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The Multiple Intelligences Theory and its application in the EFL classroom

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ABSTRACT

The Multiple Intelligences theory by Howard Gardner posits a new concept of intelligence based on eight different types, which breaks away from the traditional view of intelligence as a single unit. Since its inception, this theory has had a good reception in the pedagogic field, where it can be used to help students with different “intelligences” to learn in a more effective and egalitarian way. In this study, I am going to describe and explain such an innovative theory, contrast it with former ones, and analyze its possible practical application in the EFL classroom as proposed by different authors.

RESUMEN

En este trabajo me voy a ocupar de la teoría de las Inteligencias Múltiples, desarrollada por el psicólogo Howard Gardner. Esta teoría habla de la existencia de ocho tipos diferentes de inteligencias en cada persona, rompiendo con el concepto tradicional de inteligencia que la consideraba como una unidad indivisible. Desde sus inicios, encuentra una buena acogida dentro de la rama educativa, por fomentar el tener en cuenta las distintas inteligencias de los alumnos y así favorecer un aprendizaje mucho más efectivo e igualitario. El presente trabajo tiene como objetivo tanto describir esta teoría desde el punto de vista teórico como diferenciarla de otras anteriores, y analizar su posible aplicación en el aula de inglés como lengua extranjera propuesta por diversos autores.

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THE MULTIPLE INTELLIGENCES THEORY AND ITS APPLICATION IN THE EFL CLASSROOM

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1. INTRODUCTION

I am the eldest of four sisters, and many times I have helped them with their homework; so from an early age I have been aware that not all of us learn the same way, and that each person has their own strengths and weaknesses when trying to assimilate new information. That is the reason why I have always had a special interest for both individual differences and teaching. This interest led me last year to attend a seminar on methodology and didactics of foreign languages, in which I heard about the theory of multiple intelligences for the first time.

Gardner makes known his theory of multiple intelligences in 1983 with the publication of his book *Frames of Mind*, which presents a harsh critique of the traditional concept of intelligence, defending the existence of eight different intelligences in each of us. If we think about this concept for a moment, there is one aspect that has always been familiar to us, and it is to assume that there are people who are more, or less, intelligent than others. Even today we can see that those people who are good at maths and / or linguistics are considered, somehow, as being intellectually superior to others. This is due to the meaning that has been given for a long time to the concept of intelligence. If we take into account this traditional concept within the field of education, those who show a less developed linguistic and / or logical-mathematical intelligence are doomed to school failure, though fortunately not in the personal sphere.

The MI theory advocates for the importance of individual differences, explaining that we have eight intelligences (some more developed than others) and that each person has a unique set of skills and abilities that highlights its uniqueness. This had a marked impact on the pedagogic field, where it has been trying to apply learner-centred methods

that increasingly focus on the student (their individual needs and preferences) and on the conditions in which the learning process takes place.

Our education system is based on the assumption that we are all the same, and therefore it attempts to address all students equally and equitably (Gardner, 1999). But we are all different, and if you try to teach everyone in the same way, you are unconsciously only benefiting those who respond favourably to the methods used. Contrariwise, if a topic is presented in multifarious forms, all students have access to it although each one in their own way. This new theory invites us to practise teaching considering not only the academic curriculum but also the students' profiles.

Based on my personal experience, I have seen that at the end of our secondary education we cannot even hold a basic conversation in the target language even though we may have been studying English for at least five years long. This fact led me to decide to write this discussion, in order to reach a better understanding of how our minds work and how it could improve the teaching of English as a foreign language. When learning a new language, there are many aspects that are of utmost importance, such as oral and written comprehension, oral and written production, etc.; thus, teachers make use of different techniques to develop all the skills successfully. Verifying our English level after studying it for so long clearly shows us that something is not working as it should.

Throughout this discussion I will explain in detail what the theory of multiple intelligences is, as well as other theories that demonstrate and defend the individual differences. I also introduce different methods of measuring the eight intelligences, and finally, I will take care of their possible application in the classroom of English as a foreign language.

2. THE MI THEORY

The theory of multiple intelligences was developed by the psychologist Howard Gardner in the early 1980's. This theory posits that individuals possess eight (or more) intelligences, breaking away from the traditional concept of intelligence. In fact, to understand this revolutionary theory, it is important to know more about the concept of intelligence throughout history. In this part of my discussion I am going to talk about this concept, explain the MI theory and present its reception in the pedagogical field.

2.1 THEORETICAL BACKGROUND: CONCEPT OF INTELLIGENCE

We have to travel back in time, to 1860 and Charles Darwin, to observe the first trace of attention to intellectual traits. His theory of evolution contributed to the reflection of numerous scholars on the intellectual differences across species and, later on, in human beings. It was in 1861 when the French physician Pierre Paul Broca, after examining the brains of aphasic patients (persons with speech and language disorders resulting from brain injuries), determined that the speech production center is located in the ventroposterior region of the frontal lobes (nowadays known as Broca's area). But it was Galton, Darwin's cousin, *the first to establish an anthropometric laboratory for the purpose of assembling empirical evidence of people's intellectual differences* (Gardner, 1999:11).

The first intelligence test was created in the early 1900s by the French psychologist Alfred Binet and his colleague Théodore Simon. They were asked by the French Ministry of Education to *develop a means of determining which primary grade students were "at risk" for failure* (Armstrong, 2009:5) so as to receive remedial attention. They administered numerous test questions to children in order to predict those who could have learning difficulties at school. As Gardner explains in *Intelligence Reframed* (1999:12) *from Binet's time on, intelligence tests have been heavily weighted*

toward measuring verbal memory, verbal reasoning, numerical reasoning, appreciation of logical sequences, and ability to state how one would solve problems of daily living.

In 1912, the German psychologist Wilhelm Stern came up with the name and measure of the *Intelligenz Quotient* – intelligence quotient (IQ) - *or the ratio of one's mental age to one's chronological age* (Gardner, 1999:12). It did not take long before these tests became largely popular in the United States, but they were provided with their own touch. Whereas Binet's test had been administered on a one-to-one basis, in America these tests were prepared to be carried out first in a paper-and-pencil version and later in a machine-scorable one. Through such tests, people were able to get information about the IQs of mentally deficient people or putative young geniuses, among others.

The intelligence tests were also harshly criticized. One of the critics was the American journalist Walter Lippmann who denounced *their superficiality and cultural biases, and he noted the risks associated with assessing an individual's intellectual potential via a single, brief oral or paper-and-pencil method* (Gardner, 1999:13).

There was a long-standing debate within the area of intelligence testing. On the one hand, those influenced by the British psychologist Charles Spearman, who defended the existence of a general overriding intelligence (factor 'g') which is based on linguistic, mathematical and spatial abilities that can be measured by an intelligence test. On the other hand, the supporters of the American psychometrician Thurstone (1938) and 'fox', the idea that we have different and independent primary mental faculties that are measured by different tasks. Thurstone differentiates seven primary mental abilities: verbal comprehension, word fluency, numerical fluency, spatial visualization, associative memory, perceptual speed and reasoning—which bring us closer to the MI theory.

The psychologist Robert Sternberg was more interested in the mental processes employed when responding to test items. He defends that we have to pay attention to the test taker's mental steps in solving a problem (Gardner, 1999). Sternberg (1985) distinguishes three types of intelligences: componential (analytical subtheory-microstructure of solving problems), practical (contextual subtheory-intelligent behaviour is defined by the sociocultural context) and experiential (creative subtheory-automation of familiar information).

David Perkins provides intelligence with the characteristic of being learnable, *i.e.* a person can master numerous strategies, acquire different kinds of expertise and learn to negotiate in different contexts. In this way, we are distancing ourselves from those theories that represent intelligence as a general factor which a person could do little to change: we are facing different types of intelligences or faculties that cannot only be learned, but also improved.

2.2 MI THEORY

Howard Gardner published *Frames of Mind: The Theory of Multiple Intelligences* in 1983. With this book he dared the traditional psychological view of intelligence as a single capacity, proposing that all individuals possess seven independent intelligences: linguistic, logical-mathematical, spatial, bodily-kinaesthetic, musical, interpersonal and intrapersonal. He defends that, by combining these intelligences, people are able to solve problems or create products with different levels of proficiency. In 1999, he published *Intelligence Reframed: Multiple Intelligences for the 21st Century*, including a redefinition of the concept presenting intelligence as *a biopsychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture* (Gardner, 1999:33); and he also explains this change as follows:

This modest change in wording is important because it suggests that intelligences are not things that can be seen or counted. Instead, they are potentials-presumably, neural ones- that will or will not be activated, depending upon the values of a particular culture, the opportunities available in that culture, and the personal decisions made by individuals and/or their families, schoolteachers and others. (Gardner, 1999:34)

He also adds an eighth intelligence (naturalistic) and takes into consideration the addition of two more (spiritual and existential). Thomas Armstrong describes in his

book *Multiple Intelligences in the Classroom* (2009) each one of these eight intelligences as shown below:

- Linguistic: The capacity to use words effectively. This intelligence includes the manipulation of the language's structure and pragmatics, as well as the ability to use language to convince others (rhetoric), to remember information (mnemonic), and to inform and to talk about language (metalanguage). It is the intelligence characteristic of politicians, storytellers, poets, journalists, orators, etc.
- Logical-mathematical: It refers to the capacity to use numbers effectively and to reason well. It embraces *sensitivity to logical patterns and relationships, statements and propositions (if-then, cause-effect), functions, and other related abstractions* (Armstrong, 2009:6). Some of the processes used in this intelligence are categorization, inference, generalization, calculation, and hypothesis testing. People like mathematicians, tax accountants, computer programmers and scientists stand out in this type of intelligence.
- Spatial: The ability to perceive the visual-spatial world accurately and to reconstruct or modify those perceptions. This intelligence involves sensitivity to colour, line, shape, form, space, and the relationship between them. Typical of this faculty are *the capacity to visualize, to graphically represent visual or spatial ideas, and to orient oneself appropriately* (Armstrong, 2009:6). People with this kind of intelligence are often interior decorators, architects, artists, chess players, pilots, among others.
- Bodily-kinaesthetic: the capacity to use one's whole body to express ideas or feelings and to skilfully produce and manipulate objects. This intelligence includes physical abilities such as coordination, balance, strength, flexibility, and speed. Actors, mimes, athletes, dancers, sculptors, mechanics, or surgeons are characterized by this faculty. Torresan (2010:15) indicates the importance of this intelligence in the development of linguistic competences. *In particular, the action of pointing is fundamental to the development of symbolic and representative abilities that constitute the fundamental basis of communication.*
- Musical: The ability to perceive, discriminate, and express musical forms. People with this faculty possess sensitivity to the rhythm, and timbre or tone

colour of a musical piece. One can understand music intuitively, technically, or both. A music aficionado, a composer, or a performer has this faculty.

- Interpersonal: involves the capacity to perceive and distinguish the moods, intentions, motivations, and feelings of other people. One possesses sensitivity to facial expressions, voice, and gestures. A person with this faculty can, for example, persuade others to follow a certain line of action.
- Intrapersonal: it has to do with *self-knowledge and the ability to act adaptively on the basis of that knowledge* (Armstrong, 2009:7). It includes being aware of one's strengths and limitations; as well as one's own mood, intentions, motivations, and desires. The capacity to self-discipline, self-understanding, and self-esteem are part of this intelligence.
- Naturalistic: Ability to recognize and classify the flora and fauna, as well as natural phenomena (*e.g.* cloud formation). If we take into consideration the urban environment, it also includes the capacity to discriminate among inanimate objects (*e.g.* cars, sneakers, and CD covers).

As Gardner (1999) commented, some scholars wondered why he called them intelligences and not talents or aptitudes, as well as what it is based on. In order to decide what counts as an intelligence and what does not, he delineated eight criteria - based on psychology, observation of unusual human beings, anthropology, cultural studies and the biological sciences- which these faculties should meet. Those candidate faculties that met well the following criteria can be called a human intelligence (taken from Gardner):

1. Potential isolation by brain damage
2. An evolutionary history and evolutionary plausibility
3. An identifiable core operation or set of operations
4. Susceptibility to encoding in a symbol system
5. A distinctive developmental history and a definable set of expert "end-state performances"
6. The existence of savants, prodigies, and other exceptional individuals
7. Support from experimental psychological tasks
8. Support from psychometric finding

There can be distinguished two important innovations in his theory; on the one hand, the widening of the term “intelligence”, so that it would comprise numerous capacities reflecting its plurality/diversity against the former idea of a single faculty measured by psychometric instruments (IQ tests). On the other hand, he argues that these capacities are rather independent of one another but they work together when we want to accomplish a task.

It is important to take into account that all of us have, thanks to evolution, a unique combination of intelligences; thus, no two people have either the same intelligences or the same combination of them. Each of these intelligences derives from our genetic heritage and the environment into which we are acculturated (our personal conditions). In this way, we connect them *according to our inclinations and culture's preferences* (Gardner, 1999:45).

2.3 MI IN THE PEDAGOGICAL FIELD

In spite of this theory not being addressed to educators, it was well received by professionals of the pedagogical field. The marked impact of MI theory in the field of education and psychology changed the way the mind was interpreted, considering that they were facing a new concept that called attention to the complexity of the human mind.

Armstrong (2009) defends that the MI theory should be understood as a philosophy of education and not as established strategies; and Gardner (2007:7) affirms that his theory is *best thought of as a tool, rather than as an educational goal*.

This study has to do with foreign language learning/teaching and, according to Arnold and Fonseca, this new perspective offered by the MI proposes that language learning

can be favoured by using a variety of learning tasks which call upon diverse intelligences. The teacher offers a choice of tasks, not to teach to specific intelligences but to give learners the opportunity of apprehending information in

their preferred way, as well as to promote the development of their other intelligences (Arnold and Fonseca, 2004:126)

When we learn a foreign/second language, the linguistic intelligence is developed and all the intelligences can be used in order to acquire proficiency of the target language. Now follows a brief explanation of how Arnold and Fonseca (2004) present this cooperation among the different faculties.

Musical: The musical-rhythmic intelligence has to do with the ability to perceive and appreciate rhythm, pitch and melody (Arnold and Fonseca, 2004:126). Music produces not only physical effects on us, such as adaptation of breathing to the musical rhythms, but also psychological ones, since it induces a certain type of mood (Benenzon, 1995). The use of music in a second language classroom helps students to concentrate, stimulates creative processes, eliminates distracting sounds and favours a relaxed and motivating classroom atmosphere.

The visual-spatial intelligence is the ability to create mental images, which have a strong influence on reasoning (Arnold, 1999). By means of imagery the students build connections between word and image which benefits their access to knowledge, as well as improves their reading comprehension and memory. Mental images are also a good learning strategy, since visualizing while trying to understand a text is crucial for building up meaning (Tomlinson, 1998). Moreover, visual teaching aids, such as pictures or slides, facilitate information retrieval.

Logical-mathematical: The reasoning strategies are an important aspect of this intelligence, and Armstrong (1999) recommends their use in the classroom through exercises like finding analogies, proposing and describing the characteristics of a possible solution to a problem, generalizations or specializations. As Arnold and Fonseca explains (2004:127) in the language classroom problem-solving tasks are useful as learners focus mainly on meaning, but through constant rereading of the text to solve the problem, they acquire a familiarity with the vocabulary and structures used.

The bodily-kinaesthetic refers to the control of physical movements and the skilful manipulation of objects (Torresan, 2010). According to Rogers (1975:40) our educational systems *have focused so intently on the cognitive and have limited*

themselves so completely to “educating from the neck up” that this narrowness is resulting in serious social consequences. Arnold and Fonseca (2004) also highlight this problem arguing:

In many classrooms, students sit in rows for hours and are asked to pay attention to verbal input. The human need for movement is totally overlooked and therefore, its potential value for creating higher energy levels and maintaining attention is greatly reduced. (Arnold and Fonseca, 2004: 128)

In order to apply this intelligence in the English class, teachers can use role-plays, games, and activities related to group dynamics. I think that games like “guess the word”, in which mimic is used, favour the motivation of the students, and create a more relaxed and pleasant classroom atmosphere.

The naturalistic intelligence has to do with the capacity to make classifications regarding flora and fauna. As Torresan explains (2010: 16), this intelligence *involves the recognition of patterns that go beyond nature*. In order to enhance this capacity in the classroom, Arnold and Fonseca (2004) recommend activities such as brainstorming, or semantic maps related to the environment, the natural world.

The interpersonal intelligence involves the knowledge of others, the ability to work cooperatively and to communicate effectively. This faculty is strongly connected to language learning since it is a social process whose main purpose is to develop communicative competence (Hymes 1971, Canale and Swain 1980). The social interaction of the students in language classes is of utmost importance, and cooperative learning is a method that helps to develop it (Casal, 2002). When students work together in small groups to carry out a task, they learn how to negotiate in order to convince others of their point of view and to understand the position of the other members of the group.

According to García Sánchez (1999) working in groups creates an atmosphere where the students have to collaborate with each other in order to gain a common goal, favouring the significance of collaboration instead of an individual competitive attitude. Hadfiel (1992:10) also highlights the value of group work pointing out that:

A positive group atmosphere can have a beneficial effect on the morale, motivation, and self-image of its members, and thus significantly affect their learning, by developing in them a positive attitude to the language being learned, to the learning process, and to themselves as learners. (Hadfield, 1992:10)

The intrapersonal intelligence concerns the knowledge of oneself (metacognitive knowledge) and in language learning, it refers to the knowledge about language itself and the strategies to be used in order to accomplish certain types of tasks (Wenden, 1987). This intelligence can be also related to learning styles, which imply the awareness of personal capacities and limitations in order to enhance personal performance (Christison, 1999; Reid, 1995, 1998). As Williams and Burden declare, metacognition involves

knowledge of factors relating to the self, and the way in which these affect the use of cognitive process. Thus an awareness of one's personality, feelings, motivation and attitudes and learning style at any particular moment would be included within such a concept of metacognitive awareness (Williams and Burden, 1997:155)

One of the tasks proposed by Robles (2002), in order to put to work this intelligence in the language classroom, is to require learners to reflect on the colour, size or texture which most accurately show their feeling.

3. OTHER THEORIES

As we have seen, the MI theory addresses to the uniqueness of every person, but it is not the only one that defends the diversity of human beings. In this section, I am going to talk about learning styles and differentiate them from Gardner's theory, as well as explain the concept of language aptitude.

3.1 MULTIPLE INTELLIGENCES VS. LEARNING STYLES

The MI theory is often misunderstood and used interchangeably with learning styles; therefore, I decided to devote a section of my discussion to explain the difference between them. Firstly, it is needed to elucidate that multiple intelligences represent different intellectual abilities; whereas a learning style has to do with the way we use our own abilities to learn new information. Thus, Gardner explains that

since intelligences operate on specific content (e.g. language, music, the apprehension of other persons), they can be separated from so-called "across the board" or 'horizontal' capacities like attention, motivation, and cognitive style. Whereas these general capacities are thought to apply across a range of situations, the 'vertical' intelligences are used by individuals to make sense of specific content, information, or objects in the world. (Gardner, 2006:12)

We all have different learning profiles and we use those cognitive strategies that correspond with our own preferences. These strategies are so diverse that there is no common agreement about the number of styles (Torresan, 2010); some scholars describe a style as a stable characteristic (fixed model of behaviour) and others defend that we switch styles depending on the task, situation, context in which the learning process occurs, etc. (Reid, 1987). Torresan (2010:11) explains that *among the most known styles are those defined by the dualisms holistic/analytical;*

introverted/extroverted; kinesics/spatial/musical. Considering these dualisms, there can be distinguished: the bodily-kinaesthetic style, visual style, auditory style, extroverted style, introverted style, and analytical style.

The MI theory and learning styles seem, to some extent, to overlap and some similarities between them can be found (Torresan, 2010). In the following table we can see the interrelation of styles and intelligences:

LEARNING STYLE	INTELLIGENCE
Bodily-kinaesthetic Style	Bodily-kinaesthetic Intelligence
Visual Style	Spatial Intelligence
Auditory Style	Musical Intelligence
Extroverted Style	Interpersonal Intelligence
Introverted Style	Intrapersonal Intelligence
Analytical Style	Logical-mathematical Intelligence

Table 1. Possible overlap between the two theories (based on Torresan, 2010)

Considering the difficulty that trying to draw a clear distinction between them implies, and in order to elucidate it in a practical way, Torresan (2010:19) proposes the following two situations:

- a) *The teacher uses background music during the writing activity.*
- b) *The students create a written composition inspired by a sound track.*

In the first case (a), the teacher provides a background stimulus in order to create an emotional atmosphere; while in the second example (b), the teacher integrates in the same exercise the linguistic and musical codes; in this way, the student has to concentrate on the stimulus to accomplish the assignment (Torresan, 2010). The author shows us, in the first situation, an example of activity based on learning styles; and in the second, a task derived from the theory of multiple intelligences.

In this way, activities in which students work in pairs or in groups are aimed to extroverted students (extroverted style) and have little to do with the development of interpersonal intelligence (Torresan, 2010). He also presents an example concerning the

linguistic intelligence, which refers to a refined use of language and to a strong sensitivity towards the nuances of meaning, explaining that these qualities are not dependent on how much the student is an extrovert (Torresan, 2010:19).

Activities related to learning styles are defined as *peripheral stimuli* and those having to do with multiple intelligences are *intermediate stimuli*. As Torresan posits (2010:20), in some cases the *peripheral stimulus can become an intermediate stimulus for students more competent in the subject*. For example, if teachers use background music (peripheral stimuli), they can disturb the performance of a student with a high musical intelligence; that is to say, the person becomes more concentrated on the music than on the task (Torresan, 2010).

3.2 LANGUAGE APTITUDE

Throughout this discussion, we have seen and verified how different we are. In this section, we are going to talk about another important concept having to do with individual differences in the EFL classroom: language aptitude.

Carroll (1959, 1981) described language aptitude in terms of four components: phonetic coding ability, grammatical sensitivity, inductive language learning ability, and associative memory (Biedroń and Pawlak, 2016). At present, it is considered as a combination of cognitive and perceptual abilities (Robinson 2002; Skehan 1986). As Kormos (2013:134) points out, *aptitude is a complex construct consisting of several cognitive characteristics*, and among these characteristics we find: pattern recognition, grammatical sensitivity, noticing the gap, memory for contingent text, and deep semantic processing.

This concept is also misunderstood and sometimes it is used interchangeably with other terms. Therefore, in order to explain it and differentiate it from others, Biedroń and Pawlak (2016) constructed the following table based on Renzulli (1986), Carroll (1993), and Gagné (2000):

TERM	DEFINITION
Ability	Actual potential – what a person is able to do provided environmental conditions and psychophysical states are optimal
Aptitude	Cognitive ability that is possibly predictive of certain kinds of future learning success
Giftedness	Untrained, outstanding innate ability
Talent	Superior mastery of an innate ability

Table 2. Classification of terminology (Biedrón and Pawlak (2016:115))

Cognitive abilities concerning language aptitude can be divided into two groups: on the one hand, the domain of explicit cognitive processes which encompass abilities such as rote memory, analytical ability, and explicit inductive learning. As Granena (2015:578) enunciates, *these are cognitive abilities that are especially relevant to learn a language intentionally through reasoning, deliberate hypothesis testing, and memorization*. On the other hand, those related to implicit cognitive processes—understood as learning *in the absence of 1) conscious intention to learn, 2) conscious awareness of the fact that we are learning, and 3) conscious attribution of any noticed change to the effects of learning* (Jiménez, 2002:62; quoted by Granena, 2015).

In the field of individual differences, language aptitude and cognitive styles (frequently included under the term ‘learning styles’) show some degree of relation (Dörnyei and Skehan, 2003). Contemporary studies posit a relationship between:

- Rational-analytical cognitive style and explicit language aptitude: a person who learns analyzing linguistic material, *i.e.* analysis-oriented learners.
- Experiential-intuitive cognitive styles and implicit language aptitude, learning *by engaging in communicative language use (“talk-to-learn” approach)* (Granena, 2015:579). Learners are not aware of the rules, they are memory oriented, that is to say, *they store and associate language clusters with particular meanings and situations* (Granena, 2015:580).

In this way, we can distinguish two different types of learners: those who are analysis-oriented, and those memory-oriented. The students belonging to the first type learn a foreign language in a conscious, reflective way, *i.e.* paying attention to the rules; while those of the second group learn through practice, they gain knowledge through their own personal experience. Granena (2015:580) clarifies: *this does not mean that learners cannot have capacities in each of these areas, or that one profile would have to*

exist at the expense of the other, but that there would be a predisposition to process information more frequently in one way than another.

Being conscious of the different cognitive styles preferences and aptitude profiles of foreign language learners can help teachers to instruct matching learners' cognitive strengths, and therefore, obtaining better results.

4. RESEARCH

We have already seen the importance of knowing the strengths and weaknesses of the learners, but how can teachers know which profiles are there in their groups? In order to answer to this question there have emerged different methods of measuring these faculties. Since the central topic of my discussion is the theory of Multiple Intelligences, in this part I present various tools used to measure the intelligences a person has and a critical discussion.

4.1. MI TESTING

In spite of emerging as a critique of the standard psychometric approach (IQ tests), since the MI theory emerged, Gardner has been frequently asked about the possible construction of a set of tests for each of the intelligences (Gardner, 1995, 1999, 2013). He asserts that *having a battery of MI tests is not consistent with the major tenets of the theory* (Gardner, 1999: 80); and he also adds:

My concept of intelligences is an outgrowth of accumulating knowledge about the human brain and about human cultures, not the result of a priori definitions or of factor analyses of test scores. As such, it becomes crucial that intelligences be assessed in ways that are "intelligent-fair" that is, in ways that examine the intelligence directly rather than through the lens of linguistic or logical intelligence (as ordinary paper-and-pencil tests do). (Gardner, 1999:80)

In this way, if someone wants to measure the spatial intelligence of an individual, the person being measured should accomplish activities, such as, exploring a terrain and seeing if he/she finds his/her way around, or reading blueprints (Gardner, 1995, 1999, 2013). As we can see, the “intelligent-fair” way of measurement of the eight intelligences can be difficult to carry out; we need to have diverse materials at our disposal, as well as the capacity to provide an appropriate context.

In order to show the differences between the traditional standardized method of assessment (IQ tests) and the MI measurement approach proposed by Gardner, the following table was constructed by Davis, Christodoulou, Seider and Gardner (2013:27):

TRADITIONAL ASSESSMENTS	MI ASSESSMENTS
Over-reliance on linguistic and logical mathematical abilities and measures	Sample the gamut of intelligences and domains
Deficit-focused	Identify relative and absolute strengths
Minimal intrinsic value to activity/tasks	Immediate feedback to students; meaningful for students; materials with which children are familiar
Performance captured in a single score	Scores on a range of tasks, across several domains. for each intelligences
Detached from context	Ecological validity; Present problems in the context of problem solving; Instructive for teachers

Table 3. *Assessment characteristics for the multiple intelligences and traditional counterparts* (Davis et al. 2013) (originally adapted from Chen and Gardner, 1997)

4.1.1. “INTELLIGENCE-FAIR” MEASUREMENT

As reviewed earlier, Gardner proposes intelligent-fair tests to measure the different intelligences. Due to the amount of measurement methods devised since the publication of his first book *Frames of Mind: The Theory of multiple intelligences* (Gardner, 1985), (many of them based on misinterpretations of the theory), he suggests three venues: Project Spectrum, Explorama, and Makey Makey (Gardner, 2013).

- Project Spectrum: this project was initially developed as *an assessment-and-curriculum program for preschool children* (Gardner, 1999:81) under the direction of Gardner and his colleagues at Harvard University’s Project Zero (Armstrong, 2009) (see <http://www.pz.harvard.edu/projects/project-zero>)

spectrum). It consists in classrooms equipped with different materials that encourage kids to perform numerous activities, providing information about the strengths and weaknesses of the users (Davis *et al.* 2013). Armstrong (2009) presents an example of one of these activities aimed at measuring of the logical-mathematical intelligence, in which *there is a dinosaur board involving rolling dice, counting moves, and calculating strategies* (Armstrong, 2009:134).

- Explorama: is a theme park in Denmark (see <http://universe.dk/en/experience/attractions/explorama/>), consisting in fifty games designed on the basis of the MI theory in which, by playing, intelligences people are strong at can be highlighted, as well as those that should be improved (Gardner, 2013). Among the varied activities we can find games such as, “a calm hand” in which one has to get a destination without touching the wire, or “Laser track” where one has to make his/her way through intricate lasers.
- Makey Makey: is an application (see <http://www.makeymakey.com/>) that *gives individuals the opportunity to create experiences which draw on the several intelligences. Informed observers can watch users at work and infer the nature of their intellectual profiles.* (Gardner, 2013:8). People can buy and use their easy-to-use inventor kits and create their own products.

4.1.2. PAPER-AND-PENCIL TESTS

The Multiple Intelligences Developmental Assessment Scales (MIDAS) was developed in 1987 by Branton Shearer in order to determine how intelligent a person is. These tests are the best known and they have been used in many MI research projects (Davis *et al.* 2013). The MIDAS tests are questionnaires based on the MI theory created to be self-completed, and whose results can be later analyzed by psychologists, counsellors, and teachers (Shearer, 2012).

These questionnaires have an interview format composed by numerous questions, and each of these items has six response choices; for example, “a little”, “sometimes”,

“usually”, “often”, “all the time”, and “I don’t know”. People assessed have to answer all the questions with the option they consider describes their situation more accurately. In the following example, taken from *MIDAS™ Sample Questions* (appendix 1), we can see one of the items constructed to assess the musical intelligence:

1. As a child, did you have a strong liking for music or music classes?

A= A little.

B= Sometimes.

C= Usually.

D= Often.

E= All the time.

F= I don't know.

Shearer explains in his website (see <http://www.miresearch.org/>) that after answering all the questions, it can be estimated people’s intellectual disposition in the eight intelligences, twenty-five kinds of skills associated with them, and descriptions of particular intellectual activities and actual outcomes.

As said, the MIDAS tests are the best known but many other questionnaires have been created to measure the several intelligences. In appendix 2, we can see the *Multiple Intelligences Inventory* created by Walter McKenzie in 1999. It is divided into three parts: the first one is divided into nine sections composed by ten statements each, in which we have to place a “1” (one) in those that we feel that describe us better. In the second part, we have to calculate our results which will let us know, in the third part, what our strengths and weaknesses are.

I did myself the last example of a pencil-and-paper MI test (appendix 3) in a seminar I attended on didactic and methodology in Germany. This test is made up of 35 statements, it has only two response choices: true (V=verdadero) or false (F=falso), and includes the first seven intelligences identified by Gardner (1987), *i.e.* it does not

include the naturalistic intelligence. It also offers, just as McKenzie's test does, the possibility of being aware of our intelligences through a simple calculation.

Unlike the MIDAS tests, the other two examples presented in this discussion have only two response choices which, in my opinion, make them less precise than the former. In addition, Shearer's tests are considered by Gardner, to some extent, valid:

Shearer has begun to accumulate evidence that performance on the MIDAS correlates with abilities in certain areas, as determined by other indexes. Such findings suggest that, in addition to being a reliable measure, the measure also has some validity. (Gardner, 2013:9)

4.2 CRITICAL APPROACH

In this section, I present Howard Gardner's critical approach to the measurement tools reviewed earlier: "intelligence-fair" measurement and pencil-and-paper tests. Gardner advocates the importance of testing the intelligences in natural contexts and of recognizing the limitations presented by static assessments (Davis *et al.*, 2013).

In this way, he expresses his preference for the use of "intelligence-fair" tests, since they showed strengths based on the performance of activities related to different areas. He defends that if he had to assess someone's intelligences, he would not be satisfied until observing *him solving problems and fashioning problems in a number of settings* (Gardner, 1999:139).

In relation with the MIDAS tests, Gardner (2013) claims that they present two main deficiencies: on the one hand, since they are static assessments, they cannot measure strengths but personal inclinations; and on the other hand, they are self-completed, and therefore, they assume that people know their selves well, which is not always true. Thus, the results of these tests can only highlight their own preferences and the way they see their selves.

These deficiencies can also be applied to all pencil-and-paper tests since they are based on the same interview format and they are self-completed. Gardner stresses the importance of *the distinction between individual's preferences for materials/intelligences and their capacities in these spheres* (Gardner, 1999:81).

5. PRACTICAL APPLICATION OF THE MI THEORY

In this part, I talk about the practical application of the MI theory in the pedagogical field, placing an emphasis on teaching English as a foreign language (EFL). First of all, I consider it necessary to claim that, according to Gardner (1999, 2013), his theory supposes a modest contribution in this domain (foreign language teaching) in comparison to other subjects, such as, history or biology.

As reported by Gardner (2013), the MI theory can be helpful for foreign language teaching in a few ways:

- a) *Youngsters probably learn languages best in different ways* (Gardner, 2013:22). In my opinion, this assertion has little to do with foreign language teaching. Considering that he defends that all of us learn in different ways, it has more to do with learning in general and not in particular.
- b) Motivation is an important part of learning a foreign language, and the MI approach helps teachers to present topics in an attractive form (Gardner, 2013). When we learn something in the way that corresponds better to our preferences and strengths, our motivation increases (Arnold and Fonseca, 2004).
- c) *Every language has certain distinctive features which are non-intuitive to those who do not speak the language* (Gardner, 2013:22), for example the four German cases (nominative, accusative, dative, and genitive). With the help of MI approaches these difficult concepts can be conveyed in varied ways, thus reaching a better understanding.

This theory represents a new perspective in the pedagogical field since it introduces *two principal educational implications: Individualization and Pluralization* (Gardner, 2013:3). With the term individualization, he refers to the uniqueness of human beings, since no two people have the same configuration of intelligences. Thus, *we should teach individuals in ways that they can learn and we should assess them in a way that allows them to show what they have understood and to apply their knowledge and skills in unfamiliar contexts* (Gardner, 2013:3). The term pluralization implies teaching in multiple ways. If the same topic is explained in different ways, this will not only contribute to a better general understanding of it, but it will also reach more students (Gardner, 2013).

5.1. EXERCISES

The eight intelligences are in turn divided into numerous sub-intelligences that are connected with different aspects of language. Thus, if we want to apply this theory to the teaching of EFL, we should take into account more aspects related to the linguistic intelligence. In the following table, taken from Torresan (2010), we can see the connection between the linguistic sub-intelligences and their corresponding aspects of language:

Sub-intelligences of linguistic intelligence	Aspects of language
linguistics	Semantics / lexis
logical	Morpho-syntax
intrapersonal	Emotive dimension of language
interpersonal	pragmatics
naturalistic	Relationship among texts, among languages, among cultures
kinaesthetic	Extra-linguistic dimension of communication
musical	Phonology and prosody
spatial	Contextualization and visualization

Table 3. linguistic sub-intelligences (Torresan, 2010:21)

As we can see, the linguistic intelligence is very complex, and if a person wants to teach a foreign language, he/she has to take into account all these aspects and use different exercises to promote the correct learning of the target language. The following list of activities- based on Torresan (2010), Sánchez (2009), Puchta and Rinvolutri (2005), Christison (2005), and Arnold and Fonseca (2004) - was devised to facilitate the enrichment of linguistic intelligence, through all its sub-intelligences, in the EFL classroom:

- Logical-mathematical: discover the error in logic, clutter exercises, solving riddles and puzzles, writing the topics of texts, writing the missing part of a story, cause-effect activities.
- Intrapersonal: personal associations noted on the margin of the text, activation of previous knowledge during pre-comprehension, describing habitual actions and events that have occurred, editing a self-addressed text.
- Interpersonal: investigation into the author and/or characters' motivations, role playing, describing classmates, rewriting a text from a new point of view, defending a different opinion in a debate.
- Naturalistic: search for analysis and differences (*e.g.* between the text and the image representing it), class discussion about intercultural differences, analyzing false friends, find the odd-word-out, comparing mother tongue phonemes with foreign language phonemes, comparing the accents of different English speakers.
- Bodily-kinaesthetic: associate a movement to a word, mime the title of a film for others to guess, dramatization, promoting the awareness of muscular movements correlated with pronunciation, movement games to re-study the lexicon (pantomime), games like "Simon says".
- Musical: rewriting the text of a song with studied vocabulary, analyzing the rhythm of poems, look for rhythmic patterns in music in English.
- Spatial: multiple choice questionnaires with images, coupling images with the contents of the text, decoding pictograms, lexical games: crossword

with images, bingo (image-word), Pictionary, exercises in “find the difference”.

There are numerous exercises that can be applied in order to teach English with MI approaches, and many of them are known by teachers of foreign languages. Continuing with some examples, I present the following sample exercises taken and adapted from Puchta and Rinvolucris (2005), Christison (2005), and Arnold and Fonseca (2004):

Christison suggests the activity “Syllable match” (see appendix 4) in her book *Multiple Intelligences and Language Learning: A Guidebook of Theory, Activities, Inventories, and Resources* (2005). It is aimed at students with an English level from intermediate to advance and I find it useful to develop vocabulary in a different way. The students work in pairs or in groups (depending on the number of learners), they receive an envelope with small cards with a syllable written on it (one per card). They work together finding polysyllabic words that contain the given syllables. Then, they compare the words they have found with the class, and finally, they choose new polysyllabic words in order to create their own cards and give them to other groups. The game starts again.

Arnold and Fonseca (2004) propose to mime the title of a film for others to guess in order to use the bodily-kinaesthetic intelligence in class. I have played many times the game “Guess the word”, which is a kind of adaptation of it, to reinforce the vocabulary and the oral expression. The teacher asks students to write down in a sheet of paper a word (nobody can see it) from the vocabulary recently worked on with them, and to pass it to the person on their right. Then they have to explain the received word, sometimes using pantomime, and the rest of the class has to guess it. The class can also be divided into groups to create a small “competition”.

“Personal galleries” is another Christison’s activity (see appendix 5). It enhances creativity; the students can choose an artist based on their own preferences, and practice speaking. In my opinion, if the teacher has a large class, he/she can ask students to form groups, for example, four or five students per group, and choose their favourite artist (a singer, actor, writer, etc.). They prepare a short report about the artist, and then present it orally to the rest of the class. They can be asked to prepare a short presentation at home, and give it in class the next week.

The last example is the activity “Language tricks” (see appendix 6) from Puchta and Rinvolutri (2005). It presents five examples of riddles in which students use their linguistic and logical-mathematical intelligence in order to solve them. I like this kind of exercises because they are always pleasant, and I think they encourage a relaxed learning atmosphere.

Many activities can be done in groups and Armstrong suggests some original ideas to form groups in a class in the context of MI theory; two of these ideas are:

Logical-mathematical— “When I give the signal, I want you to raise between one and five fingers. Go! Now keep those fingers raised and find three or four people whose raised fingers combined with yours total an odd number” (...) Naturalist— “Visualize a sheep, a pig, and a cow in a pasture. Suddenly, there is a loud noise and two of them run off. There is only one animal left. Start making the sound of that animal out loud, and then find three or four people who are making the same animal sound!” (Armstrong, 2009:117)

5.2. MI LESSON PLANNING

So far, the importance of the individual differences in the classroom, how the MI of a person can be tested, and numerous examples to apply to the teaching of English as a foreign language have been reviewed. But, how should teachers plan a lesson based on the MI theory? In this section, I present some ideas that might help teachers organize their lessons and curricula.

As Armstrong claims, there is a big difference between a traditional teacher and the teacher of a MI classroom:

In the traditional classroom, the teacher lectures while standing at the front of the classroom, writes on the blackboard, asks students questions about the assigned reading or handouts, and waits while students finish their written work. In the MI classroom, while keeping her educational objective firmly in mind, the teacher

continually shifts her method of presentation from linguistic to spatial to musical and so on, often combining intelligences in creative ways. (Armstrong, 2009:56)

In order to become a MI teacher and reach all students, we have to be able not only to use numerous methods and materials but also to have a good organization. In this way, Armstrong (2009) proposes the following seven-step lesson and curriculum planning:

1. State clearly and concisely the objective and desired outcome: you have to think about what core of information has to be learned, its importance, and the previous knowledge of the students.
2. Ask key MI questions: ask yourself in which way you can incorporate the different intelligences. Armstrong suggests questions such as: *How can I use visual aids, visualization, colour, art, or metaphor?* or *How can I involve the whole body or use hands-on experiences?* (Armstrong, 2009:65)
3. Consider all the techniques and materials you can employ. We have seen the importance of diversity in the MI classroom, if we want to reach all students and obtain better results.
4. Brainstorm: this technique helps you to make a list with all the possible teaching strategies that can be addressed to each intelligence.
5. Choose those activities that correspond better with what you want to teach, the learners, setting, duration of the lesson, etc.
6. Design your lesson and/or curriculum plan with all the information you have.
7. Implement your plan. The original scheme can be changed, if circumstances so require.

As we can see in appendix 7, Armstrong proposes to explain the same topic in eight different ways, but his idea does not agree with Gardner's statement. Gardner (1999) discards attempting to teach all concepts of subjects using all of the intelligences, as he considers it a waste of time and energy. Instead, he recommends choosing those appropriate for each occasion, based on the profiles of the class, the subject, and the age of the students (Torresan, 2010).

It is of utmost importance to know well the profiles of the students, and the subject we want to teach. If we do not master the subject, it would be quite difficult to explain it in various ways (Gardner, 1999, 2013).

6. CONCLUSIONS

Throughout this discussion we have learned that we are different from one another, those concepts we thought we knew are no longer as we understood them, and that we have to look beyond a simple psychometric test (IQ test). The theory of multiple intelligences presents a new concept of intelligence that advocates the diversity of human beings demonstrating that each of us possesses eight different intelligences and an endless amount of capabilities that make us unique.

Within the educational framework, this theory has led in a new way of interpreting education. It confirms that through its use, teachers are able to give each student the opportunity to learn and achieve academic success, so far reserved only for those with high performance on linguistic and logical-mathematical intelligences .

The MI theory presents a new way of teaching based on the understanding of individual differences and encourages teachers to use their creativity by designing numerous ways of instructing. These diverse forms will help them not only to reach more students, but also to promote their learning. Thus, not only are the strengths of students worked on, *i.e.* those faculties in which they show a greater development, but it also allows working and improving those in which they manifest weaknesses.

I think the use of the various activities proposed by this theory may result in a significant improvement in the competence and performance of students of English as a foreign language, because the exercises encourage learning especially through practice and experience, and because they are based on the students' profiles. When the learner feels identified and comfortable with the method in which a subject is taught their motivation is increased, which is essential when learning a new language.

Nevertheless, despite all the advantages of this theory, I think it is very difficult to implement it in its entirety, *i.e.*, creating classrooms purely based on the development

and stimulation of all the intelligences. I think that in regular teaching contexts such as public high school, where teachers have a significant number of students, it would be difficult to keep a detailed monitoring of each student, being its implementation more feasible in small groups. However, I believe it would be a significant progress, and a great benefit to learners, to carry out some methodological and didactic changes that may allow the use of different materials, exercises and techniques, in the EFL classroom.

All in all, we could say that diversity may lead to equality, since paying attention and addressing to those factors that make us different would enable us to build up an equalitarian education in which all students have the same chances of acquiring knowledge.

CONCLUSIONES

A lo largo de este trabajo hemos aprendido que no todos somos iguales, que conceptos que creíamos conocer ya no son como los entendíamos, que tenemos que mirar más allá de un simple test de inteligencia. La teoría de las inteligencias múltiples nos presenta un nuevo concepto de inteligencia que aboga por la diversidad de los seres humanos, nos muestra que cada uno de nosotros poseemos ocho inteligencias diferentes y un sinnúmero de capacidades que nos hacen únicos.

Dentro del marco educativo esta teoría ha supuesto una nueva manera de interpretar la educación. Nos muestra que a través de su uso, los docentes son capaces de darle a cada uno de los estudiantes la oportunidad de aprender y de alcanzar el éxito académico, hasta ahora reservado solo a aquellos con un alto rendimiento en las inteligencias lingüística y lógico-matemática.

Esta teoría nos presenta una nueva forma de enseñar basada en el entendimiento de las diferencias individuales y anima a los docentes a hacer uso de su creatividad diseñando numerosas formas de enseñar. Dichas formas lo ayudarán no solo a llegar a más alumnos sino que también a propiciar su aprendizaje. De esta manera, no solo se trabajan los puntos fuertes de los estudiantes, es decir, aquellas facultades en las que

muestran un mayor desarrollo, sino que también permite trabajar y mejorar aquellas en las que manifiesten flaquezas.

Creo que el uso de las distintas actividades propuestas por esta teoría puede resultar en una importante mejora del nivel de idioma de los alumnos de inglés como lengua extranjera, puesto que los ejercicios fomentan el aprendizaje sobre todo por medio de la práctica y la experiencia, además de que se basan en el perfil de cada alumno. Cuando el alumno se siente identificado y cómodo con el método en el que se imparte un tema, su motivación se ve incrementada, lo que es fundamental a la hora de aprender un idioma.

A pesar de todas las ventajas que ofrece esta teoría, considero que es muy difícil de implementar en su totalidad, es decir, crear aulas basadas puramente en el desarrollo y estimulación de todas las inteligencias. Creo que en contextos regulares de enseñanza, como por ejemplo la escuela secundaria pública, los profesores tienen una cantidad importante de alumnos, lo que dificulta poder llevar un seguimiento detallado de cada uno de ellos, siendo más viable su implementación en grupos pequeños. De todas formas, creo que supondría un avance considerable, y un gran beneficio para los alumnos, llevar a cabo algunos cambios metodológicos y didácticos que permitan hacer uso de diferentes materiales, ejercicios y técnicas.

En este caso, podríamos afirmar que en la diversidad está la igualdad, puesto que prestando atención y dirigiéndonos a aquellos factores que nos hacen diferentes, seremos capaces de construir una educación igualitaria en la que todos los estudiantes tengan las mismas posibilidades de aprender.

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Appendix 1

MIDAS™ Sample Questions

MUSICAL

1. As a child, did you have a strong liking for music or music classes?

A= A little.

B= Sometimes.

C= Usually.

D= Often.

E= All the time.

F= I don't know.

2. Did you ever learn to play an instrument?

A= No.

B= A little.

C= Fair.

D= Good.

E= Excellent.

F= I don't know.

3. Can you sing 'in tune'?

A= A little bit.

B= Fair.

C= Well.

D= Very well.

E= Excellent.

F= I don't know.

4. Do you have a good voice for singing with other people in harmony?

A= A little bit.

B= Fair.

C= Good.

D= Very good.

E= Excellent.

F= I don't know.

5. As an adult, did you ever play an instrument, play with a band or sing with a group?

A= Never.

B= Every once in a while.

C= Sometimes.

D= Often.

E= Almost all of the time.

F= I don't know. Does not apply.

6. Do you spend a lot of time listening to music?

A= Every once in a while.

B= Sometimes.

C= Often.

D= Almost all the time.

E= All the time.

F= I don't know.

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 (environmental) issues are important to me
- _____ Hiking and camping are enjoyable activities
- _____ I enjoy working on a garden
- _____ I believe preserving (saving/keeping) our National Parks is important
- _____ Putting things in hierarchies (system of levels) 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 spend a great deal of time outdoors

Total number of 1's
used in 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've always been interested in playing an instrument
- _____ The cadence (rhythm/speed) of poetry intrigues me
- _____ I remember things by putting them in a rhyme
- _____ Concentration is difficult while listening to a radio or television
- _____ I enjoy many kinds of music
- _____ Musicals are more interesting than dramatic plays
- _____ Remembering song lyrics is easy for me

Total number of 1's
used in Section 2:

Section 3

- _____ I keep my things neat and orderly
- _____ Step-by-step directions are a big help
- _____ Solving problems comes easily to me
- _____ I get easily frustrated with disorganized people
- _____ I can complete calculations quickly in my head
- _____ Puzzles requiring reasoning are fun
- _____ I can't begin an assignment until all my questions are answered
- _____ Structure helps me be successful
- _____ I find working on a computer spreadsheet or database rewarding
- _____ Things have to make sense to me or I am dissatisfied

Total number of 1's
used in 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 masterpieces
- _____ Relaxation and meditation exercises are rewarding
- _____ I like visiting breathtaking sites in nature
- _____ I enjoy reading ancient and modern philosophers
- _____ Learning new things is easier when I understand their value
- _____ I wonder if there are other forms of intelligent life in the universe
- _____ Studying history and ancient culture helps give me perspective

Total number of 1's
used in Section 4:

Section 5

- I learn best interacting with others
- "The more the merrier"
- Study groups are very productive for me
- I enjoy chat rooms
- Participating in politics is important
- Television and radio talk shows are enjoyable
- I am a "team player"
- I dislike working alone
- Clubs and extracurricular activities are fun
- I pay attention to social issues and causes

Total number of 1's
used in Section 5:

Section 6

- I enjoy making things with my hands
- Sitting still for long periods of time is difficult for me
- I enjoy outdoor games and sports
- I value non-verbal communication such as sign language
- A fit body is important for a fit mind
- Arts and crafts are enjoyable pastimes
- Expression through dance is beautiful
- I like working with tools
- I live an active lifestyle
- I learn by doing

Total number of 1's
used in Section 6:

Section 7

- I enjoy reading all kinds of materials
- Taking notes helps me remember and understand
- I faithfully (routinely/always) contact friends through letters and/or e-mail
- It is easy for me to explain my ideas to others
- I keep a journal
- Word puzzles like crosswords and jumbles are fun
- I write for pleasure
- I enjoy playing with words like puns, anagrams and spoonerisms
- Foreign languages interest me
- Debates and public speaking are activities I like to participate in

Total number of 1's
used in Section 7:

Section 8

- 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
- My attitude effects how I learn
- Social justice issues concern 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 will give 100% effort to it
- I like to be involved in causes that help others
- I am willing to protest or sign a petition to right a wrong

Total number of 1's
used in Section 8:

Section 9

- I can imagine ideas in my mind
- Rearranging a room is fun for me
- I enjoy creating art using varied media
- I remember well using graphic organizers
- Performance art can be very gratifying
- Spreadsheets are great for making charts, graphs and tables
- Three-dimensional puzzles bring me much enjoyment
- Music videos are very stimulating
- I can recall things in mental pictures
- I am good at reading maps, atlases and blueprints

Total number of 1's
used in Section 9:

Part II

Now carry forward your total from each section and multiply by 10 below:

Section	# of 1's	Multiply	Multiplied Score
1		x 10	
2		x 10	
3		x 10	
4		x 10	
5		x 10	
6		x 10	
7		x 10	
8		x 10	
9		x 10	

Part III

Now plot your scores on the **bar graph** provided... colour in the blocks up to the multiplied score.

100									
90									
80									
70									
60									
50									
40									
30									
20									
10									
0	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8	Section 9

Type of STRENGTH	Naturalistic	Musical	Logical	Existential	Interpersonal	Kinesthetic	Verbal	Intrapersonal	Visual
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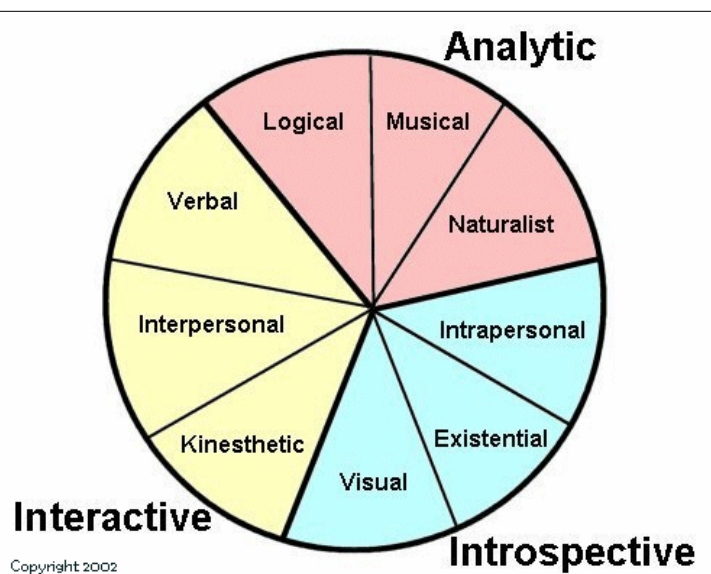
Look at the 9 sections above

What are your top 3 types of learning styles?

Bottom 3 types of learning styles?

Do you see a pattern in the group (analytic, interactive, introspective) that they fit into?

What do you think your learning style tells you about the career you might get into?



ANALYTICAL

These three intelligences as analytic because even though they can have a social or introspective component to them, they most fundamentally promote the process of analyzing and incorporating data into existing situations. The analytical intelligences are by nature heuristic (speculative formulation) processes.

Logical (Mathematical)

Children who display an aptitude for numbers, reasoning and problem solving. This is the other half of the children who typically do well in traditional classrooms where teaching is logically sequenced and students are asked to conform.

Musical (Rhythmic)

Children who learn well through songs, patterns, rhythms, instruments and musical expression. It is easy to overlook children with this intelligence in traditional education.

Naturalist

Children who love the outdoors, animals, field trips. More than this, though, these students love to pick up on subtle differences in meanings. The traditional classroom has not been accommodating to these children.

INTROSPECTIVE

These three intelligences as introspective because they require a looking inward by the learner, an emotive connection to their own experiences and beliefs in order to make sense of new learning. The introspective intelligences are by nature affective processes.

Intrapersonal

Children who are especially in touch with their own feelings, values and ideas. They may tend to be more reserved, but they are actually quite intuitive about what they learn and how it relates to themselves.

Existentialist

Children who learn in the context of where humankind stands in the "big picture" of existence. They ask "Why are we here?" and "What is our role in the world?" This intelligence is seen in the discipline of philosophy.

Visual (Spatial)

Children who learn best visually and organizing things spatially. They like to see what you are talking about in order to understand. They enjoy charts, graphs, maps, tables, illustrations, art, puzzles, and costumes - anything eye catching.

INTERACTIVE

These three intelligences as interactive because even though they can be stimulated through passive activity they typically invite and encourage interaction to achieve understanding. Even if a student completes a task individually, s/he must consider others through the way s/he writes, creates, constructs and makes conclusions. The interactive intelligences are by nature social processes.

Verbal (Linguistic... to do with words)

Children who demonstrate strength in the language arts: speaking, writing, reading, listening. These students have always been successful in traditional classrooms because their intelligence lends itself to traditional teaching.

Kinesthetic (Bodily)

Children who experience learning best through activity: games, movement, hands-on tasks, building. These children were often labeled "overly active" in traditional classrooms where they were told to sit and be still!

Interpersonal

Children who are noticeably people oriented and outgoing, and do their learning cooperatively in groups or with a partner. These children may have typically been identified as "talkative" or "too concerned about being social" in a traditional setting.

Remember:

- Everyone has all the intelligences!
- You can strengthen intelligence!
- This inventory is meant as a snapshot in time – it can change!
- M.I. is meant to empower, not label people!

Appendix 3

TEST DE INTELIGENCIAS MÚLTIPLES

(H. GARDNER)

INSTRUCCIONES:

Lee cada una de las afirmaciones. Si te parece que la afirmación es cierta porque expresa características **fuertes** en tu persona marca la V. Si no lo es, marca la F.

- | | V | F |
|---|--------------------------|--------------------------|
| 1. Prefiero hacer un mapa que explicarle a alguien cómo tiene que llegar. | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Si estoy enfadado/a generalmente sé exactamente por qué. | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Sé tocar (o antes sabía tocar) un instrumento musical. | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Asocio la música con mis estados de ánimo. | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Puedo sumar y multiplicar mentalmente con mucha rapidez. | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Puedo ayudar a un amigo a manejar sus sentimientos porque yo lo pude hacer antes en relación a sentimientos parecidos. | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Me gusta trabajar con calculadoras y computadores. | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Aprendo rápido a bailar un ritmo nuevo. | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. No me es difícil decir lo que pienso durante una discusión o debate. | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Disfruto de una buena charla o discurso. | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Siempre distingo el norte del sur, esté donde esté. | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Me gusta reunir grupos de personas en una fiesta o en un evento especial. | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. La vida me parece vacía sin música. | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Siempre entiendo los gráficos que vienen en las instrucciones de equipos o instrumentos. | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. Me gusta hacer rompecabezas y entretenerme con juegos electrónicos. | <input type="checkbox"/> | <input type="checkbox"/> |

16. Me fue fácil aprender a montar en bicicleta o en patines.
17. Me enfado cuando oigo una discusión o una afirmación que parece ilógica.
18. Doy capaz de convencer a otros que sigan mis planes.
19. Tengo buen sentido del equilibrio y coordinación.
20. Con frecuencia veo configuraciones y relaciones entre números con más rapidez y facilidad que otros.
21. Me gusta construir maquetas o hacer esculturas.
22. Tengo agudeza para encontrar el significado de las palabras.
23. Puedo mirar un objeto de una manera y con la misma facilidad verlo de otra manera.
24. Con frecuencia hago la conexión entre una pieza de música y algún evento de mi vida.
25. Me gusta trabajar con números y figuras.
26. Me gusta sentarme silenciosamente y reflexionar sobre mis sentimientos íntimos.
27. Con solo mirar la forma de construcciones y estructuras me siento a gusto.
28. Me gusta tararear, silbar y cantar en la ducha o cuando estoy solo/a.
29. Soy bueno/a para los deportes (atletismo, natación, fútbol, etc.)
30. Me gusta escribir cartas o correos electrónicos detallados a mis amigos.
31. Generalmente me doy cuenta de la expresión que tengo en la cara.
32. Me doy cuenta de las expresiones en la cara de otras personas.
33. Me mantengo “en contacto” con mis estados de ánimo. No me cuesta identificarlos.

34. Me doy cuenta de los estados de ánimo de otros.

35. Me doy cuenta bastante bien de lo que los otros piensan de mí.

Ahora revisa las preguntas en el orden dado. Si marcaste V, asigna a la pregunta 1 punto. Si marcaste F, asigna a la pregunta 0. Suma el resultado según las siguientes filas:

A) 9-10-17-22-30=

B) 5-7-15-20-25=

C) 1-11-14-23-27=

D) 8-16-19-21-29=

E) 3-4-23-24-28=

F) 2-6-26-31-33=

G) 12-18-32-34-35=

RESULTADO:

En aquellas filas en las que el resultado sea 4, significa que tienes una habilidad marcada. Si el resultado es 5 o mayor de 5 significa que en esa habilidad eres sobresaliente.

A continuación se indican las inteligencias a las que corresponden cada fila anterior:

A) Inteligencia Lingüístico-verbal

E) Inteligencia Musical

B) Inteligencia Lógico-matemática

F) Inteligencia Intrapersonal

C) Inteligencia Visual-espacial

G) Inteligencia Interpersonal

D) Inteligencia Cinético-corporal



6.10 Syllable Match

Age Group
High school to adult

Language Level
Intermediate to advanced

INTELLIGENCES DEVELOPED

Interpersonal

Bodily/kinesthetic

Linguistic

Visual/spatial

OBJECTIVES

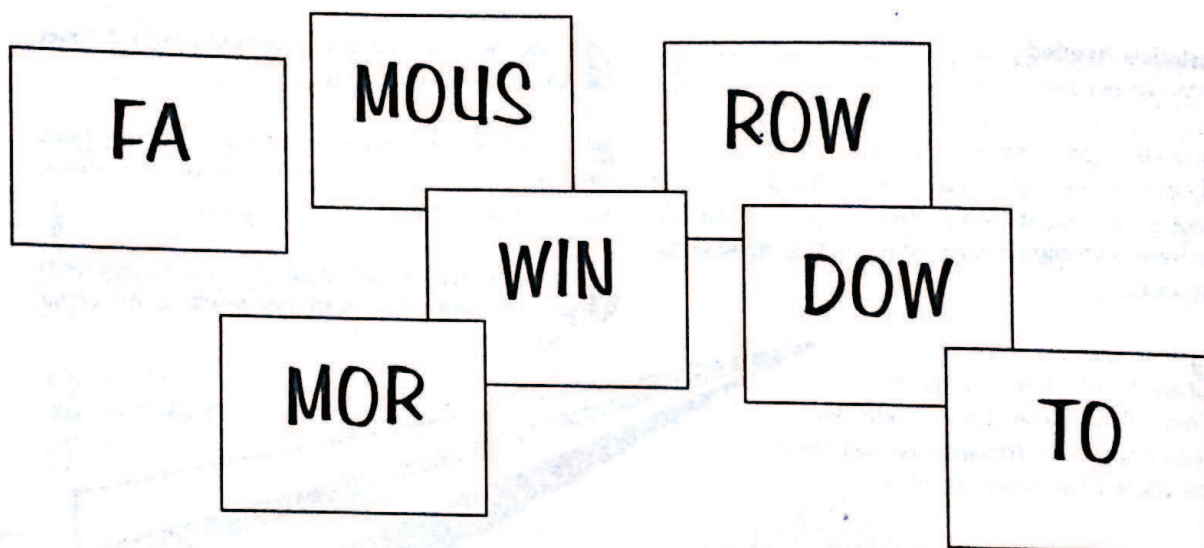
To reinforce language development through movement

To recognize and work with different parts of a word

To develop vocabulary

To help students see patterns in words

To give students an opportunity to work together



Materials Needed

- 3" x 5" cards
- Envelopes
- Board or flipchart

1 Write down a list of polysyllabic words. Write the syllables of each word on separate 3" x 5" cards (one syllable per card). Divide the syllable cards into envelopes, one per each pair of students.

2 Ask students to find a partner. Give each pair an envelope.

3 Partners work together to write down words that contain the syllables in their envelope. Syllables may be repeated in different combinations, but all syllables must be used at least once.

4 Ask the first pair finished to write their words on the board. Then ask the other pairs to compare their words and provide feedback.

5 Give several blank 3" x 5" cards and an empty envelope to each pair of students. Ask students to create four syllable cards for their own polysyllabic combination words and place the cards in the envelope.

6 Each pair numbers their envelope and exchanges it with another pair of students. Then repeat steps 2-3.



6.22 Personal Galleries

Age Group
High school to adult

Language Level
Intermediate to advanced

INTELLIGENCES DEVELOPED

Intrapersonal
Interpersonal
Linguistic
Visual/spatial

OBJECTIVES

To learn more about art and artists
To develop a better understanding of personal taste in art
To develop an awareness of and value for individual differences
To give students an opportunity to work together

Materials Needed

- Books on various artists
- Internet access (optional but helpful)

1 Explain to students that they are going to create a class art gallery. Ask each student to select a favorite artist for the gallery.

2 Each student finds examples of the selected artist's work and brings copies to class. (The Internet is a great resource for this!)

3 Students prepare a short report on the artist and artwork. The report should include the following:

- Artist's name
- Medium used
- Most significant works
- Where and when the artist was born
- Something about the artist's family
- Why the student likes the artist
- If the artist is still living

4 Each student gives an oral report on his/her artist of choice.

5 Create a bulletin board "showing off" the various pieces. You may also post the selections on the wall for students to view independently.

6 Follow up with a large group discussion about what students learned, liked best, and were most surprised by.

Language tricks

Language focus	Phrasing, intonation, assimilation, punctuation and syntax
Proposed MI focus	Linguistic and logical-mathematical
Level	Intermediate to advanced
Time	30–40 minutes
Preparation	None.

in class

- 1 Get the students' attention and then tell them this riddle:

There were twenty six sheep in field. One died. How many left?

(When you say it, be sure to run "six" and "sheep" together, so that the sentence could equally well be heard as: "There were twenty sick sheep in a field.")

Be ready to accept all thoughtful answers – write them up on the board. In the past, students have given us these answers:

- 25 walked out of the field – one was dead
- there were 25 left alive
- there were 26 left – the dead one was still there
- one dyed – so there were 26 sheep, but one was a different colour.

If your students find it hard to see the second meaning of the sentence, give them a clue. Tell them another good answer is 19. Ask them to work out how this can be so.

- 2 Write this word string on the board. Ask the students to punctuate it so that it makes good sense:

I think that that that that that student has written is wrong.

Ask them to work with a partner to find the solution.

(Solution: *I think that that "that" that that student wrote is wrong.* When you read the sentence, pronounce the first and the fourth "that" with a short schwa, emphasize the third, and pause after it.)

- 3 Write this word string on the board, and ask the students to punctuate it and to add one word:

I think that the Fish and and and Chips are too apart on this sign.

They work in pairs.

(Solution: *I think that the "Fish" and "and" and "Chips" are too far apart on this sign.*)

- 4 Give the student this string and ask them what order the numbers are in:

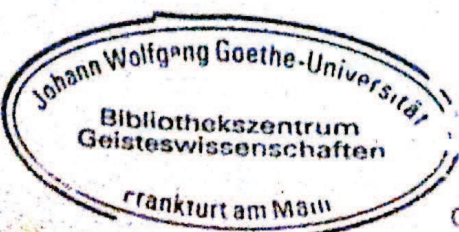
8 5 4 9 1 7 6 10 3 2

(Solution: alphabetical order of the words for the numbers.)

- 5 Finally give the students this string to punctuate for homework:

Peter where Mary had had had had had had had had had had the teacher's approval.

(Solution: This was a language test: *Peter, where Mary had had "had had", had had "had". "Had had" had the teacher's approval.*)



Appendix 7

5.5

Sample Eight-Day MI Lesson Plan

Level: 4th grade

Subject: Language arts

Objective: To understand the function of, and differences between, four punctuation marks: the question mark, period, comma, and exclamation point.

Monday (*Linguistic Intelligence*): Students listen to a verbal explanation of the function of punctuation marks, read sentences having examples of each mark, and complete a worksheet requiring them to fill in their own marks.

Tuesday (*Spatial Intelligence*): The teacher draws on the board graphic images that correspond in meaning and form to each mark. Question mark = a hook, since questions “hook” us into requiring an answer; exclamation point = a staff that you pound on the floor when you want to exclaim something; a period = a point, since you’ve just made your point, plain and simple; and a comma = a brake pedal, since it requires you to temporarily stop in the middle of a sentence. Students can make up their own images and then place them as pictures in sentences (with different colors assigned to different marks).

Wednesday (*Bodily-Kinesthetic Intelligence*): The teacher asks students to use their bodies to form the shapes of the different punctuation marks as she reads sentences requiring these marks (e.g., a curved body posture for question mark).

Thursday (*Musical Intelligence*): Students make up different sounds for the punctuation marks (as Victor Borge did in his comedy routines) and then make these sounds in unison as different students read sample sentences requiring the use of the four marks.

Friday (*Logical-Mathematical Intelligence*): Students form groups of four to six. Each group has a box divided into four compartments, each of which is assigned a punctuation mark. The groups sort sentence stubs with missing punctuation marks (one per sentence stub) into the four compartments according to the punctuation needed.

Monday (*Interpersonal Intelligence*): Students form groups of four to six. Each student has four cards, and each card has a different punctuation mark written on it. The teacher places a sentence requiring a given punctuation mark on the overhead projector. As soon as students see the sentence, they toss the relevant card in the center of their group’s circle. The first student in the group to throw in a correct card gets five points, the second four, and so on.

Tuesday (*Intrapersonal Intelligence*): Students are asked to create their own sentences using each of the punctuation marks; the sentences should relate to their personal lives (e.g., a question they’d like somebody to answer, a statement they feel strongly about, a fact they know that they’d like others to know about).

Wednesday (*Naturalist Intelligence*): Students are asked to assign an animal and its respective sound to each of the punctuation marks (e.g., a period might be a dog barking; a comma, a duck quacking; a question mark, a cat meowing; and an exclamation point, a lion roaring). As the teacher (or a student) reads a passage, the students make the animal sounds corresponding to each punctuation mark encountered.