Tamjid [3]

[1] *Department of English, Mashhad Branch, Islamic Azad University, Mashhad, Iran*
[2,3] *Department of English, Tabriz Branch, Islamic Azad University, Tabriz, Iran*
*Corresponding author: seifoori@iaut.ac.ir

Abstract

Correlational studies supporting the link between learners' multiple intelligences and their learning are superseded by interventionist attempts to explore direct applications of Multiple Intelligence (MI) Theory in language teaching and learning. This quasi-experimental study examined the extent to which engaging ELT major university students in writing tasks, compatible to their dominant intelligences, might enhance the accuracy, organization, and fluency of their writing. The participants were 64 male and female English major sophomores. They were in three intact classes, randomly assigned to a control no task (NT) group, a task-supported (TS) group, and an MI-oriented task (MIT) group after their initial homogeneity was assessed. The fifteen-session treatment comprised pre-writing brainstorming activities in the NT group and a set of pre-writing tasks performed by the TS group. In the MIT group, however, individuals with the same dominant intelligences were grouped together to perform tasks that were compatible with their dominant intelligences. The one-way ANOVA analysis of the research data obtained from the post-test writing scores revealed that the MIT group surpassed the other groups in accuracy, fluency and organization. The findings underscore the necessity of taking learners' intelligences into consideration as a criterion for task selection and offer important pedagogical implications for teaching writing.

Keywords: accuracy, fluency, MI-oriented writing tasks, organization, writing, task-supported instruction

Introduction

Undue emphasis in the last quarter of the twentieth century on fluent oral proficiency had some initial pedagogical repercussions one of which was an ephemeral disregard for writing and accurate performance. This common misconception was soon rectified as more and more research findings unraveled the need for integrated skills development and experts conceded that a balanced attention to both fluency and accuracy was essential in writing and speaking (Piri, Barati, & Ketabi, 2012). With the new trend emerged the process writing approach with a parallel acknowledgement of the role of learning tasks as practical tools to maximize learner involvement and to warrant development of this complicated language skill (Crooks & Gass, 1993). In tandem with process writing, the recognition of the role of individual differences in the last quarter of the twentieth century highlighted the peculiarity of teaching and learning experiences and the need for augmenting learning outcomes for groups of learners through localized, personalized and individualized task-supported instruction (TSI). The new line of research and subsequent findings accentuated the paramount importance of writing pedagogic tasks of various kinds as intriguing techniques that give prominence to audience, purpose, and context. Now applied linguists and professional language teachers have reached a consensus on the use of tasks that, if employed systematically and consistently, they might serve the two-fold purpose of helping students generate and organize ideas and gradually emancipating them from teachers' control (Pakdel, Estalkhbijari & Khodareza, 2012). The search for ways of optimizing learning tasks has now become a novel concern for many practitioners who ponder over ways of personalizing learning experiences to escalate learning outcomes.

One auspicious approach is to embark on the insights from Multiple Intelligence Theory (MIT), which postulates the multiplicity in learners' intellectual propensities. As suggested by Armstrong (2003), the values of traditional and exam-oriented educational systems which exclusively overemphasize verbal-linguistic and logical-mathematical intelligences, are under question, and are, thus, in direct contrast with the principles of learner-centered progressive educational philosophy. The limited range of intelligences comprise linguistic and logical-mathematical intelligences that

are valued in schools, musical, bodily-kinesthetic, and spatial-visual intelligences that are associated with arts, interpersonal and intrapersonal intelligences that impact ones' interactive behavior, and the recently added naturalist intelligence which represents the potential to think about and understand the natural world (Fleetham, 2006). Further advancements in MI theory generated a large body of literature asserting the need to pay equal attention to all intelligences on the ground that they can provide a different but more productive pathway to learning (Armstrong, 2009; Gardner, 2006).

The far-reaching pedagogical implications of this theory have now entered a new phase marked by an upsurge in reciprocal investigation of tasks and learners' multiple intelligences for a wide range of purposes. On the one hand, MI scholars and researchers tend to utilize tasks to distinguish and practice different intelligent types (Ekstrom, French, Harman & Derman, 1976; Gardner, 1999; Stankov, 2000). On the other hand, educators and teachers have embraced MI theory as the bedrock in content specification to enhance the compatibility of various pedagogical practices with learners' frames of mind. Pursuit of the new curricular line culminated in the quest for tasks designed for language teaching and learning (Johnson, 2003; Parrott, 1993; Willis, 1996), teacher education (Tanner & Green, 1998), and language awareness (Thornbury, 1997). EFL learners have been frequently reported to suffer from insufficient grammatical resources and disorganized ideas with subsequent detrimental impact on accuracy, fluency, and organization of their writing performance (Pakdel Estalkhbijari & Khodareza, 2012).

Literature is replete with empirical studies exploring the effects of divergent aspects of tasks on different features of writing in ESL and EFL contexts, on the one hand, and the relationship between learners' MIs and various features of language skills, on the other. Zhang (2010) examined the impact of task complexity on the fluency and lexical complexity of 108 EFL students' argumentative writing and found that increasing task complexity with respect to the planning time continuum could significantly promote fluency and lexical complexity.

In the EFL context of Iran, Rezazadeh, Tavakoli, and Eslami Rasekh (2011) investigated the effect of argumentative versus instruction writing

tasks on the accuracy, fluency, and complexity of writing. The results indicated that instruction-task group performed significantly more fluent and accurate while the argumentative-task group surpassed in complexity. Also, Sadeghi and Fazelijou (2012) compared the impact of task-based versus more conventional writing activities employed in Presentation-Practice-Production (PPP) model and confirmed the beneficial impact of task-supported activities. Pourdana and Karimi Behbahani (2012) further investigated the effect of topic writing and picture description tasks and found that the former enhanced the accuracy and complexity whereas the latter contributed to the fluency of writing. The use of warm-up tasks on the writing skill of EFL learners was also explored by Pakdel Estalkhbijari and Khodareza (2012), who attributed the positive impact to the learners' engagement in the class work.

The relationship between EFL learners' MIs and various features of their learning has also been tapped. Razmjoo (2008) investigated the relationship between EFL learners' MIs and their language success and reported no significant relationship. In another study, Ahmadian and Hosseini (2012) scrutinized the relationship between Iranian EFL learners' linguistic intelligence and their writing and reported a significant relationship between linguistic intelligence and content, organization, language use, vocabulary, and mechanics of writing. Similarly, Naseri and Nejad Ansari (20013) examined the relationship between Iranian high school students' MIs and their writing achievement and found linguistic intelligence as the sole statistically correlated factor that could predict success. More recently, Ahour and Abdi (2015) explored the relationship between EFL learners' MIs and their vocabulary learning strategy (VLS) across gender and reported significant relationship between MI types and VLS categories; they also found that the best predictors of VLSs were bodily and naturalist intelligences among females and interpersonal and linguistic intelligences among males. However, there were some contradictory cases. For instance, Sajjadi Rad, Khojasteh and Kafipour, (2014) found no relationship between medical students' MIs and writing skill.

The growing consensus among many experts in language pedagogy is that the "one size fits all" policy has long fallen out of favor and that MI theory offers practical innovative techniques for tackling many of the learning

problems in heterogeneous classrooms. In an interventionist research, Faravani and Atai (2015) explored the impact of MI-oriented dialogic-based portfolio assessment on higher order thinking of Iranian EFL learners' thinking skills. The findings revealed that the participants in the experimental group who had been grouped based on the homogeneity of their multiple intelligences, surpassed the control group in the use of higher order thinking skills.

Although the impact of various task-related variables on various features of Iranian EFL learners' speaking (Seifoori & Vahidi, 2012) and writing (Pakdel Estalkhbijari & Khodareza, 2011; Rezazadeh et al., 2011, Sadeghi & Fazelijou, 2012) has already been well-investigated and approved, selecting tasks, compatible with learners' dominant intelligences, as a device to promote their speaking and writing, was something untouched at least in the Iranian EFL context. This research gap provided the impetus for the present study to investigate any probable impact of such MI-oriented on the accuracy, organization, and fluency of Iranian ELT major university students.

Learning to write has been proved a daunting experience for the multitude of Iranian ELT major university students since it entails relatively higher order thinking skills as well as adroit conversion of those thoughts to well-organized language. The inherent complexity of the writing process normally overrides EFL learners' tolerance of ambiguity while striving to generate ideas in a given area and simultaneously attending to formal and organizational features of their intended messages. We hypothesized that tailoring pedagogic writing tasks to the participants' dominant intelligences might offer a faint possibility of more avid intellectual engagement at the pre-writing stage and would arouse interest and facilitate the process of generating ideas which might, in turn, help them focus on formal and organizational characteristics of the task at hand leading to more accurate, complex, and fluent output. Hence, inspired by the emerging pattern of correlation reported between learners' multiple intelligences and language outcomes and the recipient trend in merging these intelligences with learning activities, we explored the viability of improving Iranian ELT major university students' writing through engaging them in MI-oriented

writing tasks (Appendix A). The following research questions were formulated to achieve the research purposes:

1. Do MI-oriented writing tasks influence the accuracy of Iranian ELT major university students' writing?
2. Do MI-oriented writing tasks influence the organization of Iranian ELT major university students' writing?
3. Do MI-oriented writing tasks influence the fluency of Iranian ELT major university students' writing?

Method

Participants

The research sample comprised three intact classes of 64 EFL sophomores majoring in English Language Teaching (ELT) at Islamic Azad University, Mashhad Branch selected from a population of 84 students who were taking the two-credit Writing Course. To verify the initial homogeneity of the sample, we administered a modified version of the paper-based TOEFL test, and the scores above and below three standard deviations from the mean were excluded from further analyses. The groups were randomly assigned to a control no-task (NT) group, a task-supported (TS) group, and a MI-oriented task (MIT) group. All three groups received process-oriented instruction in writing for fifteen sessions with different activities at the pre-writing stage, which will be elaborated on further in the procedure section of the article.

Instruments

A modified (reduced) paper-based TOEFL test of Proficiency was employed to verify the initial homogeneity of the participants in grammar and reading. These subcomponents were intentionally selected owing to the significant role they play in writing. The test comprised 40 grammar and written expression items and 10 reading passages each followed by five comprehension questions. The vocabulary section was extracted to reduce the time of test administration. The modified test was piloted with a group of learners who shared characteristics with the target test takers. The reliability coefficient of .85 was found to be acceptably high for the purpose.

A writing test was administered twice at the onset of the study to assess the initial homogeneity of the groups' in writing and at the end of the

treatment. The topic of the test was selected from the writing section of the TOEFL test; the fifteen-week interval between the tests seemed to be sufficiently long to defy memory effects. Two independent raters scored the accuracy, fluency and organization of the writings based on the scoring scale (Appendix B) developed by Hughes (2003).

The third instrument employed to collect the research data was Multiple Intelligence Inventory (MII) (McKenzie, 1999). This standardized questionnaire (Appendix C) includes nine sections each comprising 10 items related to a given intelligence type. The items are in English and easily comprehensible for any learner at the post-elementary level of proficiency. It was administered merely in the MIT group to identify the participants' nine different intelligences: verbal -linguistic, logical- mathematical, spatial-visual, bodily - kinesthetic, musical-rhythmic, naturalistic, existential, interpersonal and intrapersonal intelligence, and to group them accordingly. The overall internal consistency of 0.85 to 0.90 has already been reported by Al-Balhan (2006), Razmjoo (2008), and Razmjoo, Sahragard, and Sadri (2009).

The participants were instructed to read each item and write "1" next to the statement that could accurately describe them and to leave the space blank if they did not identify with any statement. Their responses in each section were further totaled and multiplied by 10 based on McKenzie (1999). The ultimate results were plotted on a graph provided in the final section of the test; the section with the highest score was regarded as the respondent's dominant intelligence type. Those participants with similar dominant intelligences were grouped to work on the same tasks that were compatible with their dominant intelligences during the pre-writing stage of the lesson.

The treatment was based on eight chapters of a writing course book (Arnaudet & Barret, 1990) based on which basic principles of paragraph development were presented. A group of writing tasks were also adopted from RIC Publication (2004) which were modified with regard to the course syllabus. RIC Publication is a resource book that contains a wide range of pedagogic tasks designed by a group of Australian teachers to help students promote their learning and remedy their weaknesses through MI-oriented

tasks. The double fold criterion for task selection was their compatibility with the teaching content and the participants' dominant intelligences. The tasks were performed at the pre-writing stage of the lesson. It was assumed that such MI-oriented tasks would stimulate enthusiastic engagement and more cooperatively generated well-organized ideas that could be converted to language more accurately and fluently.

Procedure

To serve the purpose of comparing the impact of general and MI-oriented task-based group-work, as the independent research variables, on accuracy, organization, and fluency of ELT major university students' writing, as the dependent variables, a fifteen-session-long treatment was designed during which all the groups received process-oriented instruction based on a single course book. First, the teacher, who was one of the researchers, would present the textual and grammatical features of a given writing genre, such as cause and effect, in the first twenty minutes of the class time. Then, the students would be involved in the pre-writing stage of the writing process in three different ways.

In the NT group, the participants were required to brainstorm ideas about a given topic like endangered animals and to organize and draft their suggestions based on their notes. Participants in the TS group performed an identical pedagogic task, for example, completing a table related to the threats to particular animals' lives.

In the MIT group, the point of departure was the identification of the participants' dominant intelligences. Then, groups of learners with identical dominant intelligences were grouped to work on tasks that were compatible with their dominant MI (Armstrong, 2009) at the pre-writing stage. For instance, the linguistic intelligence group was asked to work on three tables containing three words of *endangered, threatened, and extinct.* They were required to write the definitions of these three words, to match the animals from a list, and to classify the animals as endangered, threatened or extinct. The intrapersonal intelligence group, however, was asked to write a paragraph for a wild life magazine. They needed to complete a four-row table by writing the basic topic in the first row and the supporting ideas in the rest. The participants in the two groups were required to individually

edit their first drafts at home and to return the final drafts to be corrected by the teacher the following session.

Design

The dependent variables in the current study were accuracy, fluency, and organization of the participants' writing. These features have been defined by Hughes (2003) as the error-free piece of written work including no grammatical and word order problems, consistently choosing appropriate structures and vocabulary with appropriate length of sentences, and highly ordered and clear progression of well-linked ideas, respectively. He proposed a scale to measure these features objectively, which was used in assessing the participants' writings.　Two scorers employed the scale to measure accuracy, organization, and fluency of the participants' writings; the inter-rater reliability coefficients of the three sets of pre-test and post-test scores were found to be .85 and .82 for accuracy, .82 and .73 for organization, and .83 and .74 for fluency, respectively. The averages of the score sets were then estimated and used in further statistical analyses of the research data.

Results

The rr uups' Inttlll mmneee netty

The first set of analyses were performed on the TOEFL test scores to verify the groups' initial homogeneity. First, we calculated the groups' mean scores that were 71.21, 72.79, and 71.33 for the TS, MIT, and NT groups, respectively, and verified the normality of the data through the Levene Test of the homogeneity of variances, F (1.09), p= .341 > .05. The subsequent One-way Analysis of Variance (ANOVA) displayed no significant differences among the groups' TOEFL test scores, F (2, 69) = .156, p = .85 > .05; ω^2 = .02.

The groups' writing pre-test scores were also compared via another ANOVA, the results of which revealed no significant differences in accuracy, F (2, 69) = 1.92, p = .15> .05, organization, F (2, 69) = .94, p = .30> .05, and fluency measures, F (2, 69) = 1.00, p = .37> .05, and a small effect size as well, ω^2 = .02 (Field, 2009). The analyses supported the initial homogeneity of the groups.

The Impact of MI-oriented Tasks

To answer the research questions, we first calculated the descriptive statistics of the groups' post-test accuracy, organization, and fluency measures which all revealed upward trends from the pre-test to the post-test. The MIT group achieved the highest accuracy (4.13), organization (5.25), and fluency (4.71) mean scores followed by the TS group (accuracy = 3.33, Organization = 4.67, and fluency = 4.08). The NT group achieved the lowest scores in all measures (accuracy = 2.79, Organization = 3.96, and fluency = 3.50). The Levene test proved the normality of the organization, F= .88, p = .416 > .05, and the fluency measures, F=1.17, p = .314 > .05, whereas the accuracy measures did not satisfy the normality assumption. Yet, the equality of the sample size was robust enough to compensate for this failure (Bachman, 2005; Field, 2009;). Hence, three one-way ANOVA tests were run on the research data to find out the significance of the difference among the groups' mean scores. Table 1 presents the results of the analyses.

Table 1
One-way ANOVA Analysis for the Effects of MI-oriented Tasks on the Groups' Writing

		Sum of squares	df.	Mean Square	F	Sig.
Accuracy	Between groups	21.58	2	10.79	13.81	.00
	Within groups	53.91	69	.78		
	Total	75.50	71			
Organization	Between groups	20.08	2	10.04	19.91	.00
	Within groups	34.79	69	.50		
	Total	54.87	71			
Fluency	Between groups	17.52	2	8.76	16.43	.00
	Within groups	36.79	69	.53		
	Total	54.31	71			

As Table 1 shows, the mean differences are significant in the groups' accuracy, F(13.81), p=.00<.05, organization, F(19.91), p= .00<.05, and fluency F(16.43), p = .00< .05. Hence, to locate the difference more

precisely and to answer the research questions, we ran a Scheffe Post-hoc test, the results of which are presented in Table 2.

Table 2
Scheffe Post-Hoc Test for the Effects of MI-oriented Tasks on the Groups' Writing

	(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Accuracy	TS	NT	.54	.25	.113	-.10	1.18
	MIT	TS	.79*	.25	.011	.15	1.43
		NT	1.33*	.25	.000	.69	1.97
Organization	TS	NT	.70*	.20	.004	.20	1.22
	MIT	TS	.58*	.20	.02	.07	1.10
		NT	1.29*	.20	.00	.78	1.80
Fluency	TS	NT	.58*	.21	.02	.06	1.11
	MIT	TS	.62*	.21	.01	.10	1.15
		NT	1.20*	.21	.00	.68	1.74

*. The mean difference is significant at the 0.05 level.

The first research question addressed the differential impact of general and MI-oriented tasks on the accuracy of ELT major university students' writing. The results of the Post-hoc test, as presented in Table 2, reveal no significant difference between the TS and NT groups, MD = .54, *p* = .113 > .05. However, the mean differences between the MIT and the TS group, MD = .79, *p* = .011 < .05, and the NT group, MD = 1.33, *p* = .000 < .05, reached significance level. Thus, the first research question is answered positively, that is, general and MI-oriented tasks had differential impacts on the accuracy of ELT major university students' writing, MI-oriented tasks enhanced the accuracy of writing while general tasks failed to achieve the same impact.

The differential impact of general and MI-oriented tasks on the organization of ELT major university students' writing was addressed in the second research question. Based on the results, it was found that the MIT group, did significantly better than the NT group, MD = 1.29, *p* = .000 < .05, and the TS group, MD = .58, *p* = .02 < .05. That is to say, the participants in the MIT group outperformed the other groups and achieved significantly higher levels of organization in writing. Likewise, the results verified significant mean differences between the TS group and the NT group, MD=.70, p = .004<.05. The second research question is, therefore, answered relatively; although general tasks served the purpose of promoting organization, the MI-oriented tasks were more effective in helping learners achieve significantly higher levels of organization.

The third research question compared the impact of general and MI-oriented tasks on the fluency of ELT major university students' writing. Significant differences were observed between the MIT group and the TS group, MD = .62, *p* = .01< .05, and between the MIT group and the NT group, MD=1.20, *p* = .00 < .05. The difference between the TS and NT groups reached significance level as well, MD = .58, *p* = .02 < .05. The results offer a relative positive response to the third research question: general and MI-oriented tasks were both conducive to more fluent writing with the latter producing significantly more beneficial impacts.

Discussion

The findings emerging from this study corroborate the positive impact of general tasks on the organization and fluency of writing while basing task selection on learners' multiple intelligences, which proved to escalate gains in organization and fluency. The higher levels of organization and fluency, achieved through the use of general tasks in the present study, are in line with the findings of Pakdel Estalkhbijari and Khodareza (2011) who examined the effects of warm up tasks such as clustering and writing reviews on sophomore EFL learners' writing. The findings are also compatible with those of Sadeghi and Fazelijou (2012) who compared the effect of task-based and more traditional writing activities on the accuracy, form, meaning, and fluency of 28 pre-intermediate participants' writing during ten half-an-hour long sessions of instruction. The quantitative

analysis of the grammar recognition and writing post-tests revealed that the traditional activities were conducive to significantly higher gains in accuracy, as reflected in the groups' grammar test, while the task-based activities led to better performance on the writing test. They reported that task-supported language teaching could enable learners to focus on content and meaning while writing.

The facilitative role of tasks in promoting organization and fluency might be substantiated in terms of the Levelt's information processing model (1989) that was initially proposed to explain speech production and is here extended to interpret writing because the two skills are assumed to rely on identical processing mechanisms. According to this model, language production entails three levels of conceptualization, or macro and micro planning of the content with reference to available information and propositions, formulation, or selection of appropriate grammatical and lexical features of the content and actual articulation or production of the content into language. Although these three mechanisms run in parallel while speaking, they seem to operate intermittently in writing. The use of pedagogic tasks is likely to have helped learners conceptualize the required data which was already available in a well-organized network of information. Nevertheless, tasks did not contribute to formulation and production which were more heavily reliant on other mental mechanisms like focal attention and readily available knowledge of formal features (Schmidt, 2001).

Moreover, as postulated by Foster and Skehan (1996), writing pre-task activities offer opportunities to facilitate inductive learning, and thereby, to relieve the cognitive burden on learners. As a result, learners can transfer ideas on paper more fluently and systematically and rely on their focal attention merely through monitoring formal features of their performance. The accurate conversion of ideas to language entailed a sound grammar knowledge, which neither was probably present nor activated since the focus was not on form. Addition of some general guidelines on how to monitor their writing along with self/peer-editing at the post-writing stage could have contributed to the accuracy of the participants' writing. The accuracy deficiency in the TS writings reinforces the learners' need for

either lucid task-based post-writing activities or metacognitive training of some kind.

The use of MI-oriented tasks boosted accuracy, organization, and fluency of the participants' writing in the MIT group more significantly as compared to those in the TS group. This superior functioning can be probably attributed to the compatibility of the tasks with the participants' dominant intelligences. The findings lend support to those of Ahmadian and Hosseini (2012) and Naseri and Nejad Ansari (2013) who verified the correlation between linguistic intelligence and EFL learners' writing and extend those studies by offering a constructive framework to help all learners with varying intelligence types benefit from instructional opportunities. The findings are also congruent with those of Faravani and Atai (2015) who reported the impact of MI-oriented dialogic-based portfolio assessment on Iranian EFL learners' higher order thinking skills. It seems that the same higher order thinking skills could be tapped by the MI-oriented writing tasks.

The findings can be explicated in terms of MI theory and substantiate claims made by Armstrong (2009), Gardner (1999, 2003), Christison's (1996), and Soleimani, Moinnzadeh, Kassaian, and Ketabi (2012). MIT, as proposed by Gardner (1999), is based on three fundamental principles pertinent to the existence of individual differences, differences in human mental resources and capacities, and the need to consider such differences in order to promote instructional effectiveness. Gardner (2003) postulated that despite genetic and experiential similarities in human intellectual configuration and resources, individuals may differ from each other in their respective profiles of intellectual strengths and weaknesses because each of the individual's domains of intellectual capacity is expected to be relatively independent. Differences in individuals' intelligences neither rule out nor hinder learning but, according to Armstrong (2009) and underscore the need to consider different ways of learning in curriculum development process. Christison's (1996) acknowledged the need and suggested that integrating MIT in TEFL Teacher Education Programs would trigger teachers' creativity and maximize learning opportunities for all learners. The facilitative impact of integrating MI theory with TSI was also highlighted by Soleimani, Moinnzadeh, Kassaian, and Ketabi (2012); they regarded this

integration as a new and effective method for innovating teaching techniques and strategies in light of human differences. The proposal was successfully explored by Faravani and Atai (2015) in enhancing higher order thinking skills in a writing classroom.

MI-oriented writing tasks employed in the present enquiry seem to have offered more individualized opportunities that were compatible with the participants' intellectual propensities and thus served to engage them more enthusiastically in exploiting their relevant intellectual resources to generate ideas in a more organized and fluent manner. This engagement was escalated and optimized through interaction with peers who shared the same intellectual tendencies and whose scaffolding comments could serve to bridge the chasms in understanding. The reduced cognitive load and enhanced affective engagement could have relieved attentional resources to focus more narrowly on formal features to accomplish the writing tasks more accurately. The findings lend support to the claim that thinking and writing are closely interwoven (Hyes & Flower, 1980) and that learning is a mediated process (Lantolf, 2000).

The findings emerging from the present enquiry offered evidence supporting the efficiency of MI-oriented tasks in veiling the contributing role of the pre-writing activities and engrossing learners more profoundly in conceptualizing ideas based on already existing repertoire and more avidly and coherently reformulating those concepts through linguistic symbols while heedful of formal features (Levelt, 1989). Based on the findings, it can be concluded that engaging the participants in performing MI-oriented tasks that are compatible with their dominant intelligence types can lead to augmenting instructional outcomes in a learning classroom by providing a good prospect for the learners to attend to all aspects of grammatical forms, meaning, and the way they categorized information in their writing. This improvement might be attributed to the congruence between the pedagogic tasks and the participants' intellectual tendencies. In fact, the MI-oriented tasks employed seem to have formed the cognitive bedrock of learning and intensify the attentional spotlight in personalized learning acts that are construed as more appealing and productive.

This conclusion is in line with the prognostication made by Mahdavi (2008) who proposed that sensitivities to individual differences has now become part of the teacher's competence and is drawn upon in the course of regular instruction as well as during assessment. Typical epitomes of this rapid evolution comprise former attempts to incorporate strategic-based and task-based instructions and the more recipient disposition among course designers and language teachers to deploy learners' multiple intelligences and personal characteristics as the point of departure in selecting and sequencing pedagogic tasks. English teachers worldwide are now striving to accommodate intellectually different groups of learners with materials and tasks compatible with their mental frames to maximize learning opportunities and mitigate inimical emotions. This emerging trend seems auspicious owing to its potential to function as the gateway to more personal learning experiences when complemented by a multiplicity of implicit and explicit learner-involvement techniques.

Replication of the study in more longitudinal instructional programs with a focus on other language skills and individual differences like proficiency level, gender, cognitive style, motivation, and other cognitive and affective variables will definitely illuminate our understanding of the link between intelligence and learning.

Declaration of interest: none

References

Ahmadian, M., & Hosseini, S. (2012). The relationship between Iranian English learners' linguistic intelligence and their writing ability, and writing assessment criteria. *Journal of Language, Culture, and Translation, 1*(2), 1-22.

Ahour, T., & Abdi, M. (2015). The relationship between EFL learners' multiple intelligences and vocabulary learning strategy use with a focus on gender. *Theory and Practice in Language Studies, 5*(4), 800-809.

Al-Balhan, E. M. (2006). Multiple intelligence styles in relation to improved academic performance in Kuwaiti middle school reading. *Digest of Middle East Studies, 15*(1), 18-34.

Armstrong, T. (2009). *Multiple intelligences in the classroom.* Alexandria, VA: Association for Supervision and Curriculum Development.

Arnaudet, M.L., & Barret. M.E. (1990). *Paragraph development: A guide for students of English.* New Jersey: Prentice Hall Regents.

Bachman, L. F. (2005). *Statistical analysis for language assessment.* (2nd ed.). Cambridge: Cambridge University Press.

Christison, M. A. (1996). Applying multiple intelligence theory in the foreign language classroom. *MEXTESOL Journal, 19*(3), 27-43.

Ekstrom, R.B., French, J. W., Harman, H. H., & Derman, D. (1976). *Manual for kit of factor-referenced cognitive tests.* New Jersey: Educational Testing Service.

Faravani, A., Atai, M. R. (2015). Merging multiple intelligences with dialogic-based portfolio assessment to expedite Iranian EFL learners' higher order thinking skills. *The Journal of Teaching Language Skills (JTLS), 6*(4), 19-44.

Field, A. (2009). *Discovering statistics using SPSS (*3rded.). London: SAGE.

Fleetham, M. (2006). *Multiple intelligences in practice: Enhancing self-esteem and learning in the classroom.* London: MPG Books Ltd.

Foster, P., & Skehan, P. (1996). The influence of planning and task type on second language performance. *Studies in Second Language Acquisition, 18*, 299-324.

Gardner, H. (2006). *Multiple intelligences: New horizons.* New York: Basic Books.

Gardner, H. (2003). *Multiple intelligences after twenty years.* Paper presented at the American Educational Research Association, Chicago, Illinois.

Gardner, H. (1999). *Intelligence reframed.* New York: Basic Books.

Hughes, A. (2003). *Testing for language teachers.* Cambridge: Cambridge University Press.

Johnson, K. (2003). *Designing language teaching tasks.* Basingstoke: Palgrave Macmillan.

Levelt, W. J. M. (1989). Speaking: From intention to articulation. Cambridge, Mass: MIT Press.

Mahdavi, B. (2008). The role of multiple intelligences (MI) in listening proficiency: A comparison of TOEFL and IELTS listening tests from an MI perspective. *The Asian EFL Journal, 10*(3), 109–126.

McKenzie, W. (1999). *Multiple intelligences survey.* Retrieved from http://surfaquarium.com/MI/inventory.htm

Naseri, F., & Nejad Ansari, D. (2013). The relationship between MI and Iranian high school students' L2 writing achievement. *International Journal of Psychology and Behavioural Research, 2*(5), 282-290.

Ong, J., & Zhang, L.J. (2010). Effects of task complexity on the fluency and lexical complexity in EFL students' argumentative writing. *Journal of Second Language Writing, 19(*4), 218–233.

Pakdel Estalkhbijari, Z., & Khodareza, M. (2012). The effects of warm-up tasks on the Iranian EFL students' writing ability. *International Education Studies, 5*(2), 190-203.

Parrott, M. (1993). *Tasks for language teachers.* Cambridge: Cambridge University Press.

Piri, F., Barati, H., & Ketabi, S. (2012). The effects of pre-task, on-line, and both pre-task and on-line planning on fluency, complexity, and accuracy: The case of Iranian EFL learners' written production.' *English Language Teaching, 5(*6), 158-168.

Pourdana, N., & Karimi Behbahani, S. M. (2012). Task types in EFL context: Accuracy, fluency, and complexity in assessing writing performance. *International Journal of Social Science and Humanity, 2*(1), 80-84.

Razmjoo, S. A. (2008). On the relationship between multiple intelligences and language proficiency. *The Reading Matrix, 8*(2), 155-174.

Razmjoo, S. A., Sahragard, R., & Sadri, M. (2009). On the relationship between multiple intelligences, vocabulary learning knowledge and vocabulary learning strategies among the Iranian EFL learners. *The Iranian EFL Journal Quarterly 3,* 82-110.

Rezazadeh, M., Tavakoli, M., & Eslami Rasekh, A. (2011). The role of task type in foreign language written production: Focusing on fluency, complexity, and accuracy. *International Education Studies, 4*(2), 169-176.

R.I.C. Publication. (2004). *Multiple intelligences: A thematic approach.* RIC Publication. Richards, J.C., & Rodgers, T. S. (2002). *Approaches and methods in language teaching (*2nd ed.). Cambridge: Cambridge University Press.

Sadeghi, K., & Fazelijou, E. (2012). The role of task-supported language teaching in EFL learner's writing performance and grammar gains. *3L: The Southeast Asian Journal of English Language Studies, 18*(1), 117–127.

Sajjadi Rad, R., Khojasteh, L., & Kafipour, R. (2014). The relationship between MIs and writing skill of medical students in Iran. *Acta Didactica Napocensia, 7*(3), 1-10.

Schmidt, R. (2001). Attention. In P. Robinson, (Ed.), *Cognition and second language instruction* (pp. 3-32). Cambridge: Cambridge University Press

Seifoori, Z., & Vahidi, Z. (2012). The impact of fluency strategy training on Iranian EFL learners' speech under online planning conditions. *Language Awareness, 21*(1-2), 101-112.

Skehan, P. (1996). A framework for the implementation of task-based instruction. *Applied Linguistics, 17*(1), 38-62.

Soleimani, H., Moinnzadeh, A., Kassaian, Z., & Ketabi, S. (2012). The effect of instruction based on multiple intelligences theory on the attitude and learning of general English. *English Language Teaching, 5*(9), 45-53.

Stankov, L. (2000). Structural extensions of a hierarchical view on human cognitive abilities. *Learning and Individual Differences, 12*, 35–51.

Thornbury, S. (1997). Reformulation and reconstruction: Tasks that promote 'noticing'. *ELT Journal,* 51(4), 326-335.

Willis, J. (1996). *A framework for task-based learning.* Harlow: Addison Wesley Longman.

Appendix A: Sample MI-Oriented Tasks (RIC Publications, 2004)

<u>Linguistic intelligence</u>

Mathematical intelligence

WHICH SPECIES?

Task — You will research and report on endangered animals from a chosen continent.

❶ Choose a continent and make a list of endangered species from that area.

Continent: _____

Endangered species: _____

❷ Choose one of these species to research further. Write notes below. Present your complete report on a separate sheet.

Species	
Found	
Interesting facts	
Threats	
Solutions	

❸ Use the timeline to show the decline of this animal over time (e.g. 1979 – 1.3 million, 1990 – 600000).

○————————○————————○ now

❹ Rank eight animals from this continent from most endangered to least endangered.

start			
	○	○	○
	○	○	○ finish
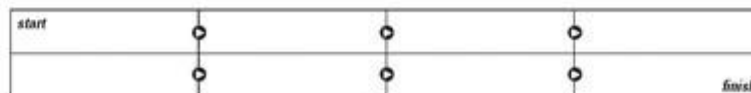
<u>Naturalist</u>

INTRODUCED SPECIES – AUSTRALIA

Task ◆   You will research and recognise problems caused to an environment by introduced species.

An introduced species is a plant or animal that does not 'naturally' exist in a particular area. Australia is a good example of how humans have introduced animals that have had a great influence on the environment and endangered native flora and fauna species.

❶ Research the effects that rabbits have had on the Australian environment. Select one introduced plant and animal to complete the information boxes below.

Rabbits	draw your picture here	draw your picture here
How and why were they introduced?	How and why were they introduced?	How and why were they introduced?
Effect on the environment	Effect on the environment	Effect on the environment

❷ List three possible solutions to this problem.

①

②

③

 Bodily-kinesthetics

Musical-rhythmic

THE HUNTED

Task | You will create and perform a short play with a simple musical accompaniment.

① Use words or pictures to complete the storyboard about the hunting of an endangered animal. Add musical beats, chants or instruments to best suit each stage of the story.

music

music

② Share your ideas within the group.

♪ Select the story to be performed.

♪ Practise the music.

♪ Bring the two together. Practise.

♪ Give a performance.

♪ Rate your performance.

music

① ② ③ ④ ⑤ beat

Interpersonal

CAN WE FIX IT?

Task You will discuss and record problems facing endangered species and possible solutions.

❶ Discuss with your group the impact the human activities listed could have on animal or plant species, why they were used, ways these problems can be addressed and, if possible, prevented.

Developing land	Damage caused	Reasons why
	Can we fix it?	
Introducing species	Damage caused	Reasons why
	Can we fix it?	
Logging forests	Damage caused	Reasons why
Hunting/Exploitation	Damage caused	Reasons why
	Can we fix it?	
Pollution	Damage caused	Reasons why
	Can we fix it?	

❷ Discuss with the group other human activities that cause harm to the environment. List them on the back of the sheet.

<u>Intrapersonal</u>

WILDLIFE MAGAZINE

Task · You will plan and write an article for a wildlife magazine.

self wise

You have been chosen to write an article for a wildlife magazine on the plight of endangered species.

❶ Use the boxes below to plan your article.

Catchy title/Headline

Introduction

Draw or glue picture here

Points of interest

Conclusion/Summary

Picture/Photo ideas

Layout/Style ideas

Present your finished story on a separate sheet so it looks like a magazine article.

Appendix B: Validated Writing Scale (Hughes et al. 2003)

Accuracy	
≠ Few noticeable errors of grammar or word order. (0-1 grammatical error)	6
≠ Some errors of grammar/word order, do not interfere with comprehension. (2-3)	5 4
≠ Errors of grammar/word order fairly frequent; occasional re-reading for full comprehension. (4-5)	3
≠ Errors of grammar/word order frequent; efforts of interpretations sometimes required on reader's part. (6-7)	2
≠ Errors of grammar/word order very frequent; reader often has to rely on own interpretation. (8-10)	1
≠ Errors of grammar/word order so severe as to make comprehension virtually impossible. (more than 10)	
Fluency (not less than 3 sentences, not more than 10)	
≠ Choice of structures and vocabulary consistently appropriate; like that of educated native speaker. (2 or more correct use of complex, compound, simple sentences, with no misused vocabulary)	6
≠ Occasional lack of consistency in choice of structures and vocabulary which does not impair overall ease of communication. (1 complex, 2 or more compound/ simple sentences with 1 or 2 misused vocabularies)	5
≠ "patchy", with some structures or vocabulary items noticeably inappropriate to general style. (no complex sentence, 2 compound, 2 or more simple sentences with 3 or 4 misused vocabularies)	4 3
≠ Structures or vocabulary items sometimes not only inappropriate but also misused; little sense of ease of communication. (no complex sentence, 1 compound, 2 or more simple sentences with 5 misused vocabularies)	2
≠ Communication often impaired by completely inappropriate or misused structures or vocabulary items. (no complex sentence, no compound, 3 simple sentences with 4 misused vocabularies)	1
≠ A "hotch-potch" of half-learned misused structures or vocabulary items rendering communication almost impossible. (no complex sentence, no compound, a lot of simple sentences with more than 4 misused vocabularies)	

Organization	6
≠ Highly organized; clear progression of ideas well-linked; like educated native writer. (good topic sentence, no irrelevant supporting sentence and listing signal)	5
≠ Material well-organized; links could occasionally be clearer but communication not impaired. (good topic sentence, no irrelevant supporting sentence, 1 or 2 misused listing signal)	4
≠ Some lack of organization; re-reading require for clarification of ideas. (not a well-organized topic sentence, 1 irrelevant supporting sentence and 1 or 2 misused listing signal)	3
	2
≠ Little or no attempt at connectivity, though reader can deduce some organization. (not a good topic sentence 2 irrelevant supporting sentences and 2-3 misused listing signals)	
	1
≠ Individual ideas may be clear, but very difficult to deduce connection between them. (no topic sentence more than 2 irrelevant sentences and 2 or more misused listing signals)	
≠ Lack of organization so severe that communication is seriously impaired. (no topic sentence most sentences are irrelevant)	

Appendix C
McKenzie MI Inventory

Part I

Complete each section by placing a "1" next to each statement you feel accurately describes you. If you do not identify with a statement, leave the space provided blank. Then total the column in each section.

Section 1

_____ I enjoy categorizing things by common traits

_____ Ecological issues are important to me

_____ Classification helps me make sense of new data

_____ I enjoy working in a garden

_____ I believe preserving our National Parks is important

_____ Putting things in hierarchies makes sense to me

_____ Animals are important in my life

_____ My home has a recycling system in place

_____ I enjoy studying biology, botany and/or zoology
_____ I pick up on subtle differences in meaning
 _____ TOTAL for Section 1

Section 2
 _____ I easily pick up on patterns
_____ I focus in on noise and sounds
_____ Moving to a beat is easy for me
_____ I enjoy making music
_____ I respond to the cadence of poetry
_____ I remember things by putting them in a rhyme
_____ Concentration is difficult for me if there is background noise
_____ Listening to sounds in nature can be very relaxing
_____ Musicals are more engaging to me than dramatic plays
_____ Remembering song lyrics is easy for me
 _____ TOTAL for Section 2

Section 3
 _____ I am known for being neat and orderly
_____ Step-by-step directions are a big help
_____ Problem solving comes easily to me
_____ I get easily frustrated with disorganized people
_____ I can complete calculations quickly in my head
_____ Logic puzzles are fun
_____ I can't begin an assignment until I have all my "ducks in a row"
_____ Structure is a good thing
_____ I enjoy troubleshooting something that isn't working properly
_____ Things have to make sense to me or I am dissatisfied
 _____ TOTAL for Section 3

Section 4
 _____ It is important to see my role in the "big picture" of things
_____ I enjoy discussing questions about life
_____ Religion is important to me
_____ I enjoy viewing art work
_____ Relaxation and meditation exercises are rewarding to me
_____ I like traveling to visit inspiring places
_____ I enjoy reading philosophers
_____ Learning new things is easier when I see their real world application
_____ I wonder if there are other forms of intelligent life in the universe
_____ It is important for me to feel connected to people, ideas and beliefs
 _____ TOTAL for Section 4

Section 5

_____ I learn best interacting with others

_____ I enjoy informal chat and serious discussion

_____ The more the merrier

_____ I often serve as a leader among peers and colleagues

_____ I value relationships more than ideas or accomplishments

_____ Study groups are very productive for me

_____ I am a "team player"

_____ Friends are important to me

_____ I belong to more than three clubs or organizations

_____ I dislike working alone

_____ TOTAL for Section 5

Section 6

_____ I learn by doing

_____ I enjoy making things with my hands

_____ Sports are a part of my life

_____ I use gestures and non-verbal cues when I communicate

_____ Demonstrating is better than explaining

_____ I love to dance

_____ I like working with tools

_____ Inactivity can make me more tired than being very busy

_____ Hands-on activities are fun

_____ I live an active lifestyle

_____ TOTAL for Section 6

Section 7

_____ Foreign languages interest me

_____ I enjoy reading books, magazines and web sites

_____ I keep a journal

_____ Word puzzles like crosswords or jumbles are enjoyable

_____ Taking notes helps me remember and understand

_____ I faithfully contact friends through letters and/or e-mail

_____ It is easy for me to explain my ideas to others

_____ I write for pleasure

_____ Puns, anagrams and spoonerisms are fun

_____ I enjoy public speaking and participating in debates

_____ TOTAL for Section 7

Section 8

_____ My attitude effects how I learn
_____ I like to be involved in causes that help others
_____ I am keenly aware of my moral beliefs
_____ I learn best when I have an emotional attachment to the subject
_____ Fairness is important to me
_____ Social justice issues interest me
_____ Working alone can be just as productive as working in a group
_____ I need to know why I should do something before I agree to do it
_____ When I believe in something I give more effort towards it
_____ I am willing to protest or sign a petition to right a wrong
_____ TOTAL for Section 8

Section 9

_____ Rearranging a room and redecorating are fun for me
_____ I enjoy creating my own works of art
_____ I remember better using graphic organizers
_____ I enjoy all kinds of entertainment media
_____ Charts, graphs and tables help me interpret data
_____ A music video can make me more interested in a song
_____ I can recall things as mental pictures
_____ I am good at reading maps and blueprints
_____ Three dimensional puzzles are fun
_____ I can visualize ideas in my mind
_____ TOTAL for Section 9

Biodata

Mitra Zeraatpishe has graduated from Islamic Azad University, Tabriz Branch and is now an assistant professor of TEFL at Mashhad Branch, Islamic Azad University. She has published a number of books and articles in scholarly journals and her research interests include teaching methodology, individual differences and learner autonomy.

Zohreh Seifoori is an associate professor of TEFL, and an internationally licensed teacher trainer at Islamic Azad University, Tabriz Branch. She has published a number of research papers in renowned national and international journals. Her research interests include teacher education, learner autonomy and teaching methodology.

Nasrin Hadidi Tamjid is an assistant professor at Islamic Azad University, Tabriz Branch. She has a number of publications in national and international academic journals and has presented at various international conferences. Her research interests include teaching methodology, teacher education and learner autonomy.