



Incorporating Multiple Intelligences in L2 Writing Classes: New Horizons in Redefining the Classroom

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Abstract

This article seeks to restore the notion of the classroom in light of emerging pedagogies. It attempts to provide a sketchy introduction of the theory of multiple intelligences and its potential gains in ELT. Despite the variance of teaching methods and approaches implemented in classrooms, students' results in some topics have remained below the par of teachers' expectations. This article attempts to provide a solution to teaching students to their differences and learning preferences. It investigates the impacts of accommodating students' intelligences profiles in writing classes. To fulfill this objective, 114 male and female participants majoring in English at the University of Kairouan were asked to write a five-paragraph essay and respond to a writing strategies questionnaire, a multiple intelligences inventory. The collected data were statistically analyzed using Pearson Correlation and ANOVA techniques to probe possible correlations and predictability levels between MI profiles and WS. The findings indicated that there is a significant degree of correlations between learners' multiple intelligence profiles and the writing strategies they use when writing. As for the impacts of multiple intelligences on writing quality, the results revealed weak or no significant correlations. It is then suggested that the same study should be further elaborated within the same L2 context with larger population to acknowledge learners' differences and learning preferences and benefit from new dimensions in teaching paradigms

1. INTRODUCTION

The physical and abstract stage called classroom, where partners of the teaching/learning interact, whose concept has always been stamped with a wisdom holder, a guide, a facilitator, or even a main actor and secondary actors or audience, has become intensively dependent on innovation and technological facilities. L2 teaching and learning have undergone a drastic, unprecedented progress in terms of techniques and materials, with the purpose of increasing teaching and learning efficiency conjoined with a shift in teaching practices through ages from teacher centered (spoon feeding teaching / learning) to learner centered pedagogy (interactive teaching / learning) since late 1960s. Decision makers have always experimented their educational approaches and methods in laboratories or offices and implemented their findings and proposals in all classrooms without regard to learners' differences, preferences, and mainly without consideration to learners' potentialities and capabilities. The integration of humanistic

approaches in education since the 1970s and the radical move from the binary division of the human brain (Piaget, 1920) to the Multiple Intelligences Theory (Gardner, 1983) along with the development of CALL¹ have paved the way for researchers to speculate about the best learning/teaching pedagogy in the “tech-era” (Stapleton & Radia, 2010, p. 175). Therefore, concepts related to learning in the digital era like e-literacy², digital learner³, digital natives⁴ etc., have been added to the repertoire of the teaching paradigms. The student’s role has been converted from “being taught” to “learning” and the teacher’s role from “expert” to “collaborator” or “guide” (Negroponte, Resnick & Cassel, 1997, p. 1).

There is no doubt that the massive boom of new technologies (blogs, chat rooms, Google Meet, Zoom, and many other software applications), the outbreak of new dimensions in teaching paradigms, and the current outbreak of the striking pandemic situation (COVID-19) gain ground in the educational sphere and pave the way for educationists and students to invigorate their expectations towards new teaching paradigms effectively to revive –or at least– to save the learners’ prospects and the welfare of the nation concerning the proper role that a classroom should play in the learning process.

Because “everyone is genius” (Einstein, n.d.) and “teaching is not [just] filling up a pail [but] lighting a fire” (Yeats, n.d.), this article takes into consideration new emerging methods of language teaching. It seeks to restore the notion of the classroom in light of two main facts: first, classrooms should be seen as the micro-society with a broad range of various levels of education competency, because some learners may have different conditions such as biological endowment including hereditary or genetic factors, personal life history including parents, teachers, friends, peers experience, and cultural and historical backgrounds (Armstrong, 2009). Consequently, students’ learning styles and preferences are not the same due to the plurality of characteristics whether socio-economic, cultural, or even psychological and mental abilities (Borich 2011). Second, students can learn better either in pairs, in small groups or independently. While some students may prefer written work, others may learn better by performing an activity. Our classrooms consist of these different learners who bring different needs to class. In addition, teachers may find that their classroom has a range of ability or achievement levels. Such factors contribute to the diversity and richness of the classroom. Yet, managing the learning environment and troubleshooting disciplinary problems in a diverse classroom is a tough issue that teachers have to acquaint themselves with and provide a multitude of activities according to learners’ different learning styles and different needs. Awareness of Multiple Intelligences (MIs) could help teachers to solve disciplinary and learning problems in a pluralistic classroom environment, so they would be able to manage their classrooms effectively (Celik, 2015).

¹ **Computer- Assisted Language Learning (CALL):** the expression was agreed upon at the 1983 Teachers of English to Speakers of Other Languages (TESOL) convention in Toronto, Canada. This term colligates the fields of information technology, language teaching, and language learning (Chapelle, 2001, cited in Tunçok, 2010).

² **E-literacy:** it is the ability of reading and or writing and using such practices in online environments.

³ A **Digital Learner** is any person who is not accustomed to using the keyboard (Dudeney & Hockly, 2007, p.9).

⁴ A **Digital Native** is an individual who is comfortable and confident with new technology.

Implementing the Multiple Intelligences Theory (Gardner 1983/1999) and/or Computer Assisted Language Learning in tertiary level classroom could boost teaching / learning and would reduce apprehension and foster learning achievements. So, knowing learners' individual differences and preferences and integrating CALL in the classroom would allow teachers to establish "broad range of teaching strategies with their students" (Armstrong, 2009, p. 73). Gardner (2006) also concludes that "people have very different kinds of minds... then education which treats everybody the same way, is actually the most unfair education" (p. 255). Briefly, incorporating cognitive or artificial intelligences and recognizing the blended learning would revolutionize the notion of the classroom and reduce inconveniences between the teaching input and the learning output. Therefore, the classroom environment which embraces new dimensions in teaching pedagogy would be effective, inspiring, and prospective.

The study seeks to answer the following research questions:

1. Is there any relationship between learners' multiple intelligences' profiles and their writing performance?
2. Which intelligence type(s) has (have) an impact on students' Writing Strategies?
3. Which intelligence type(s) best predict(s) the writing proficiency level of Tunisian EFL learners?

2. REVIEW OF THE LITERATURE

2.1. Sketching Multiple Intelligences Theory

The Multiple Intelligences Theory advocated by Gardner (1983, 1999) and other educationists (e.g., Christison, 1996, 1999; Armstrong, 2000) has rekindled the interest in novel teaching practices and has become a "philosophy of education" (Hoerr, 2002, p. 8). Therefore, the focus is directed toward learners and learning instead of teachers and teaching (Boudraf, 2012; Haddaji, 2014). Christison (2005) maintains that "MI theory has helped educators by providing a useful framework for talking about the differences we see among the students we teach" (p. 3). Rostami and Soleimani (2015) also maintain that "the focus on individual differences will result in more learner-based curriculum" (p. 77). In other words, instead of relying on one form of a curriculum, MIT offers individualized education based on learners' differences to meet the needs of each learner.

According to the Theory of Multiple Intelligences (MIT), at least nine distinctive types of intelligences are categorized into three main intelligence domains. According to McKenzie (2002) and Razmjoo (2008), the three intelligence domains provide an understanding of how intelligences work. The interactive domain consists of verbal-linguistic, interpersonal, and bodily-kinesthetic intelligence. Intelligence of the Interactive Domain are "by nature social processes" (Razmjoo, 2008, p. 157) because they require interaction with others or exploring oneself within the environment. The introspective domain encompasses intrapersonal, existential, and visual-spatial intelligence. Intelligence of the Introspective Domain are "by nature heuristic processes" (Razmjoo, 2008, p. 158) because they promote self examination and emotive connection to one's personal experiences and beliefs. The analytic domain comprises logical-mathematical, musical-rhythmic, and naturalistic intelligence. Intelligence of the Analytic Domain are "by nature affective processes" (Razmjoo, 2008, p. 157) because

they promote self-examination and emotive connection to one's personal experiences and beliefs.

The theory has important implications for educators and learners, as well as instructional strategies, curricula, and materials and textbooks used in the learning and teaching process (Armstrong, 2000; Ibragimova, 2011).

2.2. Implications of Multiple Intelligences Theory in Education

Educators and scholars have been trying to integrate new concepts and methods in the field of education to regain the dwindling students' motivation over the last few decades (this is the researcher's perception after a twenty-year career in Tunisian secondary schools and universities).

The Multiple Intelligences Theory (MIT) provides insightful understanding of the learners' differences and potentials, contrary to the traditional school systems which focus on a narrow range of intelligences, mainly, verbal and logical intelligences (Botwina, 2010). The MIT foreshadows a pluralistic view of teaching/ learning. As mentioned by Chen, Moran, and Gardner (2009), the multiple intelligences theory can be "a vehicle for broadening the remit of education: to include subjects that address the several intelligence and ways of thinking, as well as teaching methods that speak to individual differences, and assessments that go beyond standard, short-answer language-and-logic instruments" (p. 14). Therefore, many researchers (e.g., Ibragimova, 2011; Boudraf, 2012) manifested the effects of implementing the MIT in education. It is stated that learners possess all types of intelligences and it is important that teachers introduce the multiple intelligences tests to learners to know their intelligences profiles. Knowing learners' intelligences enables teachers to diversify their teaching strategies and activities to meet their learners' learning potentials and preferences (Boudraf, 2012; Ibragimova, 2011; Sólmundardóttir, 2008). According to Borek (2003) implementing the MIT in education "fosters a collaborative classroom where students are comfortable experimenting and letting others experiment" (p. 24).

In a nutshell, in a multiple intelligences-based class, learners have more possibilities to learn and succeed, and teachers have more possibilities to teach. Making learners aware of their intelligence creates enthusiasm and encourages learning. As for teachers, they will be provided with a variety of activities based on learners' preferences and interactions. In a study on the effectiveness of using two-multiple intelligence courses by Shore (2004) cited in Ibragimova (2011), the results showed a significant improvement in learners' participation and motivation and an enhancement in the teaching responses. So, integrating MIT into the curriculum and syllabus design can improve and develop teaching practices and assessment techniques.

2.3. Multiple Intelligences and L2 Pedagogy

English language teaching and learning have always been an essential topic in education because of the interdisciplinary role of English in other fields of study. That is why it is always shaped by new achievements and findings in human sciences like sociology and psychology. English language teaching and learning are also affected by technological developments. For these reasons, new approaches and methods to language teaching and learning have always been evolving. For instance, cooperative learning, communicative language learning, whole language learning, and personalized learning reveal a tendency to rekindle educational systems

once motivation and performance of learners are dwindling. These methods and approaches to language teaching and learning are inspired from the fields of psychology, sociology, philosophy, and even neurology. Teachers, curricula designers, language policy makers, and educationists in general are expected to adapt new inspiring and influential methods and techniques to survive in this competitive world and not only in schools. The Multiple Intelligences Theory is one of these inspiring theories, which has gained popularity and recognition among many EFL/ESL teachers in various fields and subjects, including ELT.

Yet, it is worth mentioning that MIT can be used in many different ways to enrich teaching and learning processes. It suggests “a set of parameters within which educators can create new curricula” (Armstrong, 2009, p. 64). It is rather a psychological trend that exists among many language teaching methods and techniques, aiming to ameliorate language teaching and learning. The theory boomed when humanism matured and began to have significant impacts on education, along with the decline of the authoritative teacher-centered education and the rise of learner-centered modes (Chen, 2005). Gardner’s theory stimulates the role of intelligence, individual differences, and learning preferences in various ELT methods and techniques. As mentioned in Chen (2005), Sólmundardóttir (2008), and Çelik (2012), of Gardner’s intelligence are recognized in different methods and approaches to language teaching and learning.

2.4.Views about the Application of MIT in ELT Classrooms:

The Multiple Intelligence Theory proposed by the psychologist and Harvard University Professor Howard Gardner (1983, 1999) is considered an important contribution to the field of education. Scholars and researchers consider the multiple intelligence theory a promising and insightful contribution to the field of education, which could revolutionize language teaching and learning pedagogy. The theory of multiple intelligences has been adopted and implemented in schools and universities with different learners and teachers. In this vein, Ahmed (2012) discussed the implementation and effects of this theory on university students’ performance. He claims that despite the scantiness of research about the benefits of multiple intelligences and higher education, it has been reported that it is effective and helpful if teachers recognize the different intelligence of students in their teaching practices.

The Multiple Intelligences Theory paves the way to a multitude of teaching strategies by using various modern assignments and activities. According to Gardner (2006), schools are positively affected by the Multiple Intelligence Theory. Implementing the theory adequately can allow learners to know their strengths and enjoy learning in their own ways based on their potentials. The theory has important implications for educators and learners, as well as instructional strategies, curricula, materials and textbooks used in the learning and teaching process (Armstrong, 2000, Ibragimova, 2011). According to Armstrong (2000), the Multiple Intelligences Theory provides teachers with opportunities to widen their teaching techniques and activities in the classroom by using modern teaching strategies. Christison (1996) accentuates the importance of using the multiple intelligences theory in ELT classrooms to help students with various abilities and enable EFL teachers to use different methods and techniques to meet their learners’ needs.

According to Lunenburg and Lunenburg (2014), Gardner's theory of intelligence challenges many educational systems that "assume everyone can learn the same subject matter in the same way and that a uniform measure can be used to test student learning" (p.1). Gardner's theory of intelligence postulates that the linguistic and mathematical intelligences, which are dominant in many educational systems, are important but not enough. Every individual can learn through any of the nine modes of intelligence. For Lunenburg and Lunenburg (2014), writing as a creative expression of real or imagined sensory experiences, [and] serves all of Howard Gardner's multiple intelligences, not just linguistic intelligence" (p.7). In the same vein, Lunenburg and Lunenburg (2014) claim that "By using the multiple intelligences approach in your classroom, you will provide opportunities for authentic learning based on your students' needs, interests, and talents. The multiple intelligences classroom acts like the 'real' world" (p. 6).

(EFL) teachers have to recognize their students' differences and create adequate teaching practices to accommodate these differences best and build an autonomous and creative classroom setting. In a multiple intelligences-based classrooms, the teacher is a facilitator, an observer, a designer, a curriculum developer, an analyst, and a lesson designer (Boudraf, 2012). Implementing the MIT creates a learner-centered environment, in which students enjoy and exploit their strengths and potentials. Christison (1996) proposes that teachers should categorize their activities in classes into four stages to reinforce a multiple intelligence-based lessons. First, arouse intelligence through a multiple intelligences test. Second, improve and support students' multiple intelligences profiles through various activities. Third, organize lessons based on different intelligence types. Fourth, integrate learners' intelligence profiles into solving problems.

Many studies (e.g. Haley, 2001; Akbari & Hosseini, 2008) investigated the impacts of using MI Theory in English Language Teaching (ELT). The results of Haley's study (2001) showed a significant change in terms of the teaching pedagogy, students' and teachers' attitudes, and classroom environment. In line with the previous studies, Kong (2009) and Bakić-Mirić (2010) inquired about the outcomes of applying the multiple intelligences theory in ELT classrooms. The results reported that the implementation of the MIT in teaching English helped teachers and students to create a learner-centered atmosphere and recognize and value students' distinct learning strengths and potentials. Botwina (2010) concludes that MIT becomes an important component of foreign language curriculum because "it caters for learners' individual differences and advocates an individual approach towards FLT enabling both the teacher and learner to master a foreign language in an efficient, meaningful and creative way" (p. 18).

Interest in integrating MIT in ELT is gaining a rising interest, as Christison (1999) puts it. She has written many articles about multiple intelligences in ESL/EFL contexts. She suggests that ESL/EFL teachers should recognize their learners' learning styles and be aware of the advantages that MIT might provide. In accordance with Christison (1999), Botelho (2003) suggests that one way of considering multiple intelligences in language teaching is by combining it with other approaches and methods to integrate learners' needs and teachers' experiences and interests.

Many current teaching methods and approaches (e.g., communicative language teaching) share many similarities with the multiple intelligence theory. So, the task of the teacher is to make adequate choices to help learners “develop their strengths and potentials (or improve their less-developed intelligence)” (Botelho, 2003, p. 131). Therefore, English language teachers should implement MIT in their classes for three main reasons: to build a student-oriented insight into teaching, provide a meaningful context for teaching, and increase students’ motivation to learn a (foreign) language (Botwina, 2010).

2.5.Aim of the Study:

The main aim of the study was to depict the map of dominant intelligence types, intelligence categories, and intelligence domains among the students and identify the possible correlations with students’ writing strategies to prepare multiple intelligences-based activities regarding students’ potentialities and preferences.

3. METHODOLOGY

This part provides information about the method of the study. First, the participants and the instruments used in this study are introduced. Then, data analysis procedures are explained, respectively.

3.1.Participants

The participants of the study were 114 male and female (84 females and 30 males) EFL Tunisian undergraduate students majoring in English at the Faculty of Arts and humanities of Kairouan, Tunisia, during semester two of the academic year 2020/2021. The participants were chosen from a general population of 273 regular students at the English department where the experiment was conducted. 31 first-year students, 20 second-year students, and 63 third-year students volunteered in the study. The participants originated from five secondary school disciplines, namely Arts (79 students), Management (6 students), Math (3 students), Sciences (23 students), and Technical (3 students) sections.

3.2.Instruments

The study used McKenzie’s Multiple Intelligence Inventory (1999) in order to depict students’ intelligences profiles, intelligences categories, and their most dominant intelligences domains. The MI inventory consists of 9 sections related to nine types of intelligence; each section contains 10 statements and measures one type of intelligence, where students should respond with 1 if the statement best describes them and with 0 if the statement does not describe them. Then, a Writing Strategies Questionnaire was adapted and administered to all the participants. The WSQ consists of 53 statements which were subdivided into three parts following the structure of the writing process: prewriting, while writing, and post-writing stages. The first section deals with the prewriting stage and comprises 13 items. All items focus on the prewriting phase, and respondents would opt for one alternative from five Likert Scale options for each item. The five Likert Scale options vary from never to always. The second section deals with while writing stage and contains 20 items, while the last section revolves around post writing stage and consists of 20 items. Students were also asked to compose a five paragraph essay according to their syllabi. For instance, first-year students were asked to write a cause essay; second year students were asked to produce a contrast essay and third year

students were asked to compose an argumentative essay. The researcher carefully chose the topics of the essays to meet the students' writing curricula.

3.3.Procedure

In order to measure and analyse the quantitative data obtained from the writing strategies questionnaire, the multiple intelligences inventory, and the written products of students, a latest and reliable version of the Statistical Package for the Social Sciences (SPSS) software was used to derive descriptive statistics. Students' responses to both questionnaires and the scores obtained from students' written essays were entered into the SPSS data processing matrix. The students' written essays were assessed for quality according to Jacobs et al. (1981) scoring rubric. The purpose of using this scoring scale was its reliability, as scholars and researchers widely used it (e.g., Al-Zankawi, 2018; Brooks, 2012) conducting similar studies. The scoring rubric, which assessed essay writing ability in EFL academic contexts, targeted five major writing aspects: content, organization, vocabulary, language, and mechanics. A series of statistical correlation analyses were then made to check if there were any relationships between the writing strategies, writing achievements, and the Multiple Intelligences profiles of EFL Tunisian University students.

3.4.Data Analysis and Discussion

The results of the study are presented and discussed below. The data analysis revealed that students show strength with intrapersonal intelligence (mean = 7.89). The students' second highest intelligence is existential intelligence, with a mean at 7.71. There were no other types of strong intelligence possessed by students according to the descriptive statistics and no weak intelligences obtained by them as well. Students indeed obtained 7 moderate intelligences. The moderate intelligences reported by the students were organized into two clusters as follows: verbal-linguistic (M = 6.59), visual-spatial (M = 6.41), logical-mathematical (M = 6.18), bodily-kinesthetic (M = 6.10), followed by musical-rhythmic (M = 5.74), naturalistic (M = 5.59), and interpersonal intelligence (M = 5.15) in cluster two. The descriptions of the intelligence possessed by all students according to intelligence type and intelligence category are presented in table 1.

Table 1: Descriptive Statistics and Ranks of Multiple Intelligences

	N	Minimum	Maximum	Mean	Std. Deviation	Std. Error	MI Category
Naturalistic Int	114	1	10	5,59	2,307	0.216	MODERATE
Musical-Rhythmic Int	114	1	10	5,74	2,129	0.199	MODERATE
Logical-Mathematical Int	114	1	10	6,18	1,887	0.177	MODERATE
Existential Int	114	2	10	7,71	1,798	0.168	STRONG
Interpersonal Int	114	1	10	5,15	2,199	0.206	MODERATE
Bodily-Kinesthetic Int	114	1	10	6,10	2,338	0.219	MODERATE
Verbal-Linguistic Int	114	0	10	6,59	1,764	0.165	MODERATE

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Intrapersonal Int	114	0	10	7,89	1,918	0.180	STRONG
Visual-Spatial Int	114	0	10	6,41	1,932	0.181	MODERATE

In reviewing the categories and ranks of students' intelligence presented in table 1, it is deduced that intelligence belonging to the introspective domain (intrapersonal, existential, and visual) generally exhibit very high possession rates. They are described as strong-strong-moderate. In a second rank comes the bunch of the interactive domain (linguistic, interpersonal, and kinesthetic) which is described as moderate-moderate-moderate. The analytic domain (logical, rhythmic, and naturalistic) is classified in the third rank with the category M-M-M. The findings are partially supported by previous results presented by Emmiyati et al. (2014) and Chan (2005). In the same vein, Roohani and Rabiei (2013) also assert that "the interpersonal and intrapersonal intelligence were the leading intelligence types, and kinesthetic intelligence was the least reported type of intelligence" (p. 55). In line with Gardner (1983/1999), who affirms in his theory of multiple intelligences that all individuals possess all the nine intelligences, yet each individual has his/her own unique combination of intelligence.

Concerning different school disciplines, the dispersion of students' intelligence according to different school disciplines revealed variance of intelligence according to school sections and according to categories. Math students, for instance, obtained 7 types of intelligence in strong category and dominated the highest scores. They also possessed 2 intelligence types in moderate category, but they did not show weak category in their results. In rank number two, students coming from the technical section obtained 5 types of intelligence in strong category, 3 types in moderate category, and 1 intelligence type in weak category. Students of the arts section possessed 2 types of intelligence in the strong category and 7 types in the moderate category, but they did not obtain any intelligence in the weak category. Students of the sciences section possessed 2 types of intelligence in the strong category, 6 types in the moderate category, and 1 type in the weak category. As a last section in intelligence ranking, students from management discipline obtained 2 types of intelligence in strong category, 4 types in moderate category, and 3 types in weak category. The statistical description of every intelligence type according to their school backgrounds are presented below in table 2.

Table 2: Descriptive Statistics and Rank according to Area of Study

MI	DISCIPLINE	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max	CATEGORY
						Lower Bound	Upper Bound			
Naturalistic Int	Arts	79	5.71	2.231	0.251	5.21	6.21	1	10	MODERATE
	Sciences	23	5.26	2.378	0.496	4.23	6.29	1	9	MODERATE
	Management	6	5.17	2.229	0.910	2.83	7.51	2	8	MODERATE
	Technical	3	4.33	2.309	1.333	-1.40	10.07	3	7	WEAK
	Maths	3	7.00	4.359	2.517	-3.83	17.83	2	10	STRONG
Musical-Rhythmic Int	Arts	79	5.48	2.201	0.248	4.99	5.97	1	10	MODERATE
	Sciences	23	6.70	1.550	0.323	6.03	7.37	3	10	MODERATE
	Management	6	4.33	1.862	0.760	2.38	6.29	1	6	WEAK
	Technical	3	7.33	2.082	1.202	2.16	12.50	5	9	STRONG
	Maths	3	6.33	2.082	1.202	1.16	11.50	4	8	MODERATE

Logical-Mathematical Int	Arts	79	6.08	1.880	0.211	5.65	6.50	1	10	MODERATE
	Sciences	23	6.26	1.789	0.373	5.49	7.03	1	9	MODERATE
	Management	6	5.67	2.066	0.843	3.50	7.83	3	8	MODERATE
	Technical	3	7.00	2.646	1.528	0.43	13.57	4	9	STRONG
	Maths	3	8.33	1.155	0.667	5.46	11.20	7	9	STRONG
Existential Int	Arts	79	7.58	1.844	0.207	7.17	8.00	2	10	STRONG
	Sciences	23	8.26	1.514	0.316	7.61	8.92	5	10	STRONG
	Management	6	7.00	2.000	0.816	4.90	9.10	4	10	STRONG
	Technical	3	7.00	1.732	1.000	2.70	11.30	6	9	STRONG
	Maths	3	9.00	1.732	1.000	4.70	13.30	7	10	STRONG
Interpersonal Int	Arts	79	5.47	2.369	0.267	4.94	6.00	1	10	MODERATE
	Sciences	23	4.61	1.530	0.319	3.95	5.27	2	9	WEAK
	Management	6	2.83	0.983	0.401	1.80	3.87	1	4	WEAK
	Technical	3	5.00	0.000	0.000	5.00	5.00	5	5	MODERATE
	Maths	3	5.67	1.528	0.882	1.87	9.46	4	7	MODERATE
Bodily-Kinesthetic Int	Arts	79	6.06	2.398	0.270	5.53	6.60	1	10	MODERATE
	Sciences	23	6.26	2.200	0.459	5.31	7.21	3	10	MODERATE
	Management	6	4.50	1.643	0.671	2.78	6.22	2	7	WEAK
	Technical	3	6.67	2.887	1.667	-0.50	13.84	5	10	MODERATE
	Maths	3	8.33	0.577	0.333	6.90	9.77	8	9	STRONG
Verbal-Linguistic Int	Arts	79	6.58	1.823	0.205	6.17	6.99	0	10	MODERATE
	Sciences	23	6.61	1.588	0.331	5.92	7.30	4	10	MODERATE
	Management	6	6.00	2.280	0.931	3.61	8.39	2	9	MODERATE
	Technical	3	6.33	0.577	0.333	4.90	7.77	6	7	MODERATE
	Maths	3	8.00	1.000	0.577	5.52	10.48	7	9	STRONG
Intrapersonal Int	Arts	79	7.73	1.946	0.219	7.30	8.17	0	10	STRONG
	Sciences	23	8.13	1.866	0.389	7.32	8.94	4	10	STRONG
	Management	6	8.33	1.862	0.760	6.38	10.29	6	10	STRONG
	Technical	3	7.67	2.517	1.453	1.42	13.92	5	10	STRONG
	Maths	3	9.33	1.155	0.667	6.46	12.20	8	10	STRONG
Visual-Spatial Int	Arts	79	6.47	1.980	0.223	6.02	6.91	0	10	MODERATE
	Sciences	23	6.35	1.898	0.396	5.53	7.17	2	9	MODERATE
	Management	6	5.00	1.265	0.516	3.67	6.33	3	7	MODERATE
	Technical	3	7.00	1.732	1.000	2.70	11.30	5	8	STRONG
	Maths	3	7.67	1.528	0.882	3.87	11.46	6	9	STRONG

The inspection of students' MI profiles according to their school area of study (table 2) confirmed the already obtained results that existential and intrapersonal intelligence were classified in a strong category across all school disciplines. As for the other types of intelligence, there was a variance in category between the sections. Naturalistic intelligence, for instance, was possessed by students originating from Math school section in strong category ($M = 7.00$), followed by students from arts, sciences, and management backgrounds in moderate category. Students from technical section, however, possessed naturalistic intelligence in weak category ($M = 4.33$).

Students from technical origins attained musical-rhythmic intelligence in strong category with a mean score of $M 7.33$. In cluster two, students from arts, sciences, and math backgrounds possessed musical-rhythmic intelligence in moderate category, while in cluster three, it was possessed in weak category by management students ($M = 4.33$).

Logical-mathematical in strong category was preferred by students who were affiliated to math section ($M = 8.33$) followed by students of technical section ($M = 7.00$). In moderate category, this type of intelligence was possessed by students of sciences and arts school sections followed by students from management school disciplines. No weak category was shown in logical-mathematical intelligence.

Interpersonal intelligence was the least preferable intelligence by students of all sections as it was ranked as the last intelligence in moderate category (table 1). In moderate category, it was possessed by students from math, arts, and technical school sections. Students originating from sciences obtained interpersonal intelligence in weak category followed by management students with the weakest mean score across all sections ($M = 2.83$).

As for bodily-kinesthetic intelligence in strong category, it was obtained by students of math ($M = 8.33$). In moderate category, it was possessed by students originating from technical, arts, and sciences respectively classified from the highest score to the weakest. Students from management origins obtained bodily-kinesthetic intelligence with a mean score of $M = 4.50$, so it was ranked as weak category intelligence.

Verbal-linguistic intelligence in weak category was not attained by any student across all sections. Students of math origins possessed this type of intelligence in strong category. In cluster two, sciences, arts, technical, and management students obtained mean scores which fell under the class of verbal-linguistic in moderate category.

The results of the analysis also showed that visual-spatial intelligence was divided into two categories, mainly strong and moderate. In strong category, this type of intelligence was possessed by students of math origins ($M = 7.67$) followed by students originating from technical section with a mean score of $M = 7.00$. In moderate category, it was obtained by students of arts and sciences followed by students from management school section.

The variance of findings was previously predicted as speculated throughout the development of the theory of multiple intelligences, and it was confirmed through previous research, such as Şener and Çokçalışkan (2018), Emmiyati et al. (2014), Shahzada et al. (2014), Roohani and Rabiei (2013), Nolen (2003), Hashemi (2010), Seifuri and Zarei (2011), etc. It is concluded that students may possess all intelligence types in different categories, but their mastery of intelligence types is affected by many socio-cognitive factors. The findings confirm previous speculations and findings in related literature. Students' MI profiles in relation to their classes, gender and school backgrounds, next to their achievements in education should provide educational policy makers and educationists with additional evidence to support and foster students' proficiency level and to guide them to the most suitable branch of study during school years and to the most adequate university major after they get their baccalaureate certificates.

In response to research question 1 about the correlation probability between students' writing strategies and their MI profiles displayed in table 3 below, Pre-writing strategies correlate with 4 types of intelligence. They significantly correlate with logical-mathematical, bodily-kinesthetic, visual-spatial and intrapersonal intelligence. In addition, while-writing strategies correlate with 5 types of intelligence, namely, naturalistic intelligence, musical-

rhythmic, existential, intrapersonal intelligence, and bodily-kinesthetic. Moreover, Post-writing strategies correlate with 5 intelligence types, namely, logical-mathematical, existential, visual-spatial, naturalistic and intrapersonal intelligence. The possible correlations between nine multiple intelligences and three main writing strategies (before-writing, while-writing, and post-writing) were carried out through Pearson Product-Moment Correlation Analyses and results of the preliminary checks are presented in table (3).

Table 3: Correlation between MI Profiles and Students' Writing Strategies

		Pre Writing Strategy	While Writing Strategy	Post Writing Strategy
Naturalistic Int	Pearson Correlation	0,179	0,230*	0,341**
	Sig. (2-tailed)	0,057	0,014	0,000
	N	114	114	114
Musical-Rhythmic Int	Pearson Correlation	0,021	0,197*	0,155
	Sig. (2-tailed)	0,826	0,035	0,101
	N	114	114	114
Logical-Mathematical Int	Pearson Correlation	0,199*	0,162	0,228*
	Sig. (2-tailed)	0,034	0,085	0,014
	N	114	114	114
Existential Int	Pearson Correlation	0,167	0,218*	0,218*
	Sig. (2-tailed)	0,076	0,020	0,020
	N	114	114	114
Interpersonal Int	Pearson Correlation	-0,085	0,044	0,108
	Sig. (2-tailed)	0,368	0,643	0,253
	N	114	114	114
Bodily-Kinesthetic Int	Pearson Correlation	0,214*	0,245**	0,165
	Sig. (2-tailed)	0,022	0,009	0,079
	N	114	114	114
Verbal-Linguistic Int	Pearson Correlation	0,152	0,066	0,137
	Sig. (2-tailed)	0,107	0,484	0,147
	N	114	114	114
Intrapersonal Int	Pearson Correlation	0,249**	0,208*	0,380**
	Sig. (2-tailed)	0,008	0,026	0,000
	N	114	114	114
Visual-Spatial Int	Pearson Correlation	0,225*	0,115	0,191*
	Sig. (2-tailed)	0,016	0,222	0,041
	N	114	114	114

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The results of Pearson Correlation analyses showed that pre-writing strategies correlate with 4 types of intelligence. Namely, they significantly correlate with logical-mathematical ($r = 0.199$ where $p = 0.034$), bodily-kinesthetic ($r = 0.214$ where $P = 0.022$), visual-spatial ($r = 0.225$ where $p = 0.016$) at the 0.05 level (2-tailed), whereas correlation with intrapersonal intelligence ($r = 0.249$ where $p = 0.008$) is significant at the 0.01 level (2-tailed). In addition, while-writing strategies correlate with 5 types of intelligence as is exhibited in the available data above. For instance, correlations with naturalistic intelligence ($r = 0.230$, $p = 0.014$), musical-rhythmic intelligence ($r = 0.197$, $p = 0.035$), existential intelligence ($r = 0.218$, $p = 0.020$), and intrapersonal intelligence ($r = 0.208$, $p = 0.026$) are significant at the 0.05 level (2-tailed), while the correlation with the fifth type of intelligence by name of bodily-kinesthetic ($r = 0.245$, $p = 0.009$) is significant at the level 0.01 (2-tailed). Moreover, Post-writing strategies correlate with 5 writing strategies. The correlation is significantly shown at the 0.05 level (2-tailed) with logical-mathematical ($r = 0.228$, $p = 0.014$), existential intelligence ($r = 0.218$, $p = 0.020$), and visual-spatial ($r = 0.191$, $p = 0.041$), whereas correlation is significant at the 0.01

level (2-tailed) with naturalistic intelligence ($r = 0.341$, $p = 0.000$) and intrapersonal intelligence ($r = 0.380$, $p = 0.000$).

The findings of the present study contribute to the ongoing debate about the correlations between students' multiple intelligences profile and writing strategies, which has taken a considerable time of discussion. The findings partly align with Eng and Mustapha (2010) who found some degrees of correlations between logical-mathematical, verbal-linguistic, visual spatial, interpersonal, and intrapersonal intelligences and minor writing strategies of some Malaysian students. Moheb and Bagheri's (2013) findings are also in harmony with the obtained findings in general as they declare that logical, existential, kinesthetic, verbal and visual intelligences correlate with general writing strategies of Iranian EFL language learners.

To some extent, intelligence types have positive impacts and correlations with many writing strategies, while no or weak correlation between students' intelligences profiles and their writing quality was depicted. Results may entail further correlations with sub-strategies and minor strategies, Gender was not reported to have any impact on any of the writing strategies and the writing quality of students, nor did intelligence categories. The nature of the relationship between students' multiple intelligence profiles and the writing strategies they claim they use in writing was further explored through posing an additional question about the predictability relationships between them (RQ 3).

To examine whether any type of intelligence separately predict pre-writing strategy, ANOVA regression analyses for predictability revealed that visual-spatial intelligence ($\beta = 0.207$, $p = 0.040$) is more likely to predict pre-writing strategy compared to interpersonal intelligence ($\beta = -0.194$, $p = 0.045$). So, it can be concluded that visual-spatial intelligence can be ranked as the first predictor of pre-writing strategy, while interpersonal intelligence is the second ranked predictor. As for while-writing, the regression output picked naturalistic intelligence as the first predictor for while-writing strategy ($\beta = 0.226$, $p = 0.014$), while musical-rhythmic intelligence was ranked as the second predictor ($\beta = 0.192$, $p = 0.036$). Concerning the post-writing strategy, the regression output for coefficients also picked naturalistic and intrapersonal intelligences as two significant predictors regardless of the combination model they belong to.

This study found a positive relationship between students' multiple intelligence profiles and some of their writing strategies, and it reflects that, generally, multiple intelligence profiles could predict students' writing strategies. Yet, more research in the field should be conducted with other variables in different L2 contexts to be able to ensure the present results and arrive at robust explanations. Also, despite the scarcity of related literature about L2 writing strategies and multiple intelligences, previous researchers, for instance, align with the findings. Moheb and Bagheri (2013) accept the idea of the predictive relationships between intelligences and writing strategies collectively, but they found no intelligence which could separately predict any of the writing strategies. The intelligence categories could not be considered as significant factors in predicting a strategy for some intelligence types in weak categories displayed some effects on writing strategies, while other intelligences in strong or moderate categories do not correlate or predict the strategies. The gender differences did not also show any impact on the correlations shown and did not at the same help predict the presence of any strategy, whereas Roohani and Rabiei (2013) controvert the present finding in relation to gender. A more

comprehensive research is needed to disclose the contributions of the Multiple Intelligence Theory and the predictive validity of multiple intelligences on writing and on the aspects of language learning in general.

Contrary to expectation, the correlational statistics did not generally show any significant correlations between students' multiple intelligence profiles and their written essays. None of the intelligence types correlates with any components of writing. It is also concluded that intelligence categories did not show any significant correlation with students' writing quality, nor could gender be considered as a significant factor in deriving correlations between students' intelligence profiles and their writing quality. Perhaps more research in the field should replicate the present study with larger variables within the same Tunisian EFL context.

The findings of the study find roots in previous research which investigate the issue of effects of multiple intelligences in writing proficiency of L2 learners (e.g., Doğan, 2019; Gündüz & Ünal, 2016; Rostami & Soleimani, 2015; Alizadeh, Saeidi, & Tajmid, 2014; Ismaeili, Benham, & Ismaeili, 2014; Ouma, 2014; Naseri & Ansari, 2013; El Modalal, 2012; Naoe, 2010; Sarıcaoglu & Arıkan, 2009; Nolen, 2003; etc.). Contrary to my findings, Rostami and Soleimani (2015) report "a significant and positive correlation between total multiple intelligences and descriptive as well as persuasive essay writing performance of the participants" (p. 85). İkiz and Çakar (2010) in accordance with Ahmadian and Hosseini (2012) also maintain that academic writing scores of the students are related to their multiple intelligences, while the present study which investigated the students' writing performance through three different essay types (cause essays, contrast essays, and argumentative essays) did not generally pick significant impact of multiple intelligences on students' writing performance.

4. CONCLUSION

The findings of the study can inspire researchers, educationists, and syllabi designers to redefine the concept of the classroom and the current teaching practices so as they accommodate students' differences and build an autonomous and creative classroom setting. They can also integrate blended learning in their classes provided that adequate training and awareness of the requirement of new classroom concepts is incorporated in the teaching/learning process. Eventually, the following implications should be highly recognized in any educational system if we want to foster and improve students' learning achievements. First, students could be categorized in their classes according to their intelligence domains. Second, gender is not a criterion of distribution of students. Third, based on the findings, the classrooms should be managed and orchestrated according to students' potentialities and preferences. Teachers and curriculum designers should discern their learners' different intelligences, strengths and weaknesses to adjust their teaching methods so as they cope with students' learning styles based on their preferences and potentials. Fourth, MI profiles should be acknowledged in learners' orientation after they obtain their baccalaureate certificates to build homogeneous and motivating classes. Finally, the orientation system should recognize the whole process and not only the final scores of students in their bac exams. The multiple intelligences classroom opens new dimensions in teaching paradigms.

Briefly, It is unfair to keep the same teaching practices when we have learners who display different learning abilities and preferences, because learners whose intelligence types converge with the teachers' practices will benefit from the teaching method, while learners whose intelligences do not meet their teachers' methods of teaching will feel deprived and less encouraged.

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