

The Concept of Intelligence through History and its Application in Foreign Language Teaching

A Historical Overview about the Multiple
Intelligence Theory

ROSA MARÍA PALOMARES LÓPEZ

Editorial Edita

© Rosa María Palomares López

No se permite la reproducción total o parcial de este libro, ni su incorporación a un sistema informático, ni su transmisión en cualquier forma o por cualquier medio, sea éste electrónico, mecánico, por fotocopia, por grabación u otros métodos, sin el permiso previo y por escrito del editor. La infracción de los derechos mencionados puede ser constitutiva de delito contra la propiedad intelectual (Art. 270 y siguientes del Código Penal).

© Editorial EDITA, 2019.
Primera edición: Septiembre 2019.

ISBN: 978-84-18081-02-6
Depósito legal: BA-0566-2019

Impreso en España

Abstract

What is Intelligence? Through a series of definitions that go from Cicerone's to Escamilla's (2014), the word *Intelligence* has been defined a large extend and many scholars and philosophers have tried to describe the processes by which people are intelligent. It was Gardner (1983) who revolutionised this field with its theory about multiple intelligences. The Educational field is taking advantage of this research to use it in lessons and to cope with students' learning needs. This book is crucial for those teachers who want to improve their lessons and to take into account how students learn in a different way.

Key words: Multiple Intelligences theory, definition, Gardner, Escamilla, dynamics and techniques, learning needs.

Resumen

¿Qué es la inteligencia? A través de una serie de definiciones que van desde la de Cicerón hasta la de Escamilla (2014), la palabra *Inteligencia* se ha definido en gran medida y estudiosos y filósofos han intentado describir estos procesos por los cuales la gente es inteligente. Gardner (1983) revolucionó este campo con su teoría sobre inteligencias múltiples. El sector de la educación se beneficia de estos estudios para usarlos en las clases y atender las necesidades educativas de los alumnos. Este libro es crucial para aquellos profesores que quieren mejorar sus clases y tener en cuenta la diversidad de aprendizaje del alumnado.

Palabras clave: Teoría de las Inteligencias Múltiples, definición, Gardner, Escamilla, dinámicas y técnicas, necesidades de aprendizaje.

TABLE OF CONTENTS

1. Introduction.....	1
2. Historical Overview	2
3. Multiple Intelligence Theory: Main aspects, criteria to validate the Intelligences, types and basic features	13
3.1 Main Aspects.....	13
3.2 Criteria to validate Intelligences	16
3.2.1 <i>Biological Science</i>	18
3.2.2 <i>Logical analysis</i>	19
3.2.3 <i>Developmental Psychology</i>	20
3.2.4 <i>Traditional Psychology and Psychometrics</i>	21
3.3 Multiple Intelligence Theory	22
3.3.1 <i>Verbal- Linguistic Intelligence</i>	23
3.3.2 <i>Logical- Mathematic Intelligence</i>	25
3.3.3 <i>Musical Intelligence</i>	27
3.3.4 <i>Visual-Spatial Intelligence</i>	28
3.3.5 <i>Corporal-kinaesthetic Intelligence</i>	30
3.3.6 <i>Naturalistic Intelligence</i>	31
3.3.7 <i>Interpersonal Intelligence</i>	33
3.3.8 <i>Intrapersonal Intelligence</i>	35

4. Multiple Intelligence Theory apply in Activities, Dinamics and Techniques in lessons.....	37
4.1 Associative Analysis technique.....	38
4.2 Interviews.	39
4.3 The Story Board technique.	40
4.4 Consequences and Results.....	41
4.5 Dice Games.....	42
4.6 Dialogues.	43
4.7 Considering all the factors procedure.	44
5. Conclusion.....	45
6. References	46

1. Introduction

How intelligences are we? Is there just one way to be intelligent or are there others? Is the well-known Australian urban graffiti artist, Nychos as intelligent as the molecular biologist Cynthia Kenyon who could have the answer to live forever? To answer these questions a comprehensible picture of how the concept of Intelligence has changed over the years is portrayed to serve as a basis on understanding of the current concept of Intelligence and how, Howard Gardner has used this historical development of Intelligence to start to develop his Multiple Intelligence Theory (MI). Therefore, there is a detailed description of Gardner's Multiple Intelligences focusing on some general aspects, the criteria to qualify ability as Intelligence and a summary of the eight types of Intelligences. Thanks to these studies, many authors have developed dynamics and techniques using the MI in Foreign Language Teaching. Some of them have been explained in the final section of this book to see instances of how this theory can be applied in lessons.

2. Historical Overview

Research into Intelligence has a long history and there is large volume of published studies describing this concept. Besides, these studies have helpfully helped to give answer to the hotly debated issues in the current educational situation concerns the teaching of foreign language in Secondary. An overview of the most important authors who have studied this concept has been done in this book.

However, previously to this matter, we have to consider one issue raised from the Educative System that must be tackled. Intelligence has always been related to success and promotion in education. More intelligent a person is, easier will be to pass all her / his exams. However, is every single student intelligent as the same way or are there different grades of intelligence? The current concern was explained by Robinson et al. (2009),

“el sistema educativo sigue basándose en las estructuras metodológicas heredadas de siglos anteriores” (Robinson et al. 2009, pg.45)

Gatto (2000), as Robinson et al. (2009), affirmed that there is a deep educative crisis produced by traditional teaching. He pointed out that 21st century teachers continue giving the same contents in the same way their teachers used to teach them without paying attention to the fact that students have changed notably from one century to another. Besides, Gatto (2000) complained that students are thought to have all the same features disregarding their personal talents.

Despite the fact that the world and society have changed remarkably since the last century, the Educative System still remains the same as 50 years ago. And although students have also changed being quite different from 20th century students, the methodological strategies applied in lessons are the same, too. Teachers and students have taken different routes without listening to each other and learners must be listened to because they are demanding a new way to be taught.

On the one hand, people are still thinking that education refers to the acquisition of practical and theoretical knowledge without considering other factors such as talent or creativity, which have been overlooked, dividing

students between those who are smart and the ones who are not. This problem lies in our conception of Intelligence. People consider a person intelligent when he/she is able to answer a standardized test correctly disregarding other crucial elements. According to Robinson et al. (2009), this thought is dangerous because a lot of students with other types of abilities could feel abandoned by the Educative System.

In line with Robinson et al. (2009), the key to improve and transform education is not to standardise education but customize it for each student discovering their individual talents. And this is what this research has tried to do: to pay attention to students' individual abilities to develop their English skills.

Fortunately, thanks to the new findings in Neuroscience, the traditional parameters to measure how intelligent a person is are obsolete and there are many authors (Escamilla, (2014), Antunes (2000) or Amstrong (2008) applying new methodological strategies to meet our students' needs.

Over the years many definitions have been provided to understand the concept of Intelligence. Those definitions

originate with Cicerone, who was the first to coin it, to the latest one, for instance, that found in the English Oxford dictionary¹. Cicerone's definition related "Intelligence" to the intellectual ability. To understand better that word, we must focus on its etymology.

The concept of "**Intelligence**" can be traced back to Late Middle English. This word came to English via Old French and in turns, it came to French via Latin. The Latin word was "**Intelligentia**" and it came from "**Intelligere**" meaning "understand". "**Intelligere**" is formed by **inter-** (between) and **legere** (choose). Therefore, etymologically speaking, this concept refers to a person who knows how to choose the best option among several.

Reviewing the different definitions given by diverse authors over the years, special mention should be paid to Binet and Simons' (1905). They defined Intelligence as "the faculty to adapt oneself to circumstances", (Binet and Simons, 1905, pg.13). They were the forerunners of the Intelligence Quotient (IQ) and coined the word "Mental Age" (Binet and Simons, 1905, pg.16).

¹ <https://en.oxforddictionaries.com/definition/intelligence>

Terman (1916) developed the idea of IQ in order to measure Intelligence. For him, Intelligence is “the ability to develop abstract thoughts”. (Terman, 1915, pg. 21)

Another important definition is Clapadere’s, (1932): “The ability to solve new problems through thinking” (Clapadere, 1932, pg. 11).

Thurstone (1938) pointed out that Intelligence “is the capacity to make impulses focal at their early, unfinished stage of formation[...] the capacity for abstraction, which is an inhibitory process”. (Thurstone, 1938, pg.9).

Piaget (1954) and his studies revolutionised the educative world. In his words,

Intelligence is assimilation to the extent that it incorporates all the given data of experience within its framework . . . There can be no doubt either, that mental life is also accommodation to the environment. Assimilation can never be pure because by incorporating new elements into its earlier schemata the intelligence constantly

modifies the latter in order to adjust them to new elements. (Piaget, 1954, pg. 45)

From the study of these definitions, an idea emerges: a broader viewpoint of the concept of Intelligence is needed that covers many more aspects beyond the ones stated. We need to change the idea that the Intelligence only refers to the academic ability to learn and remember contents to perform a test correctly or to think abstractly. If we want to go further than the traditional definition of Intelligence, we need to bear in mind other theories that have come to light over the past three decades.

Gardner is a developmental psychologist who wrote an innovative book in 1983 called *Frames of Mind* where he explained his theory affirming that people have eight different types of intelligences: **Multiple Intelligence Theory**. In his words, “an intelligence is the ability to solve problems, or to create products, that are valued within one or more cultural settings” (Gardner, 1983, pg. 10). He reacted against the traditional concept of intelligence for being too narrow and he believed that the measure of IQ missed out other Intelligences apart from the Verbal-Linguistic or the Logical-Mathematical one. His theory has

had an impact in the field of Education and it has helped teachers explore new ways of teaching.

In 1985, two years after the appearance of *Frames of Mind*, Robert Sternberg published his book, *Beyond IQ: a triarchic Theory of Human Intelligence*. He defined Intelligences as "(a) mental activity directed toward purposive adaptation to, selection and shaping of, real-world environments relevant to one's life" (Sternberg, 1985, pg. 45).

Some key points of his studies should be highlighted. First of all, he showed that the Intelligence was only partly influenced by genetics and covered much more than what was measured by tests. In addition, he claimed that only through thinking strategies, students would be more intelligent. But the core of his studies focused on his Triarchic Theory. He identified three types of Intelligences: **Componential-Analytical**, rather like the traditional IQ, **Experiential-Synthetic**, sometimes called Creative, and third **Practical-Contextual**, which has a cultural link because of its relation to the context.

Analytical Intelligence uses the academic knowledge to solve problems and to perform tests. Thanks to it, we think abstractly and process information effectively.

Synthetic Intelligence refers to the ability to face new situations and find original solutions to problems. He split this Intelligence into two components: Novelty and Automation.

- **Novelty** refers to a situation that people have never experienced before. People who manage a novel situation can find new ways of solving problems that the majority of people would ignore.
- **Automation** refers to a process that has been performed multiple times and can now be done with little or no extra thought.

However, being skilled in one component does not ensure that people are skilled in the other.

Practical-Contextual Intelligence is the ability to adapt oneself to changing environmental conditions and shape environment according to our strengths and weaknesses. There are three processes by which people adapt themselves to the environment.

- **Adaptation:** people change themselves to be adapted to the environment. The typical example is when it is cold and rainy outside, people wear coats and umbrellas.
- **Shaping** refers to the process of changing the environment to meet one's needs. An example will be when the teacher asks his/her students to raise their hands to talk in turns in order to avoid disruption.
- **Selection:** people choose a better environment among several because it meets and satisfies their goals. The best instance to understand this component is when immigrants leave their homelands to find a promising future abroad.

According to Sternberg (1985), Education based on his Triarchic Theory shows better results and it is more effective than the traditional one. So, here we have another important contribution to the new concept of Intelligence.

If we compare both theories, Gardner's (1983) and Sternberg's (1985), they report some similarities. First of all, they understood the concept of Intelligence in a broader way rather than the traditional definitions and

secondly, they said that the context was an essential part to develop the Intelligence.

However, there are some discrepancies. While Sternberg (1985) focused on what the Intelligence was, Gardner aimed his attention on how people use their intelligences in different ways. In addition, we can consider Sternberg's three intelligences as components of each of Gardner's Multiple Intelligences.

Moving to another theory that covers some aspects of the word Intelligence, Goleman's (2003) conception of Emotional Intelligence deserve our attention. He popularised this term in his book *Emotional Intelligence* in 1996. However the first formulation of this concept was done by Salovey and Mayer (1990). They defined this intelligence as,

La capacidad para supervisar los sentimientos y las emociones de uno/a mismo/a y de los demás, de discriminar entre ellos y de usar esta información para la orientación de la acción y el pensamiento propio. (Salovey and Mayer, 1990, pg.189)

In his book, Goleman defined the term Intelligence and explained the reasons by which handling emotions is the key for personal and professional success rather than good results obtained in the IQ. Goleman's notion of Intelligence is "*la capacidad de reconocer nuestros propios sentimientos y los de los demás, de motivarnos y de manejar adecuadamente las relaciones*".(Goleman, 2003, pg.89)

Later on, Goleman revised his definition and reformulated it as: "*capacidad para reconocer nuestros propios sentimientos y los de los demás, para motivarse y gestionar la emocionalidad en nosotros mismos y en las relaciones interpersonales*" (Goleman, 2003, pg.98).

Goleman's definition of Emotional Intelligence was quite close to Mora's (2013) words: "*nada se puede llegar a conocer más que aquello que se ama, aquello que nos dice algo*" (Mora, 2013, pg.67). This leads us to conclude that the only way for students to improve their learning process is to develop their Emotional Competence. Mora (2013, pg.27) says "*está claro que para que un alumno preste atención en clase no vale exigirle sin más que lo haga (...) hay que encender primero la emoción*" This is

quite related to our research, employing a new methodology based on MI, students will be more motivated and eager to perform the different activities and their learning process will be enhanced.

3. Multiple Intelligence Theory: Main aspects, criteria to validate the Intelligences, types and basic features

3.1 Main Aspects

Gardner se ha revelado contra una concepción monolítica y estable de la inteligencia y ha descubierto solo dos alternativas posibles: o continuar con las ideas tradicionales de la inteligencia y de cómo debe ser medida o buscar una hoja nueva de ruta para interpretar y desarrollar lo que entendemos por este constructo. Y eligió la segunda. (Pérez & Beltrán, 2006, pg.147)

The theory of the MI was firstly developed by Gardner between the 70's and 80's and he stated that people have eight different and relatively independent intelligences which make the human being intelligent in

different ways. In an interview made by Guerrero (2004), he referred to intelligence as

the neuropsychological potential which is singular and unique in each persona determined by the environment and the brain qualities of each individual. This potential help us to resolve problems or design product which are worthy in a specific environment. Nowadays we know that the intelligence can be presented in different ways. (Gardner, 2004, pg. 9)

Gardner (1983) pointed out that his theory

challenge an educational system that assumes that everyone can learn the same materials in the same way and that a uniform, universal measure suffices to test student learning. Indeed, as currently constituted, our educational system is heavily biased toward linguistic modes of instruction and assessment and, to a somewhat lesser degree, toward logical-quantitative modes as well.(Gardner, 1983, pg. 23)

Gardner argues that,

a contrasting set of assumptions is more likely to be educationally effective. Students learn in ways that are identifiably distinctive. The broad spectrum of students - and perhaps the society as a whole - would be better served if disciplines could be presented in a numbers of ways and learning could be assessed through a variety of means. (Gardner, 2012b, pg.45)

To understand better this theory, we must understand some vital contributions provided by several authors that have been working in this field such as Armstrong (2008), Ander-Egg (2006), Antunes (2000), Gardner (1994, 1995b, 1998, 2004, 2012a , 2012b), Ferrándiz (2005), Perez and Beltrán (2006) Prieto and Ferrándiz (2001) in Escamilla (2014). They agree with the idea that this MI theory provides us with a general framework of the structure and function of the mind implying that all human beings have a basic, innate pack of intelligences. Not all of them are developed in the same way in each individual. People show different stages of development depending

on their contexts, their experiences, their biological and neurological features or their evolutionary psychology.

According to these authors, this theory proves the existence of eight neurological autonomous Intelligences relatively independent from each other but closely connected once people applied them. In order to qualify an ability as an Intelligence scientifically, eight different criteria have been applied.

3.2 Criteria to validate Intelligences

One of the most outstanding Gardner's contributions to the study of the MI has been the establishment of eight different criteria that provide a scientific foundation to qualify a "*candidate Intelligence*" as a Multiple Intelligence. (Gardner, 1983, pg.39). He did not base his studies on his intuition or observation.

Otro momento decisivo fue la definición de lo que es una inteligencia y la identificación de un conjunto de criterios para definir es una inteligencia y qué no. Que nadie piense que

establecí todos esos criterios a priori; al contrario constantemente intentaba encajar lo que aprendía de las capacidades humanas con la mejor manera de definir lo que finalmente fueron ocho criterios distintos. Creo que esta definición y estos criterios se cuentan entre los componentes más originales de mi trabajo, pero ninguno ha recibido mucha atención en la bibliografía. (Gardner, 2012b, pg.151)

Ferrándiz (2005) firmly believes that this theory could be a good alternative to the traditional Education. About the criteria, she points out:

Los criterios para definir las diferentes inteligencias, tomados de los estudios de la neurología, psicometría, psicología experimental, cognitiva y del desarrollo hacen posible describir cada inteligencia específica en términos de sus operaciones, su desarrollo y su organización neurológica. (Ferrándiz, 2005, pg.25)

We move to analyse the different meaning of the eight different criteria. They are categorised according to the studies they come from.

3.2.1 Biological Science.

1. Isolation as a Brain Function.

A Multiple Intelligence has is function identified in a specific location in the human brain. It implies, according to Hodges, (2005, pg. 56) that an intelligence could be isolated neuropsychologically. In accordance to Sternberg's words,

Gardner argues that people have multiple intelligences because they have multiple neural modules. Each module, he believes, has its own way of operating and its own memory systems. Brain damage may sometimes impair one intellectual skill whilst other skills remain at least partially intact after brain damage. For example, brain-injured musicians may have impaired speech, yet retain the ability to play music -aphasia without amusia- (Sternberg, 1993, pg. 78),

2. Evolutionary History

A true intelligence can have its development traced through the evolution of human beings. There are evidences that human beings have developed Intelligences over time through experiences.

3.2.2 *Logical analysis*

3. The presence of a set of core operations.

Each Multiple Intelligence has an identifiable and unique set of procedures and practices.

4. Susceptibility to encoding in a symbol system.

Human beings have developed many kinds of symbol systems over time to convey accurate and systematic information. Written language is an example of symbol system. A Multiple Intelligence has its own set of images it uses which are unique to itself and are important in completing its identified set of tasks.

3.2.3 *Developmental Psychology*

5. Developmental history with an expert end performance.

This criterion refers to an identifiable set of stages of growth each Multiple Intelligence has with a Mastery Level which exists as an end state in human development. It implies that in order to qualify “candidate intelligence” as an MI, this “candidate” must show a progress through history.

6. The existence of idiot-savants, prodigies and other exceptional people.

It refers to these as accidents of nature that allow researchers to observe the nature of a particular intelligence in great contrast to other average or impaired abilities (Gardner, 1995a, pg. 34)

Human records of genius such as Mozart being able to perform on the piano at the age of four indicate that there are specific human abilities which can demonstrate themselves to high degrees in unique cases.

3.2.4 Traditional Psychology and Psychometrics

7. Support from experimental psychology.

Clinical psychologists can identify sets of tasks for different domains of human behaviour. A true intelligence can be identified by specific tasks which can be carried out, observed and measured

8. Support from psychometric findings.

The use of psychometric instruments to measure intelligence (such as IQ tests) has traditionally been used to measure only specific types of ability. However, these tests can be designed and used to identify and quantify true unique intelligences.

The following section shows a comprehensive picture of what MI are, the indicators that are decisive to know if a person has this intelligence and the possible career opportunities people can access depending on their intelligences.

3.3 Multiple Intelligence Theory

In Gardner's words,

Intelligence is 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, 1983, pg.34).

To get this definition, he needed several years to understand the difference between three different meanings of intelligence. They are as follow (Gardner, 2012b, pg.143-147):

1. The human intelligence is the ability to solve complex problems, to foreseen future, to analyse models and to synthetize some piece of information. (Gardner, 2012b, pg.145)
2. Intelligences make people different. There are not two people who have the same MI profile.
3. Intelligence is the way a person performs a task considering his/ her objectives and aims.

Considering these meaning, Escamilla (2014) further defines the concept of intelligence,

Potencial biológicos y psicológico que identifica, en cada ser humano, la facultad de captar, procesar, representar y comunicar información por medio de diferentes formatos y trabajando con distintos contenidos de manera que le permita, plantear y resolver problemas, crear productos efectivos, forjar proyectos, tomar decisiones y construir nuevos conocimientos (Escamilla, 2014, pg. 54)

Once we have already seen the general concepts of Intelligence, the criteria to qualify ability as Intelligence and the definition of Intelligence according to two important authors, we will focus our attention in the description of the 8 different intelligences following Escamilla's contribution. In addition, we will state the indicators needed to attribute an Intelligence to a person and his/her career possibilities.

3.3.1 Verbal- Linguistic Intelligence

It is the most studied because it helps human beings to acquire the written and oral ability to communicate effectively. It implies to explain, understand, organise and

use verbal language orally or in a written form. It deals with the relationship between meaning and communication. Some indicators show this Intelligence

The person can listen attentively to verbal discourse and messages, identify the content and the intention of different types of text, have a fluent vocabulary or a good memory to remember names, general cultural information anecdotes and stories. This person can enjoy with the different uses of words: listening, reading, conversation or writing, show interest in language games as wordsearch puzzles.

In addition, a person with a developed verbal-linguistic intelligence can participate in conversation showing a fluid vocabulary and using an adapted register according to the context, use correctly syntax, phonetics, semantics, the pragmatic uses of languages and the metalanguage in a good way.

We must take into account that this intelligence does not involve showing high results in every single indicator. Some people are good at writing stories whereas they are not so good in retelling a story orally.

The possible career possibilities a person who shows a great command of this intelligence are diverse from novelists or poets to teachers, lawyers, speech therapists among others.

3.3.2 Logical- Mathematic Intelligence

Together with the previous one, they are both the most developed in the educational community. The syllabus, that teachers prepare, revolves around the improvement of these two Intelligences. This idea should be rejected and we must start thinking that students can learn new contents in alternative ways to linguistic or mathematical ones.

This intelligence is the ability to carry out mathematical operation, to reason deductively and to think logically to solve problems. This intelligence is more than using numbers, it consists of using a strategic plan to identify the causes and consequences of events, to understand, solve, plan and formulate problematic situations. People with a logical understanding are able to analyse, synthetize, deduce and induce problems and formulate hypothesis of several phenomena.

As reported by Escamilla (2014), a person with this intelligence highly developed can perform calculation mentally, solve problematic situations using numbers and operations, interpret and use the mathematical symbols, suggest different problematic situations whose solution requires different types of operations, use strategic games. In addition, he or she has the ability to recognise the causes and consequences of particular phenomena, express a critical view if the event has not been scientifically proved, reason logical and mathematically by collecting proofs and stating hypothesis or interpret statistics.

A person with a Logical-Mathematical intelligence can opt for several types of jobs among the main ones, there are economists, mathematicians, philosophers, or scientists.

Traditional schools contribute to a strong performance of these two intelligences basing their teaching on the study of linguistic structures, verbal skills and mathematical contents as the basis of the syllabus. Besides, most IQ tests focus on these abilities to measure “intelligence” in people

3.3.3 Musical Intelligence

In agreement with Escamilla (2014), this intelligence is probably the first to appear in human beings because of the fact that babies react when they listen to music or even they do movement to the beat of the music before they start talking.

This intelligence is based on the recognition of rhythm and tones. In addition, it enables appreciating melodies and music from different cultures and styles.

This intelligence requires different types of processes:

- **Cognitive and emotional processes:** They are needed to analyse, comprehend, value and perform musical compositions.
- **Auditory process:** This process makes possible to appreciate the beauty and the structure of a musical composition from the perception and comprehension of the melodies, the rhythms and harmony, which constitute an acoustic process.
- **Visual Process:** It is required to read musical notes.
- **Kinaesthetic Process:** For the musical interpretation it is necessary a motor coordination.

Several indicators express this Intelligence: A person can recognize the sound of objects, animals, people or natural phenomena, trace and place in a musical map the sound that identifies people, animals, objects and natural phenomena, show interest in the vocal and instrumental interpretation. Besides, this person has the ability to analyse and evaluate the elements and meaning of different types of musical works, identify sounds, their origins, their qualities and the features of different styles of musical instruments, internalise and remember different types of songs and melodies, investigate the origins and meanings of instruments, plays and musicians compose music and poetry. Finally, this person has the talent to show interest in listening to different types of musical works in different moments and places or mimic people's voice. People with great determination of this Intelligence can apply to jobs such as composer, teachers, instrumental interpreters, musical directors, producers and publishers of music

3.3.4 Visual-Spatial Intelligence.

Spatial intelligence includes the ability to perceive the visual world accurately and to perform transformations

and modifications upon one's own initial perceptions via mental imagery. Functional aspects of spatial intelligence include artistic design, spatial navigation, and assembly. Escamilla (2014) complains about the little attention this intelligence has received from the educative authorities. In fact, thanks to this Intelligence, we may be aware of the colours, the size, the forms or the volume.

This intelligence is shown in several indicators. The person can solve puzzles easily, remember colours, size, faces, objects, scenarios in different places and circumstances, interpret a map correctly, design maps in a precise, organized and accurate way, imagine and build 3D representations of objects or spaces, draw and solve labyrinths, use illustrations or any other type of visualization and its details to bring back memories.

The career opportunities a person can choose having a high control of this Intelligence are from pilots, explores, film directors, art teachers to painters, sculptors, architects, publishers, interior designers or chess players.

.

3.3.5 Corporal-kinaesthetic Intelligence.

Body language, face gestures, corporal movement, the position and the distance with the interlocutor are relevant to transmit information. In consonance with Escamilla's writings (2014), we understand that this intelligence is the potential to use the body to foster thoughts, ideas and feelings and manipulate, transform and create objects and materials.

Its development is vital for the non-verbal communication, as important as the verbal one. Communicative exchanges are highly enriched by using gestures or body movement in suitable contexts. It is quite related to the Musical Intelligence because its development is the base of the command of instruments and vocal interpretation. It is also essential in the evolution of the Intrapersonal Intelligence because it facilitates the knowledge and awareness of oneself.

The development of this intelligence is shown in people who can keep balance and body control in different types of moments to achieve a specific goal, show interest in sports and games or show images, sports and dances coordinated movements appropriate for a goal. These

type of people are excellent in one sport, recognise the gesture and corporal resources which different people and professions use. Imitate people's gestures and movements or employ basic breathing and relaxing techniques to reduce and relieve tensions resulting from any daily activity or the practice of any entertaining and sports activities. Besides, they employ gesture, movements, postures and distances (face, arms, hands, legs and body) to transmit knowledge and emotions.

Some of the career opportunities are the following Mime artists, sculptors, actors, dancers, jewellers, magicians, surgeons, conductors of choreographers

3.3.6 Naturalistic Intelligence.

This is the last intelligence to be qualified after having applied the eight criteria. This intelligence has been decisive for the evolution of the human beings. People have interacted with nature in order to survive in many different ways: interpreting phenomena, hunting, harvesting or farming. As stated in Escamilla (2014), nowadays we use this intelligence to choose the type of clothes we need depending on the weather, to recognise

the state of food we are going to eat or to collect materials.

Following Gardner,

La capacidad de diferenciar distintos tipos de zapatos o jerséis o de distinguir entre marcas de automóviles, aviones, bicicletas, patines etc., se basa en la capacidad para discriminar pautas que, en épocas anteriores, se usaban para discriminar lagartos, arbusto o rocas. (Gardner, 2004, pg. 54)

Consequently, this intelligence is defined as the potential to know , search, enquire, check, explain, interpret and communicate about the nature of human beings, the world, the food and health or the natural phenomena. Besides, this intelligence selects, classifies and uses elements and materials from nature, products and objects correctly.

These are the indicators that show this intelligence.

The person can observe changes in people, plants and nature in an attentive, curious and systematic way, wonder about the features and functioning of objects,

analyse the different types of components of the environment attentively, show interest in human body or identify the property and features of animals, plants, rocks, minerals and natural phenomena. In addition, this person is able to take care of plants and animals, raise awareness of the environmental problems, enjoy the visits to museums, join in projects related to nature and distinguish between different types of climate or landscapes.

Many are the career opportunities a person can opt for thanks to the development of this Intelligence, for example: landscapists, biologists, astronomers, gardeners, famers, vets, geologists or physicians.

3.3.7 Interpersonal Intelligence.

Within the Intrapersonal intelligence, both are considered to be “*Inteligencias Personales*” (Escamilla, 2014, pg.82) They are not intelligences in the same sense as the ones we have already covered but they are abilities related to the way people think, comprehend or relate to others in an external way (Interpersonal Intelligence) or internal way (Intrapersonal Intelligence).

This intelligence has been recognized lately as one of the crucial to personal relationships and collaborative work. Because of the social, economic, cultural or working changes, new ways of social relationships among people have appeared and the most successful people are the ones whose social abilities have been adapted to these changes. That is why, the development of this intelligent is so vital. On account of this, we can define this intelligence as the potential to understand people's intentions, motivations, emotions or even desire to interact with others.

The most significant indicators that can show this intelligence are to express assertively, that is to say, this person says what he/she thinks and feels without bothering others, show sympathy to others, to get on well with different types of people, to recognise people's emotions and identify their causes and consequences. Besides, this person can select and employ suitable resources to get on well with people from different ages and contexts, use the correct vocabulary to answer by bearing in mind the context, the voice, the distances and the words, interpret in several languages and behaviours people's intentions, desires and emotions, people show

interest in being accompanied by this person, show interest to know diverse people and finally, be accepted as a leader of the social group to which he/she belongs.

People who show this Intelligence as their strength are able to be educators, social workers, therapists, politicians, journalists, mediators, counsellors or public relations.

3.3.8 Intrapersonal Intelligence.

La inteligencia intrapersonal permite a la gente comprender sus deseos, esperanzas, objetivos, puntos fuertes, debilidades aun su propio perfil de inteligencias. Cuando está bien desarrollada, comienza a desempeñar un papel ejecutivo u organizador de las demás inteligencias: una especie de “agencia central de inteligencia” que permite comprender a las personas, sus sentimientos, su perfil y utilizarlos de manera eficaz (Kornhaber & Gardner, 2000, pg. 201)

The meaning of this intelligence is shown in the previous quote. Therefore, this intelligence is the potential to reflect upon, understand and communicate information related to oneself with the suitable abilities and difficulties. It is about to develop people's strengths and perseverance identifying and selecting the means and valuing their consequences.

A person with this intelligence can identify emotion in oneself and relate them to the causes that provoke them, explaining the consequences, reflect upon his/ her work, experiences, feelings and emotions, show resilience in the face of adversity and personal initiative and take decisive decisions searching for resources and bearing the consequences. This person can suggest alternative solutions to problem, express his/ her ideas in a suitable way, show curiosity and interest in any existential problem or try to do better in her / his works.

Bearing in mind these abilities, a person who has a great command of them is able to perform tasks in jobs such as psychologists, teachers, headmasters and mistress, sport people, entrepreneurs or artists.

4. Multiple Intelligence Theory apply in Activities, Dynamics and Techniques in lessons.

The previous definitions of the concept Intelligence have been of great help for the design of the activities to improve the foreign language acquisition in class. Taking them into account together with Amparo Escamilla's studies (2014), we have proposed several techniques.

4.1 Associative Analysis technique.

It is a great technique to improve thinking. It has been applied orally and in a written form. The written version takes more time but it enhances logical thinking and slow students can work at their pace.

ASSOCIATIVE ANALYSIS	
What is it?	It is a technique that structures the information in a systematic logical way using a question-answer outline.
Aims	<ul style="list-style-type: none"> - To identify previous knowledge. - To acquire new knowledge in an organised way. - To analyse and value different types of topics/ works /objects.
Multiple Intelligences.	Directly Developed
	Indirectly Developed.
	<ul style="list-style-type: none"> - Visual-Spatial - Interpersonal. - Logical-Mathematic - Verbal-Linguistics.
	Depending on the content, the rest of Intelligences can indirectly be developed
PROCEDURE	
The teacher divides the students into different heterogeneous groups and gives each group a topic about the content they are studying. Besides, each group will be provided with an outline to be filled with the information required.	
EXAMPLE	
TOPIC: Means of transport	
Origin. (material, place, influence)	What are they made from?
Spatial Associations. (size, form, distance)	What is their size? Are they large or small? What is their form? Where are they used?
Ethic and moral associations.	Why is it important to use public transport?
Time associations	Are they quick or slow? Can everybody use them or is there a specific age to drive? How were they in the past?
Use associations	Who works with them?
Causative associations.	Why do we need them? If they had not been made, what would have happened?

4.2 Interviews.

Used over two decades, it has proved to be an excellent tool to improve creativity and the most demanded activity among students. We have used microphone and cameras to make the situation real.

INTERVIEWS		
What is it?	It is a roleplay between two or more students asking and answering questions about a new content introduced by the teacher. This technique uses creativity and sense of humour to learn.	
Aims	<ul style="list-style-type: none"> - To develop creativity. - To identify previous knowledge. - To acquire new contents in an entertaining way. 	
Multiple Intelligences	Directly Developed	Indirectly Developed
	<ul style="list-style-type: none"> - Logical –Mathematic. - Verbal-Linguistics. - Bodily-Kinaesthetic. - Intrapersonal. - Interpersonal. 	Depending on the content, the rest of Intelligences can indirectly be developed
PROCEDURE		
The teacher introduces a new content in class and chooses one student to be interviewed. This student will pretend to be "this content". The rest of the classmates should think a question to ask him or her.		
EXAMPLE		
New content: Present simple tense.		
Questions	<ol style="list-style-type: none"> 1. Who are you? <i>I'm present simple tense.</i> 2. What is your job? <i>To describe routines and habits.</i> 3. Do you have any friend? <i>Yes I do. My close friend is the present continuous tense.</i> 4. What is your main characteristic? <i>The "s" in the 3rd singular person....</i> 	

4.3 The Story Board technique.

Based on Spectrum Project (2000), the name of this technique refers to the platform used to develop the Verbal-Linguistic Intelligence by creating stories. We have used this technique to cover different contents from grammatical to cultural ones.

THE STORY BOARD					
What is it?	This technique consists of writing a story with all the elements required: characters, settings, plot, conflict and resolution.				
Aims	<ul style="list-style-type: none"> - To develop creativity. - To write stories. 				
Multiple Intelligences	<table border="1"> <thead> <tr> <th>Directly Developed</th> <th>Indirectly Developed</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> - Verbal-Linguistics. - Bodily-Kinaesthetic. - Intrapersonal. - Interpersonal. </td> <td>Depending on the content, the rest of Intelligences can indirectly be developed</td> </tr> </tbody> </table>	Directly Developed	Indirectly Developed	<ul style="list-style-type: none"> - Verbal-Linguistics. - Bodily-Kinaesthetic. - Intrapersonal. - Interpersonal. 	Depending on the content, the rest of Intelligences can indirectly be developed
	Directly Developed	Indirectly Developed			
<ul style="list-style-type: none"> - Verbal-Linguistics. - Bodily-Kinaesthetic. - Intrapersonal. - Interpersonal. 	Depending on the content, the rest of Intelligences can indirectly be developed				
PROCEDURE					
The teacher divides the class into different groups and gives each group an envelope with the elements of a story: characters and settings. The students should think about the title, the plot, the conflict and the resolution of the story.					
EXAMPLE					
Write a story using the prompts given by the teacher.					
Title	<i>Students' proposal.</i>				
Characters.	<i>A group of friends from 15 to 17 years old.</i>				
Time	<i>Summer 2018</i>				
Place	<i>A summer camp.</i>				
Plot / conflict/ resolution	<i>Students' proposal.</i>				

4.4 Consequences and Results.

Originally proposed by De Bono (2004) and adapted by Escamilla (2014), it is a great activity to stimulate students' attention and awaken their interests. Besides it develops observation and the ability for reflection.

CONSEQUENCES AND RESULTS	
What is it?	It is an activity that develops flexible and global thinking focusing on the consequences of an event and its immediate outcome.
Aims	<ul style="list-style-type: none"> - To develop creativity. - To develop argumentative techniques. - To boost the ability of deep thinking. - To reflect and value the consequences of events around us.
Multiple Intelligences	Directly Developed
	<ul style="list-style-type: none"> - Verbal- Linguistic. - Logical –Mathematic. - Intrapersonal. - Interpersonal.
	Indirectly Developed
	Depending on the content, the rest of intelligences can indirectly be developed
PROCEDURE	
The teacher can write on the blackboard a statement and ask student to write individually, in pairs or in groups the consequences and results of what the statement implies.	
EXAMPLE	
Talking about the third conditional in class, the teacher can ask students: <i>what would have happened if the Industrial Revolution had not taken place?</i>	
Consequences and results.	<i>One of the consequences would have been that ...</i>

4.5 Dice Games.

It is a great activity to review the contents of the unit before the exam. Every type of content can be reviewed using this technique.

DICE GAME					
What is it?	It is an entertaining activity played in groups with paper dices made by the students from a template provided by the teacher.				
Aims	<ul style="list-style-type: none"> - To develop creativity. - To review the content. - To go deeper into the topic. 				
Multiple Intelligences	<table border="1"> <thead> <tr> <th>Directly Developed</th> <th>Indirectly Developed</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> - Logical –Mathematic. - Verbal-Linguistics. - Visual-Spatial. - Bodily-kinaesthetic. </td> <td>Depending on the content, the rest of Intelligences can indirectly be developed</td> </tr> </tbody> </table>	Directly Developed	Indirectly Developed	<ul style="list-style-type: none"> - Logical –Mathematic. - Verbal-Linguistics. - Visual-Spatial. - Bodily-kinaesthetic. 	Depending on the content, the rest of Intelligences can indirectly be developed
	Directly Developed	Indirectly Developed			
<ul style="list-style-type: none"> - Logical –Mathematic. - Verbal-Linguistics. - Visual-Spatial. - Bodily-kinaesthetic. 	Depending on the content, the rest of Intelligences can indirectly be developed				
PROCEDURE	Students are given a sheet with a dice structure to be cut. In each face of the dice, students should write a content they want to practice or review. Once they have written the contents, they cut the dice and make it.				
EXAMPLE	<p>Content: the comparative and superlative form</p>				

4.6 Dialogues.

It must be done once the students have practiced the Interview technique because the latter follows an outline while the former presents an open communicative situation. It develops logical and creative thinking.

DIALOGUES					
What is it?	It is a technique that consists of interpreting a conversation between two or more people who explain their ideas, emotions, doubts or thoughts bearing in mind the turn-taking process in a creative way.				
Aims	<ul style="list-style-type: none"> - To develop creativity. - To identify previous knowledge. - To acquire new contents in an entertaining way. - To develop thinking. skills 				
Multiple Intelligences	<table border="1"> <thead> <tr> <th>Directly Developed</th> <th>Indirectly Developed</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> - Logical –Mathematic. - Verbal-Linguistics. - Bodily-Kinaesthetic. - Intrapersonal. - Interpersonal. </td> <td>Depending on the content, the rest of Intelligences can indirectly be developed</td> </tr> </tbody> </table>	Directly Developed	Indirectly Developed	<ul style="list-style-type: none"> - Logical –Mathematic. - Verbal-Linguistics. - Bodily-Kinaesthetic. - Intrapersonal. - Interpersonal. 	Depending on the content, the rest of Intelligences can indirectly be developed
	Directly Developed	Indirectly Developed			
<ul style="list-style-type: none"> - Logical –Mathematic. - Verbal-Linguistics. - Bodily-Kinaesthetic. - Intrapersonal. - Interpersonal. 	Depending on the content, the rest of Intelligences can indirectly be developed				
<p>PROCEDURE</p> <p>The teacher divides the class in pairs or in groups (they groups cannot exceed 4 people) and gives them different roles and a situation they must interpret. Students should consider the turn-taking and greetings at the beginning and at the end of the conversation.</p>					
<p>EXAMPLE</p> <p>Content: dialogue between Shakespeare and Hamlet.</p>					
Greetings.	<i>Good Morning/ afternoon/ night/ how are you/ nice to see you ...</i>				
Body of the conversation	<i>Who are you? What is your job? Where do you live? When were you born? What are your hobbies?</i>				
Greetings	<i>Goodbye, bye bye, see you soon ...</i>				

4.7 Considering all the factors procedure.

It improves a detailed and systematic analysis of any proposed topic focusing on every single possible cause or factor that could have a relationship with the topic.

CONSIDERING ALL THE FACTORS	
What is it?	It is a procedure used to explore the reasons by which a situation happens, to make a decision, to choose among several options or to explain a particular behaviour analysing all the factors that intervene.
Aims	<ul style="list-style-type: none"> - To improve argumentative strategies. - To stimulate creative thinking.
Multiple Intelligences	Directly Developed
	Indirectly Developed.
Multiple Intelligences	<ul style="list-style-type: none"> - Logical-Mathematic - Verbal-Linguistics. - Intrapersonal. <p style="text-align: center;">Depending on the content, the rest of intelligences can indirectly be developed</p>
PROCEDURE	
The teacher divides the students in heterogeneous groups or pairs and introduces a question starting by <i>Why ...?</i> related to the contents of the unit. Students should answer this question by stating the causes or the reasons.	
EXAMPLE	
We need some basic needs such as health care, communication, education or clothes. Why do people need all of them?	
Reasons/ Causes	Because

5. Conclusion

What conclusion can we take from the previous pages? The conclusion is clear: *Intelligence* and all what it implies is far away from being an end-of-discussion topic but a wide matter to continue being explored for the benefits for every single human field, in this case, education.

Focusing on the current studies about this field, we have drawn our attention to two important research: Gardner (1983) and Escamilla (2014) who have brought light to the way we understand the word *Intelligence* implying that every human being is intelligent in a different way from the rest.

It is a revolutionary idea closely related to the attention to diversity in the classroom as every student learns in a different way. Therefore teachers must take into consideration all students' learning needs.

In conclusion, this book is helpful for those people who want to get initially involved in the world of *Intelligence* and its multiple matters.

6. References

- Antunes, C. (2000). *Estimular las Inteligencias Múltiples. Qué son, cómo se manifiestas, cómo funcionan*. Madrid: Narcea.
- Armstrong, T. (1994). *Multiple Intelligences in the Classroom*. Association for supervision and Curriculum in the classroom. Alexandria, Virginia: ASCD. Traducción al castellano: *Inteligencias Múltiples en el aula*. (2008). Barcelona: Paidós
- Binet, A. & Simon, Th. (1905). Méthodes nouvelles pour le diagnostic du niveau intellectuelles anormaux, *L'Année Psychologique*, 11, pg. 191-244.
- Clapadere, E. (1932). *La educación funcional*. Madrid: Espasa.
- De Bono, E. (2004). *Cómo enseñar a pensar a tu hijo*. Barcelona: Paidós.
- Decroly, O. & Boon, G. (1995). *Iniciación general al método Decroly*. Buenos Aires: Losada.
- Escamilla, A. (2014). *Inteligencias Múltiples: Claves y propuestas para su desarrollo en el aula*. Barcelona: Graó

- Escamilla, A. (2017). *Enseñar y aprender a pensar en Educación Infantil*. Madrid: Anaya.
- Ferrándiz, C. (2001). Las inteligencias múltiples. Un modelo de identificación de talentos específicos. *Faisca*, Nº 8, Pg. 11-20
- Gardner, H. (1983). *Frames of Mind: The theory of Multiple Intelligences*. New York: Basic Books.
- Gardner, H. (1993). *Inteligencias Múltiples. De la teoría a la práctica*. Barcelona: Paidós.
- Gardner, H. (1994). *Estructuras de la mente. La teoría de las Inteligencias Múltiples*. Colombia: Fondo de Cultura Económica.
- Gardner, H. (1995a). Expert Performance. Its Structure and Acquisition. Comment. *American Psychologist*. Vol 50 (9), pg. 802-803.
- Gardner, H. (1995b). *Inteligencias Múltiples: la teoría en la práctica*. Barcelona: Paidós.
- Gardner, H. (2004). *Mentes flexibles: el arte y la ciencia de saber cambiar nuestra opinión y la de los demás*. Barcelona: Paidós.
- Gardner, H. (2008). *Mentes líderes: una anatomía del liderazgo*. Barcelona: Paidós.

- Gardner, H. (2012a). *Inteligencias Múltiples. La teoría en la práctica*. Barcelona: Paidós.
- Gardner, H. (2012b). *El desarrollo y educación de la mente. Escritos esenciales*. Barcelona. Paidós.
- Gardner, H., Kornhaber, M.I. & WAKE, W.K. 2000. *Inteligencia: Múltiples perspectivas*. Buenos Aires: Impresiones Sud América.
- Gatto, J.T. (2000). *The Underground History of American Education. An Intimate Investigation Into the Prison of Modern Schooling*. United States of America: Oxford Village Press.
- Goleman, D. (2003). *Emotional intelligence*. New York: Basic Books.
- Hodge, E. (2005). *A Best-Evidence Synthesis of the Relationship of Multiple Intelligence Instructional Approaches and Student Achievement Indicators In Secondary School*. Master of Education Research Theses. Cedarville University. http://digitalcommons.cedarville.edu/education_theses/10
- Mora, F. (2013). *Neuroeducación: Sólo se puede aprender aquello que se ama*. Madrid: Alianza Editorial.

- Piaget, J. (1954). *Les relations entre l'intelligence et l'affectivité dans le développement l'enfant*. Buenos Aires: AIQUE.
- Prieto, D. & Ferrándiz, C. (2001). *Inteligencias Múltiples y currículum escolar*. Archidona (Málaga): Aljibe.
- Robinson, V., Hohepa, M. & Lloyd, C. (2009). *School Leadership and student outcomes: Identifying what works and why- Best Evidences Synthesis*. Wellington (New Zealand): Ministry of Education.
- Salovey, P & Mayer, J.D. (1990). Emotional Intelligence. *Imagination, Cognition and Personality*. Vol 9, pg. 185-211.
- Sternberg, R. J. (1985). *Beyond IQ: A triarchic theory of human intelligence*. New York: Cambridge University Press.
- Terman, L. M. (1916): *The Measurement of Intelligence*. Boston: Houghton Mifflin.
- Thurstone, L.L. (1939). *Primary Mental Abilities*. Chicago: University of Chicago Press.