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The use of Multiple Intelligences Theory in Reading Comprehension

A Case Study of Third Year English Students at the University of Laghouat

Dissertation Submitted to the Department of English in Partial Fulfillment of the Requirement of the Master Degree in English

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Dedication

For those who think that it is difficult to be

Intelligent

This work is dedicated

Acknowledgment

We thank Allah for his endless blessings, love, and care

We would like to thank our supervisor Mr Gasmi Mustapha

For his support guidance and patience

We would like to thank

All those who helped in this study.

Abstract

Multiple intelligence theory suggests that there are many ways people understand and perceive the world. This theory developed by Harvard psychologist Howard Gardner helped teachers, parents and learners to understand the importance of individual differences in terms of learning style. This present research tries to investigate the use of multiple intelligence theory in reading comprehension. The research started by identifying learners' multiple intelligence profiles of twenty English students using Walter McKenzie's survey (1999) to know the learners dominant intelligence. Moreover, all students were asked to answer TOEFL reading comprehension test to evaluate their reading ability. Results of correlation analysis showed that there is a strong relationship between learners multiple intelligence profiles and their reading abilities. Other results showed that naturalistic and interpersonal intelligences reacted as a predictor of learner's reading abilities. Further results indicate that high achievers in reading may have lower musical intelligence. In other words, the best readers may be less intelligent 'musically'.

ملخص

نصت نظرية الذكاءات المتعددة على أن هناك طرق عديدة يرى بها الأشخاص العالم من حولهم. هذه النظرية المطورة من طرف "هووارد غاردنر" ساعدت الأساتذة و الطلاب و الآباء على فهم مدى نجاعة الإهتمام بالإختلافات الفردية بالنظر إلى أساليب التعلم. إن هذه الدراسة تحاول التطرق إلى كيفية إستعمال نظرية الذكاءات المتعددة من أجل التسهيل و الرفع من قدرة القراءة لدى المتعلمين. بدأ هذا البحث بتحديد سجلات الذكاء الخاصة بـ 20 طالب و تعيين الذكاء الغالب من بين كل الذكاءات الأخرى و ذلك بإستعمال إحصاء "ماكنزي" (1999). إضافة إلى ذلك يطلب من الطلبة المشاركين الإجابة على الإستبيان المعياري للغة الأنجليزية كلغة أجنبية الخاصة بالقراءة (TOEFL) و ذلك لتقييم مدى قدرتهم على القراءة. بعد دراسة و تحليل النتائج تبين أن هناك علاقة وطيدة بين سجلات الذكاء الخاصة بـ 20 طالب و نتائجهم أو قدرتهم على القراءة. بينت النتائج النهائية لهذا البحث على أن الذكاء الطبيعي و الذكاء الشخصي عند الطلبة كان هو السبب في الرفع من القدرة على القراءة لدى الطلبة. كما أظهرت نتائج أخرى أن هناك تناسبا عكسيا بين الذكاء الموسيقي و القدرة على القراءة، فكلما زاد أحدهما نقص الثاني. بصيغة أخرى أغلب القارئين الجيدين لا يملكون ذكاء موسيقي.

Table of contents

List of abbreviations

Abbreviation	Description
MI	Multiple Intelligences
EFL	English as a Foreign Language
L1	First Language
L2	Second Language
TOEFL	Test of English as a Foreign Language

List of Tables

List of Figures

Table of appendices

General introduction

When we mention the word ‘Intelligence’ in any situation or debate, the first picture that comes to the mind is that it refers to the mental aptitude and abilities which are measured by an IQ (intelligence quotient) test. This kind of tests usually measure only two types of intelligence; which are logical-mathematical and verbal-linguistic intelligences. The Multiple Intelligences (MI) theory was first developed by Howard Gardner; Harvard graduated professor in the School of Education in 1983. Gardner’s theory suggests that there are many ways people understand and perceive the world. MI theory states that there are other types of Intelligence in addition to logical-mathematical and verbal-linguistic intelligences such as spatial, musical, naturalistic, interpersonal, intrapersonal, existential and bodily-kinesthetic intelligences. This theory helped teachers, parents and learners to understand the importance of individual differences in terms of learning style. MI theory could be used to teach learners and help them to better understand, and this is the aim of this study.

This study aims to investigate the use of multiple intelligence theory in reading comprehension. That is to say how multiple intelligence theory can be used to develop learners’ reading comprehension? The study focuses on reading because it is a very important skill that accompanies the individual from school and for the rest of his/her life. Alastair West argued that ‘Readers are made, not born, and they are made or unmade largely at school’ (cited in Habosh 2010). This study concentrates on the enhancement of the reading skill by identifying the learners MI profiles and deciding which intelligence that best increase learners’ performance in reading comprehension texts. The objective of this research is to help learners and minimise their problems in reading.

One of the most problems that learners face is generalization. Learners inside the same classroom score differently. Some score higher grades and others score lower grades. High achievers learn the same lesson in the same manner as the other students in the classroom. They use the same teaching strategies, learning approaches and materials as the normal learners. Individuals according to Gardner’s theory possess multiple intelligences that allow them to shine if those intelligences are used. Each learner has its unique learning style and learning preferences. It is not reasonable to focus on two types of intelligences giving no chance to other learners with other intelligences to shine.

In this research two questions are asked. The first question investigates the relationship between English major learners in reading and their multiple intelligence profiles. The second question examine types of intelligence and decide which type is the best interpreter of learner's level in reading comprehension texts.

To answer these questions a sample of the study is taken from the University of Laghouat. The participants are third year English students in the academic year 2015-2016. This population of the third year students was mainly chosen because the students possess a more developed reading ability comparing with younger learners. Participants were asked to cooperate by reading carefully and answering questions given to them. They were asked to answer Walter McKenzie's survey to identify learner's MI profiles and predominant intelligence, and TOEFL reading comprehension test to have an idea about their reading abilities.

Numerous analyses were conducted using Walter McKenzie's survey and TOEFL reading comprehension test. The results were fingered through many statistical processing. The usage of multiple intelligences theory has established to be beneficial in improving learners' reading comprehension. The final results demonstrate that there is a strong relationship between learners' reading abilities and their naturalistic and interpersonal intelligences. This result indicates that naturalistic and interpersonal intelligences reacted as predictor of learner's reading abilities. Further results indicate that high achievers in reading may have lower musical intelligence. In other words, the high achievers in reading may be less intelligent 'musically'.

1. Chapter One:

Theoretical Framework

Introduction

This study aims to investigate the use of multiple intelligence theory in reading comprehension. That is to say how multiple intelligence theory can be used to develop learners' reading comprehension? Accordingly, this chapter is divided into three parts. The first part is concerned with the definition of intelligence, IQ test and intelligence, types of intelligence, the intelligence and learning styles, MI theory and education and some other terms. The second part discussed previous studies on MI theory. It helps to find out what is already known, what others have to be attempt to find out, and what problems remain to be solved. It mainly discussed the previous studies that addressed multiple intelligences theory and the preceding research related to MI and reading comprehension. The third part is concerned with reading, types of reading, reading skills, reasons for reading, levels of reading and reading comprehension.

1.1 Section one: Intelligence

Many educators have tried to define intelligence. Some of them tried to measure the human intelligence. They measure intelligence by several tests they developed on the basis of humans' mental function or performances or some other learning skills. According to the purpose of this study which aims at investigating the usage of multiple intelligences in reading comprehension, this first part studies the definition of intelligence, measuring intelligence, types of intelligences and the implication of multiple intelligences theory in education.

Intelligence is most widely studied in humans, but also observed in animals (monkeys, dogs, horses … etc.). Some scientists argued that plants were sentient beings that feel emotions. Artificial intelligence is the intelligence of machines or the reproduction of intelligence in machines.

In spite of the long history of research and debates, there is no standard definition of intelligence. Intelligence is an abstract notion, and researchers did not stop themselves from going deeper in an attempt to give it a comprehensible definition. This led some to believe that intelligence may be approximately described, but cannot be fully defined.

The word 'Intelligence' has been defined in many different ways, including the ability for abstract thought, understanding, communication, reasoning, learning, planning, emotional intelligence and problem solving. Rather than exploring very general formal definition of intelligence, here we will instead take the opportunity to present many definitions that we have collected.

1.1.1 History of the term intelligence

The word 'Intelligence' originates from the Latin verb 'intelligere' which is derives from inter-legere meaning to 'pick out' or discern[1]. The verb 'intellectus' becomes the medieval term which means understanding something. This term was powerfully related to the philosophy and theories of the immorality of the soul or psyche, and the concept of active intellect (also known as active intelligence). This entire approach to the study of human's nature was strongly rejected by the early modern philosophers. These philosophers like Francis Bacon, John Locke and David Hume, all of them preferred the word 'understanding' in their English philosophical works. The term 'intelligence' has at first become less common in English language philosophy, but later it has been taken in more contemporary psychology.

1.1.2 Definition of the term intelligence

Socrates (460 – 399 BC) was a classic Greek philosopher. He once said 'Wisdom begins with the definition of terms'. How to define intelligence is controversial. Group of scientists have stated the followings:

In 1994, a group of fifty-two experts in the study of intelligence and related fields endorsed the following definition of intelligence[2]:

> 'Intelligence is very general mental capability that, among other things, involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience. It is not merely book learning, a narrow academic skill, or test-taking smarts. Rather it reflects a broader and deeper capacity for comprehending our surrounding 'catching on' making sense' of things, or 'figuring out what to do'.

[1] Amit, shekhar. *Intelligence and Aptitude.* American psychological society. 2002. P12.

[2] Linda Gottfredson. Mainstream Science on Intelligence: An Editorial with 52 Signatories, History, and Bibliography. University of Delaware. Ablex Publishing Corporation 1997: p 13.

This definition highlights that intelligence indicates the ability to solve problems, as well as problems of comprehension, by thinking. Intelligence is generally considered to master the top of a hierarchy of more precise abilities that are all related to each other. The notion of a general intelligence or 'g' was first enlarged in psychology because of the so-called 'positive manifold'. Intelligence is suggested as the general ability that accounts for the variation of the many specific abilities.

Charles Spearman[3], one of the primary innovators in thinking about intelligence named it the 'g' factor and intelligence tests have been intended to measure it. He claimed that intelligence is identified as two factors the 'g' factor which includes a big variety of mental abilities such as reasoning and problem solving, and the 's' factor which concerned with a limited single mental ability tests.

Cattel R, B discussed[4] two other factors of mental abilities which are the crystallized intelligence and fluid intelligence. The fluid intelligence tests do not include cultural content and crystallized intelligence concerned with the usage of previously acquired mental abilities like verbal and numerical ability, mechanical aptitude, and social skills and so on. The previous two factors increase until the age of fifteen or a little bit after; but after the age of twenty the fluid intelligence decreases while the crystallized keep on being high.

Binet Simon[5] assumed that in intelligence there was a basic ability and lack of it was very important for daily life. It was named judgment or good practical sense, and the ability of adapting oneself to the situation. A person may be weak or imbecile if he is lacking in this judgment; but with good judgment (or decision) he can never be either. Binet also claimed that the rest of intellectual abilities seem of little importance in comparison with judgment.

[3] Gogebakan Derya. How Students' Multiple Intelligences Differ in Terms of Grade Level and Gender. Unpublished MA Thesis, MSc Departemnt of Educational Sciences.2003.p04
[4] Ibid.
[5] Ibid.

In the past, it was believed that there is a unitary general intelligence, called 'g' factor or 'general intelligence' which is fixed and static entity at birth[6]. The scale included the measure of language skills, memory, reasoning, digit span, and psychophysical judgments. This general intelligence was defined operationally as the answer items on an I.Q. Test. However, Gardner[7], in his influential work, attacked the preceding models on the ground that they overemphasized logic and language and disregarded other intelligence types. Gardner defined intelligence as ''the ability to find and solve problems, the ability to respond successfully to new situations and the capacity to learn from one's past experiences''[8]. So, intelligence is a general cognitive problem-solving skill. A mental ability involved in reasoning, perceiving relationships and analogies, calculating, learning quickly…etc.

1.1.3 Collective definition of intelligence

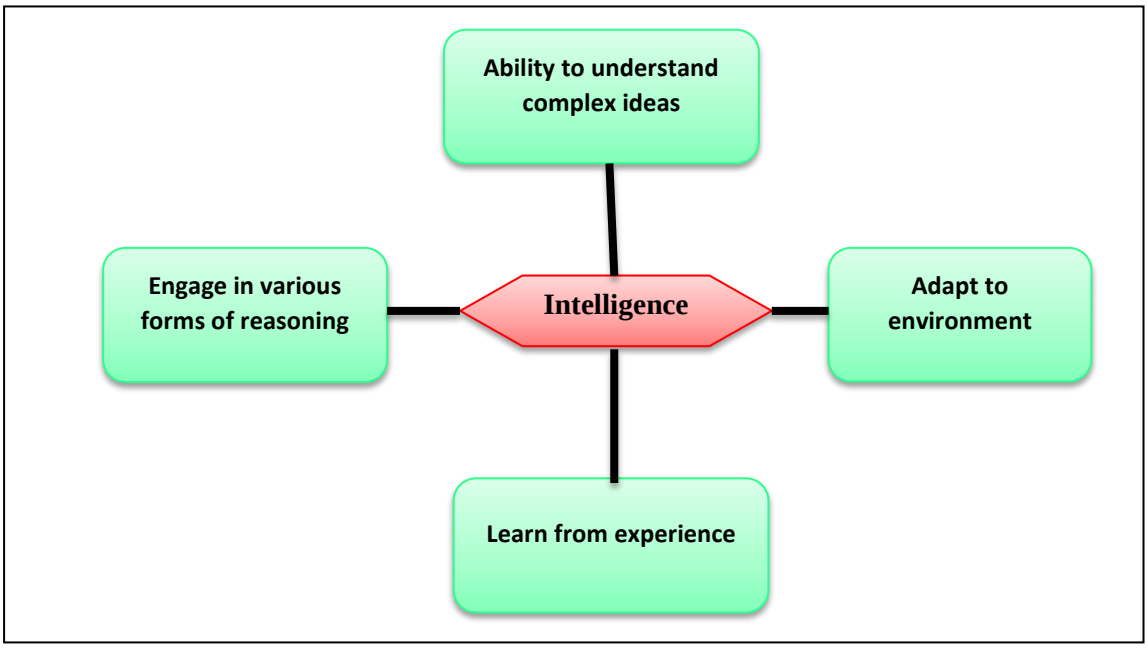
In matters of definition, it is difficult to claim that there is an objective common sense in which one definition could be considered to be the correct one. On the other hand, some definitions are clearly more concise, precise and general than others. For a more comprehensive explanation, it is clear that many of the definitions listed above are strongly related to each other and share many common features. And despite the different definitions, two major themes were present all along which are the ability to learn from experience, and the capacity to adapt to the surrounding environment which means avoiding the repetition of the same mistakes as well as meaning that the intelligence of people is not only shown in their test scores but in their way of handling matters with other people as well as in organizing every aspect of their lives. The definition of intelligence focused on four key concepts which can be illustrated in the following figure.

[6] Marefat Fahimeh.Multiple Intelligence: Voices From an EFL Writing Class.Pazhuhesh-e Zabanha-ye Khareji, No.32. Special Issue, English, 2007, pp145-162.

[7] Marefat Fahimeh.Multiple Intelligence: Voices From an EFL Writing Class.Pazhuhesh-e Zabanha-ye Khareji, No.32. Special Issue, English, 2007, pp145-162.

[8] Ibid.

Figure1: Intelligence



1.1.4 I Q test and intelligence

One of the most traditional ways for assessing somebody's intelligence is by using an Intelligent Quotient (IQ) test .Based on this view, the smartest person is the one who achieves the highest score in such a test .To this day, IQ is used very broadly for purposes of educational and occupational prospects, and for clinical diagnosis , as well as psychological research and theorizing .IQ test is widely used tool that led to the development of various tests of skills .It is important to remember that the IQ test was first designed by Alfred Binet[9] . In the early 1900s, Binet was asked by the French minister of education to study retarded and non-retarded children. That is, to study which children would fail and which ones would succeed.

Such an IQ test was analysed by modern psychologists .However, the IQ test only measures a narrow range of verbal/linguistic and logical/mathematical abilities, so it is considered as a test with limited results .IQ test is only one measure of intelligence. therefore, it is only fair to include other elements when dealing with intelligence such as social and emotional factors.

[9] Haboush, Ziyad Yousif. The Effectiveness of Using a Programme Based on Multiple Intelligences Theory on Eighth Graders' English Reading Comprehension Skills . Unpublished MA Thesis . The Islamic University of Gaza 2010 p 43.

1.1.5 What IQ tests test?

Despite the long history of research and discussions, still there is a little scientific agreement about how human intelligence should be described in terms of socio-cognitive factors that differentially prepares individuals for the cognitive, affective and performance demands of the test. The effect of socio-cognitive factors[2] is that the test is a measure of social class background, and not one of the ability for complex cognition as such.

This question of what IQ tests test may encourage efforts to define human intelligence 'beyond' IQ, such as those of Sternberg (1999) or Gardner (1983). Stenberg's theory[10] of 'successful intelligence ' is fascinating, but still accepts the concept of g, largely on the origin of the correlational evidence .Gardner rejects a 'g' factor, but refers to hypothetical 'innate Computational 'modules' to clarify the rich variation in human intelligence . both, Sternberg and Gardner, are heavily based on variances in cognitive test scores, whereas a closer examination of the nature of the variance may suggest further theoretical possibilities .Of course , the sociocognitive-affective preparedness hypothesis requires further investigation[11], and new lines of research are suggested by it .Research will need to presuppose a more complex conception of human intelligence than a bald computational one; and a model of IQ variance more complex than a simple biometric one . Nearly a century ago, Binet was complaining about attempts to reduce intelligence, and its effects, to simple biophysical models, instead, the need for more complex psychological descriptions. It appears that this admonition needs to be heeded more urgently than ever.

The value of IQ tests is determined more by what they associate with, than what they measure. IQ tests did not arise as operational definitions of theories that occurred to correlate outcomes is that they have skilled a long process similar to the natural selection. The fastest way to correct oneself of the principle that Binet[12] invented the first intelligence test is to read the works of Binet himself. He also shows the test pieces he copied from scholars who came before him. With each new test and test revision, good test items are retained and bad test items are dropped .Worthy IQ test items have high connections with important outcomes in every population for which the test is intended to be used. Some test items must be thrown away because they have significantly different connections, causing the test to be based in favour of some groups at the expense of other groups.

[10] Ken, Richardson What IQ Tests Test Theory And Psychology. Open University. Saga Publication .2002.p 27.
[11] Ibid.
[12] Ibid. 297.

A simple explanation of what a good IQ test should measure can be involved in some parameters[13]. People must be able to learn new information, and this is because of the necessity of the test. One way to evaluate learning ability is to teach an individual new information and measure knowledge retention. This works well for simple information (e.g., remembering or lists and retelling simple stories) but it is very hard to design a unique test in which the retention of complex information is measured without the test being polluted by differences in prior knowledge.

Learning ability can be measured indirectly by measuring how much an individual has learned in the past. If the purpose of IQ test is to measure raw learning ability, this method is poor because learning ability is confounded by learning opportunities, cultural differences, familial differences, and personality differences in learning. However, if the purpose of the IQ score is to evaluate the future learning, then it is hard to do better than measures of past learning. Knowledge tests are among the hardest analysis of performance that we have. Our society values the ability to make generalizations from incomplete data, and to realize new information from abstract rules[14] . IQ tests need to measure the ability to engage in abstract reasoning in ways that minimize the advantage of having prior or preceding knowledge of the content domain.

The IQ test has been used as standard for intelligence .However, recent research has denied it. Researchers[15] even said that good IQ tests should measure all aspects of visual-spatial processing and auditory processing, as well as short term—memory, verbal skills, and processing speed.

1.1.6 Different Approaches in Intelligence

The human Intelligence can be defined in several unique ways. It is considered to be the possibility for finding or creating solutions for problems. This possibility involves chance in gathering new knowledge, the ability to create products and to provide valuable services. Some researchers have suggested that intelligence is a single, general ability (g factor) while others believe that intelligence encompasses a range of aptitudes, skills and talents. Sue Teele, Ph.D., is the associate dean University of California. She has written five books. The last two books are *The Multiple Intelligences School: A Place For All Students to Succeed*, and *Rainbows of Intelligences: Exploring How Students learn*. She

[13] Ken, Richardson What IQ Tests Test Theory And Psychology. Open University. Saga Publication .2002.p 27.
[14] Ibid. 320
[15] Ibid. 307

created an assessment tool for multiple intelligences using Gardner's theory. Teele stated[16] that there are different approaches to intelligences. She proposed four different approaches: the psychometric approach, developmental progression, psychobiological approach and multiple forms of intelligences.

A- Psychometric approach:

The psychometric approach had quantitative concept of intelligence. It focused on two learning methods, linguistic-verbal and logical-mathematical. It measures the learners' performance by using identical tests, and then it compares one student to another. Psychometric approach is broadly used in education. However, there is a great fear that it would be the only one used when measuring the learners' performance and achievement; because it is limited to only two methods to learn.

B- Developmental Progressions:

Developmental progression is another approach to intelligence. In this approach four psychologists' works are mentioned .These include Bruner, Piaget, Vygotsky and Feuerstein. These psychologists' theories and opinions are discussed.

According to Bruner, learners built new ideas or concepts based on their current or past knowledge by the revenues of learning, which was an active process. Learners according to Bruner depend on their past and present knowledge in order to learn new concepts. They select and they manipulate information, make decision based on cognitive structure .The final knowledge allows learners to go deeper to infer meaning .Teachers are supposed to push and motivate learners to extract principles by themselves and engage them as much as possible. The teacher must accommodate the information according to the learners' level.

Jean Piaget was the greatest psychologist in understanding the child development and how knowledge developed in human beings. For more than sixty years, he tried to understand the child's development. Piaget named his general theory as 'genetic epistemology' Which is based on four cognitive structures or developmental stages: sensorimotor, preparations, concrete operations and formal operations. These developmental stages differ from one individual to another. In addition to this, every stage had many detailed forms of structure.

[16] Gogebakan, Derya. How Students' Multiple Intelligences Differ in Terms of Grade Level and Gender. Unpublished MA Thesis, MSc Departemnt of Educational Sciences.2003.p04

Vygotsky's study is based on the idea that social interaction had important role in the development of cognition .Vygotsky claimed that every function in the child 's cultural development appears twice. First on the social level and later on the individual level; first between people (interpsychological) and then inside the child [17] (intrapsychological). Vygotsky's theory had another aspect and it was the idea that the cognitive development was restricted with a certain time span that he named as zone of proximal development. The complete development during this period (childhood) depended on full social interaction. A child could develop a range of skills with adult guidance or pair work and this with adult the once that he could achieve by himself .Vygotsky gave the example of 'pointing a finger'. First, this behaviour started a meaningless movement, but as people gave reactions to it, it became a meaningful one. In particular this gesture clearly illustrates an interpersonal relation between people.

According to Feuerstein[18] , intelligence is caused by experience and the cognitive ability is changeable .His theory is based on the idea that previously successful experiences function as a base for new learning experiences which increases the person's chances in better learning.

C- Psychobiological approach

Psychobiological approach, which is mainly focuses on brain and ecology in order to explain development of intelligence. According to Cecil[19] knowledge and aptitude were whole and with body of intelligence one could find environmental, biological, metacognitive and motivational variables. Cecil is against the concept of one intelligence. He viewed intelligence as having a biological basis, multi-cognitive, potential, and complete in terms of context and knowledge.

D- Multiple Forms of Intelligence:

Supporters of this approach are Sternberg at Yale University and Gardner at Harvard University. Sternberg[20] defined intelligence as "mental activity directed toward purposive adaptation to, selection and shaping of, real-world environments relevant to one's life''. While he agreed with Howard Gardner that intelligence is much broader than a single general ability, he instead suggested that some of Gardner's intelligences are better viewed

[17] Gogebakan, Derya. How Students' Multiple Intelligences Differ in Terms of Grade Level and Gender. Unpublished MA Thesis, MSc Departemnt of Educational Sciences.2003.p04
[18] Ibid. 10
[19] Ibid 12
[20] Ibid. 14

as individual talents. Sternberg proposed what he mentions as successful intelligence. He involves the ability to deal with new situations using past experiences and current skills and practical intelligence, which refers to the ability to adapt to a changing environment.

1.1.7 Multiple Intelligences Theory

The Multiple Intelligence Theory (MI) was developed by Howard Gardner. Gardner is a Harvard Graduate Professor in the school of education, in 1983. Gardner's theory[21] maintains that each Person possesses several intelligences which are used to carry out specific tasks. This theory is important to education because teachers see more frequently that learners learn in different ways. The MI theory helps to explain the differences seen in learners in terms of learning styles.

Howard Gardner was the co-director of Harvard's Project Zero from 1972 to 2000. He is now the chair of the Steering Committee of Project Zero. The project is doing research on various topics including Multiple Intelligences. The mission of the project is to understand and enhance learning, thinking, and creativity in the arts, as in humanistic and scientific disciplines, at individual and institutional levels. He is the author of 20 books on multiple intelligences which have been translated into 27 different languages.

Gardner's theory started in his first book entitled *Frames of Mind*. In this book he defined seven intelligences. Those first seven intelligences are: Interpersonal (appreciation of group work), Intrapersonal (who prefers to work alone), Kinesthic (the need of movement), Linguistic_/Verbal (who understand through speaking), Logical/Mathematical (the use of numbers), Musical (who learns through rhythm and music), and Spatial (visual understanding).

Naturalistic intelligence was added to the theory of MI by Gardner in 1999 in his book entitled *Intelligence Reframed*. This intelligence was added in 1999 because it come across the principles that Gardner uses for his intelligences. These principles are as follows: ''is there a particular representation in the brain for the ability? Are there populations that are especially good or specially impaired in an intelligence and, can evolutionary history of the intelligence is seen in animals other than humans?''[22].

Currently, there is some debate as to whether the ninth intelligence of existentialism has been added to the theory or not. This debate is occurring because this intelligence does

[21] Heming, Andrea Lauren. Multilpe Intelligences in the Classroom. MA Thesis, Honors College Capstone.Western Kentucky University;2008.
[22] Ibid.

not meet all the criteria Gardner uses in adding intelligences. As Gardner puts it, ‘‘I shall continue for the time being to speak of eight and half intelligences.’’. Gardner suggested that in all individuals the nine intelligences are haphazardly distributed, and can change over time, and each person has unique and different intellectual composition similar to our finger prints. Each intelligence is located in a different part of the brain, and they can either work independently to complete a task, or several intelligences can work together to complete one task. These intelligences define the human species represented here on earth, in order to better understand one-self.

The word ‘Intelligence’ can be defined in several ways. It is reflected to be the ability for finding or creating solutions for problems. It involves gathering new knowledge, and the ability to create products and to provide valuable services and to process information that can be activated in a cultural setting to solve problems that are of value in a culture. Most people maintain that there is no single type of intelligence. Typically people think of intelligence using the Stanford Binet IQ test which measured the logical/mathematical and verbal/linguistic intelligences of a person. The MI theory maintains that each person possesses eight intelligences, and uses them to carry several kinds of tasks.

1.1.8 Types of intelligences

Multiple Intelligences (MI) theory gave birth to many types of intelligences[23]. The following description provides more illustration about the new theory of multiple intelligences. All these types of intelligences are mentioned in Howard Gardner website (www.howardgardner.com).

a- Verbal/linguistic intelligence

This type of intelligence refers to an individual’s capacity to use language effectively in terms of expression and communication. It is the production of language, abstract reasoning, symbolic thinking, and conceptual patterning. People with higher verbal intelligence also tend to have broad vocabularies and learn language easily[24]. Poets, journalists, and novelists tend to have the highest level of understanding to this intelligence. Even in deaf people where a manual language is not explicitly taught, children

[23] Razmjoo, Seyyed Ayatollah. On The Relationship Between Multiple Intelligences and Language Proficiency. The Reading Matrix Vol.8, No .2, September 2008.

[24] Abdelhak Hammoudi. Multiple Intelligences and Teaching English as a Foreign Language. The Case of Second -Year Pupils at Malika Gaid Secondary School Setif. Doctorate thesis. FARHAT ABBAS University. SETIF 2010. p104.

will often invent and create their own manual language and they use it, which could be obvious of strong linguistic intelligence. Learners who have a high linguistic intelligence enjoy writing, reading, telling stories or doing crossword puzzles. They are often great storytellers and joke tellers. They are also able to express themselves rhetorically and poetically. These learners often remember subjects better if they take notes; they love to read and journal, and enjoy public.

b- Logical/mathematical intelligence

It refers to the individual's ability to observe patterns, work with abstract symbols (e.g., numbers, geometric shapes), and detect relationships and connections between separate and different pieces of information. People with higher logical intelligence like numbers. They are able to follow a serial of reasoning and calculate very quickly[25].

For decades the logical/mathematical intelligence and linguistic/verbal intelligence have traditionally been emphasized in our schools. Logical/Mathematical intelligence is the ability of calculating, creating hypotheses, and completing mathematical operations. Logical/mathematical intelligence can be defined as manipulation of objects and problem solving. It is dominant in the fields of science and mathematics. The majority of physicists, chemists, and mathematicians are expected to have a prominent Logical/Mathematical intelligence. The famous Albert Einstein and Marie Curie are well known for their high level of Logical/Mathematical intelligence. People with this intelligence are often working on patterns, math problems. They like strategy games or brain puzzles and experiments .These people are often very organized, appreciate schedules and structure, and are quick to ask for assistance when they do not understand a task.

c- Interpersonal intelligence

Interpersonal intelligence allows a person to understand others and work with them. It is the ability to work cooperatively with others and understand their feelings. The learners with this type of intelligence try to see things from other people's point of view. And they do that in order to understand how other people think and feel. People with high level of Interpersonal intelligence often have an extraordinary ability to sense feelings, intentions and motivations. They are great organizers, and they sometimes resort to manipulation. People are classified in this type of intelligence when they are ones who

[25] Abdelhak Hammoudi. Multiple Intelligences and Teaching English as a Foreign Language. The Case of Second -Year Pupils at Malika Gaid Secondary School Setif. Doctorate thesis. FARHAT ABBAS University. SETIF 2010. p 105.

favour working in a group, are involved in several extra-curricular activities, and enjoy thinking about most important issues such as poverty and war. Highly interpersonal people are leaders among their upper class, skilful at communicating, and seem to understand other's feelings and motives. Anyone who like dealing with people usually possesses a high interpersonal intelligence and this include teachers, therapists, salespersons, and politicians.

Several famous people are well known for their excessive levels of interpersonal intelligence[26]. Nelson Mandela and Martin Luther King Junior are known to possess high level of interpersonal intelligence. The leader of Nazi Germany, Adolf Hitler, was also expected to have a dominant interpersonal intelligence. Anne Sullivan, the famous teacher and mentor of Helen Keller, was said to have an influential interpersonal intelligence. The stories of these famous people prove that interpersonal intelligence does not depend on language[27].

d- Intrapersonal Intelligence

Intrapersonal Intelligence allows an individual to understand the internal aspects of his personality. It is the gate to one's own feeling and one's range of emotions. Intrapersonal Intelligence is the ability to make judgments among one's own² emotions and eventually to label them. It is the ability to draw on these emotions as a means of understanding and guiding one's own behaviour. People with a high intrapersonal intelligence are often considered shy and prefer to work alone then be forced to work in groups .They are self-motivated and very aware of their own feelings .Intrapersonal Intelligence deals more with the individual self. Psychologists, spiritual leaders, and philosophers have all been considered as having high intrapersonal intelligence. These specialists use this intelligence to help people solve their personal problems. Oprah Winfrey and Mother Teresa are well known for their intrapersonal intelligence because of their sympathetic and appreciation of people. However these two historical figures are not considered to be loners, they are very aware of their own feelings and self-motivated which is why they represent the Intrapersonal Intelligence[28].

[26] Heming, Andrea Lauren. Multiple Intelligences in the classroom.MA Thesis,Honors College Capstone. Western Kentucky University, 2008. 2008. Pp08-18.

[27] Ibid.
[28] Ibid.

Learners who prefer working alone, enjoy helping others, and believe everyone should be treated fairly have a tendency to to have a dominant intrapersonal intelligence. In a classroom, it is often difficult for a learner with intrapersonal intelligence to express themselves. These learners can be helped with imagination exercises like music, language pieces, or similar tasks where learners can express themselves.

e- Spatial intelligence

Spatial intelligence is the individual's ability to perceive the visual world accurately through transforming, modifying and recreating the aspects of one's real world. It is known simply as visual intelligence. Even blind people also have the ability to develop and create their own visual ideas that they use in language, which could be obvious of strong spatial intelligence. Mental imagery, spatial reasoning, graphic skills, and imagination are all part of spatial intelligence. Spatial intelligence deals mostly with the concert world, and is considered the ability to think in three dimensions.

People with a high spatial intelligence can be painters, map topologists, sculptors, sailors, navigators, architects and engineers all of them use spatial intelligence in their careers. Chess players and grocery store baggers also are said to have a high spatial intelligence. Artists like Claude Monet and Edgar Degas are known for their spatial intelligence.

Learners with extreme levels of this intelligence may be caught doing mazes, puzzles, or just drawing and daydreaming. Spatial learners enjoy rearranging they desk, watching music videos, and creating art. Graphic organizers such as a Venn diagram help these learners to learn because all the information is organized in specific way.

f- Musical intelligence

Musical intelligence is the individual's ability to understand pitch rhythm, and tone as well as thinking in sound. People with a high musical intelligence think in music and rhythms. Being able to manipulate music and combine its elements is a part of musical intelligence. Many people with high level of Musical intelligence can often hear and remember sounds that other might miss. Musicians, vocalists, composer, and conductors all have a high musical intelligence. Learners who possess an advanced musical intelligence often create a rhyme or songs to memorize information. They can easily find patterns in things and are often not concentrated when a radio or television is on while they

are trying to work. Singers such as Whitney Houston and The Beatles are supposed to have high musical intelligence.

For these people and others with high musical intelligence they not only remember music, they cannot get it out of their minds .They have a strong appreciation of music. They are gifted with the ability to compose, sing and/or play instruments. Beethoven, Cher, and Stevie Wonder are individuals considered to have high musical intelligence.

g- Bodily/Kinaesthetic intelligence

Bodily/Kinaesthetic intelligence includes the ability to think in movements. It is actually the ability to manipulate objects and several physical skills. This type of intelligence involves a sense of timing and perfection of skills through mind-body union, which goes further than eye-hand Coordination. Careers in this type of intelligence include athletes, dancers, surgeons, actors, mimes, technician, typists, programmers, and jugglers. Muhammad Ali Clay and Michael Jordan are both considered, according to many psychologists, to have high Bodily/Kinaesthetic intelligence. Learners who have an extreme or high Bodily/Kinaesthetic intelligence are often not able to sit still for long periods of time. They learn better by doing rather than watching. And they are usually involved in outdoor games or sports.

h- Naturalist intelligence

Naturalistic intelligence is presented in a person who appreciates nature. It is presented in a person who is powerfully aware of how to distinguish the various plants, animals, mountains, or cloud configurations. Gardner suggests that one’s entire consumer culture is based on the naturalist intelligence. He said that because naturalistic intelligence includes the capacities we use when we are sketching to one item rather than another.

People with high naturalistic intelligence have an appreciation for the natural world. They are very concerned with the present, and the future of the world and preserving our planet for future generations. They often show proficiency, and they are skilled in recognition and classification of plants and animals. The famous Charles Darwin, the founder of evolution theory, is the best example of the naturalistic intelligence. Careers in this type of intelligence include botanist or a chef; they would possess high levels of the naturalist intelligence. Learners who like spending time outside, love to group items together, and always want to recycle things are said to have high naturalistic intelligence.

The below table[29] gives descriptions of the eight intelligences that comprise MI theory relied upon the domains or disciplines in which one typically finds individuals who demonstrate high levels of each intelligence.

Table1. Gardner's Eight Intelligences[30]

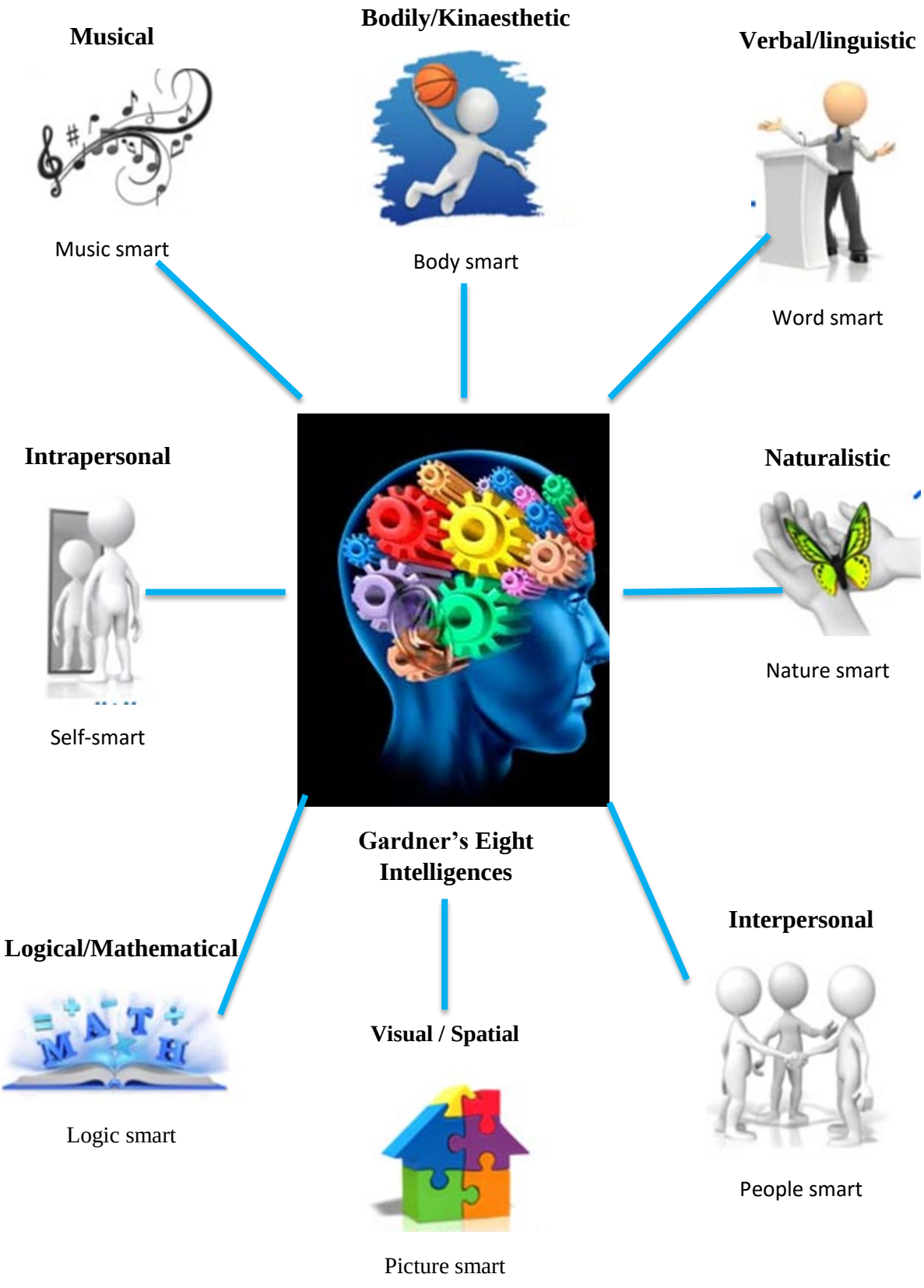
Intelligences	**Description**
Verbal/linguistic	An ability to analyze information and create products involving oral and written language such as speeches, books, and memos.
Logical/Mathematical	An ability to develop equation and proofs, make calculation, and solve abstract problems.
Spatial	An ability to recognize and manipulate large-scale and fine-grained spatial images.
Musical	An ability to produce, remember, and make meaning of different patterns of sound.
Naturalist	An ability identify and distinguish among different types of plants, animals, and weather formation that are found in the natural world.
Bodily/Kinaesthetic	An ability to use one's own body to create products or solve problems.
Interpersonal	An ability to recognize and understand other peoples moods, desires, motivations and intentions.
intrapersonal	An ability to recognize and understand his or her own moods, desires, motivations and intentions.

[29] Howard, Gardner. The Theory of Multiple Intelligences. Harvard Graduate School of Education Larsen .201.Appian Way Cambridje .MA .02138.(617)496-4929.2016.p06.

[30] www.howardgardner.com

The below figure gives more descriptions of the eight intelligences

Figure 2: Gardner's Eight Intelligences



A basic understanding of each of these intelligences shows that they can work together or separate. For example, a dancer can shine in his art only if he has a strong musical intelligence to distinguish the different rhythms and patterns in the music. In addition of that he needs Interpersonal intelligence to grasp how he can emotionally affect his audience through his movements. And finally, he also needs bodily/Kinaesthetic intelligence to complete the movements successfully.

The main messages ascending from Gardner's theory are set out below:

- All people are born with a unique mix of all intelligences.

- Intelligences are combined in very complex ways.

- There are many ways to be intelligent within each category.

- Most people can develop each type of intelligence to an acceptable level of competency.

- Schools tend to focus mostly on two intelligences, those accompanying with academic intelligence, that is to say, linguistic/verbal and logical/mathematical intelligences.

- The school curriculum should be better balanced in order to reflect a wider range of intelligences.

1.1.9 MI Theory and Education

It is important to understand that MI theory was first developed as a psychology science. After that MI theory was adopted by educators to be applied in education. After the emergence of the new theory in the field of education, a larger focus is being directed towards learners and learning rather than on teachers and teaching.

Although MI theory seems to be new in education, it has much more influence on language teaching[31]. This influence that MI theory possesses is mostly because it provides eight different ways of teaching and learning. Providing different ways in teaching and learning is one of the most significant characteristics of this theory. This is called¨8-in-1 strategy¨. Educators are in favour for implementing the MI theory within the teaching programs especially with the reading comprehension skill. The MI theory breaks the traditional mood that is confining the learners and preventing them from getting and acquiring new information in a way they favour and not in a way that is imposed on them.

[31] Haboush, Ziyad Yousif. The Effectiveness of Using a Programme Based on Multiple Intellignces Theory on Eighth Graders' English Reading Comprehension Skills . Unpublished MA Thesis . The Islamic University of Gaza 2010 p 43.

Each learner possess the whole eight types of intelligences in any classroom. So, it is only fair to try to address all those different types of intelligences when designing curriculums, when inside the classrooms and when preparing lesson plans. The primary goal of the learners is to learn in a way that would help them acquire as much information as possible with the advantage of keeping these pieces of information as long as possible. This primary goal could be done through the implementation of the MI theory in teaching[32].

Like salt and spices to food and colours to a beautiful portrait, emotions and feelings make teaching and learning tasty, attractive and productive. MI-based programs or curricular aim at making students not only master reading comprehension skill but also read with feeling and passion. MI theory allows learners to learn according to their preferences. There for, if learners love a lesson or a subject, their motivation will inevitably increase their achievement.

1.1.10 Establishing a MI teaching environment

Gardner made recommendations to teachers for establishing the use of multiple intelligences in their teaching practice[33]. He recommended that teachers must first read, study, and learn more about MI theory and learn from previous practices which others have used. Study in groups with other teachers can be helpful in a way to explore new ideas, compare results, and articulate questions and concerns. Visiting other classrooms which already employ MI theory practices and attending professional development. Preparing conferences and seminars, and networking with other schools are also other sources of getting new ideas and practitioners. He recommended[34] that teachers should plan and launch activities and programs which emerge from their own original ideas and those developed by others.

[32] Haboush, Ziyad Yousif. The Effectiveness of Using a Programme Based on Multiple Intellignces Theory on Eighth Graders' English Reading Comprehension Skills . Unpublished MA Thesis . The Islamic University of Gaza 2010 p 45.
[33] Sunny Cooper, M.S., M.E.d. "General Theories of Memory and Intelligence.". Theories of Learning in Educational Psychology N.P. n.d web .29/02/2016
[34] Ibid.

Gardner also identified a set of conditions that are helpful to MI theory and can help both teachers and learners. These included[35].

1. The first condition that can be helpful to MI theory is 'Readiness'. It is the motivation of learners, a sort of awareness and curiosity, which helps the learner's environment. Teachers are expected to provide activities that help them to develop a state of awareness in order to build a sense of readiness. After that teachers can then begin to build beliefs and practices that are associated with the themes and spirit of multiple intelligences.

2. The second condition is 'culture'. Teachers and learners should recognize that new practices and activities are most likely to emerge in settings that support diverse learners.

3. The third condition is a spirit 'collaboration'. All new approaches, used by teachers, will be more successful where there are occasions for any sort of exchanges among general practitioner. Exchanges are very important and vital, because there are always problems to discuss and decisions to make.

4. The fourth condition is to prepare an atmosphere of 'choice' in any learning situation. This "choice" within the classroom permits to provide meaningful options for curriculum and assessment of student learning. Options should make sense to the learner and give them choices in terms of learning styles. The spirit of multiple intelligence teaching will be uncompleted if the curriculum is too inflexible or if assessment is too narrow.

5. The fifth condition is that MI theory should be treated as one of many 'tools'. It can be used as a means of raising high-quality student work. MI should be linked to the generally accepted learner outcomes.

6. Finally Gardner in his last research about MI emphasizes the importance of 'arts'. He argued that school needs a platform and curriculum that must be rich in visual and musical arts. A curriculum which is rich in visual and musical arts can effectively address the full range intelligences.

[35] Sunny Cooper, M.S., M.E.d. "General Theories of Memory and Intelligence.". Theories of Learning in Educational Psychology N.P. n.d web .29/02/2016

1.2 Section two: Previous studies on MI Theory

Howard Gardner's research on 'multiple intelligences theory' helped educators, parents, teachers and learners to understand the great importance of focusing on individual differences in terms of learning styles. This present research tries to explore how to use students' multiple intelligences in their reading comprehension.

Several studies have been conducted to examine the multiple intelligences theory and its implementation into education. Other researches investigate the role of MI theory in determining the way by which each learner should be taught. This part deals with the previous works that combined the multiple intelligences theory as one of its elements in order to obtain a more diversified and a more appealing teaching-learning experience.

Sima ModirKhamene[36] conducted a research that aims to focus on some fundamental innovative resolutions for EFL learners' reading comprehension. The researchers continued to determine the most frequent multiple intelligences (MI) of the EFL learners in order to provide well-designed takes to remove any existing obstacles to ideal reading. Accordingly, by means of a reliable MI profile, the dominant intelligences of EFL learners were highlighted. As a result of observed differences between the genders concerning the dominant intelligences, the participants were randomly dispersed into distinct control and experimental groups. The results preserved the effects of MI-based reading tasks on both EFL male and female learners in reading comprehension. Further results revealed that EFL female learners go like male learners in reading comprehension. In some, the results of such innovative intelligences-based reading task will grant opportunities to enhance the talents of EFL learners in tackling reading comprehension shortcomings.

Marefat [37] conducted a research that aims to discover whether there is any relationship between students' multiple intelligence profile and their writing products. The result made it clear that kinaesthetic, existential and interpersonal intelligences are making greatest contribution towards predicting writing score. Furthermore, Marefat stated that, based on Gardner's multiple intelligences theory, identifying one's intelligence is a true

[36] Sima, Modirkhamene. "The Effects Of Multiple Intelligences-based Reading Tasks on EFL Learners' Reading Comprehension" .ACADEMY PUBLISHER Manufactured in Finland. Theory and practice in language studies Vol 2, No. 5, pp. 1013-1021, May 2012

[37] Marefat, Fahimeh.Multiple Intelligence: Voices From an EFL Writing Class.Pazhuhesh-e Zabanha-ye Khareji, No.32. Special Issue, English, 2007, p167.

blessing especially in finding out the relationship between the type of intelligence the student possesses and their writing performance.

David W. Chan [38] measured multiple intelligences in a collection of Chinese secondary school teachers in Hong Kong. The relationship between the teachers' areas of responsibilities (or what they teach) and their multiple intelligences was exposed. The research identifies teachers' comparative strengths in interpersonal and intrapersonal intelligences and weaknesses in visual/spatial and bodily/kinaesthetic intelligences. In arts, music, and sport teachers were found to be stronger in intrapersonal and interpersonal intelligences. The results preserved that when using the multiple intelligences as guiding factors, interpersonal intelligence was found to be a significant predictor of the teachers' self-efficacy in helping other individuals (learners).

Ong Eng Tek[39] conducted a research that aims to give an overview on the theory of multiple intelligences , a theory that was advocated by Howard Gardner in his famous cited books, *"Frames of Mind"* (Gardner, 1983) and *"Intelligence Reframed"* (Gardner 1999) . As result of this research, Ong Eng Tek said that Multiple Intelligences Profile Assessment is provided to help teachers to test 'where their students are?' . These profiles give teachers information on every student intelligence profile, which in turn, serves to inform them of the best way to personalize and maximize their learning.

Gaines and Lehmann [40] provided an MI-based project to improve the learners' reading comprehension ability. They conducted a study and investigated fourth grade student's .Gaines and Lehmann also took the social and financial aspect of the learners into account. The study was intended to discover the problems that students face in reading comprehension. The result make it clear that the use of MI strategies was found as a great way to improve the learners' reading comprehension ability and it enhanced their academic performance as well.

[38] CHAN, D.W. 'Assessing Giftedness of Chinese Secondary Students in Hong kong: A Multiple Intelligences Perspective'. High Ability Studies. Journal of Education of Gifted. Vol 29, No. 2, 2005, pp. 187–212. Copyright c2005 Prufrock Press Inc.

[39] Ong Eng Tek. 'The Theory of Multiple Intelligences and Its Aplications Inscience Classroom' SEAMEO RECSAM . Issue 1October 2006. P24.

[40] Gaines,D.,and Lehmann,D.Improving Student Performance in reading comprehension through the use of multiple Intelligences"MA thesis , Saint Xavier University and Skylight professional Development Field-based Master's Program.ED.467 515 . 2002.

Abdelhak Hamoudi [41] conducted a research entitled '*Multiple Intelligences and Teaching English as a Foreign language the case of second –year pupils in Setif*'. The research aimed to examine whether implementing multiple intelligence theory would enhance student's comprehension teaching material. The result of this research made it clear that many new researches confirm that learning is individually specific .Learning is best achieved when multiple domains of instruction are simultaneously introduced. New learning style must be relevant to the learner's preferences and multiple intelligences theory can do this job .MI is the appropriate tool since it helps teachers to reach more learners and enhance their strategies to become better educators. Hamoudi argued that MI theory is part of this new change in learning styles, so it should be included in the Algerian educational system.

The aim of these previous studies on MI theory is to help the researcher to find out what is already known, what others have to be attempted to find out, and what problems remain to be solved. It is needed to demonstrate the relationship between the complete research and the topic under investigation. During our research we read about many experiences of many countries in different periods of time that they really try to use the MI theory (Indonesia, Canada, the USA...etc.). And anyone can easily recognize the absence of using multiple intelligences theory within reading in our country. We hope that this research will be helpful for both teachers and learners in terms of teaching and learning. And we believe that, the greatest tool for developing reading skills is the use of Multiple Intelligences theory.

[41] Abdelhak Hammoudi. Multiple Intelligences and Teaching English as a Foreign Language. The Case of Second -Year Pupils at Malika Gaid Secondary School Setif. Doctorate thesis. FARHAT ABBAS University. SETIF 2010.

1.3 Section three: Reading

According to the purpose of this study, which aims at investigating the usage of multiple intelligences in reading comprehension, this third part is concerned with issues related to reading such as definition of reading , reasons for reading, types of reading and reading comprehension .

Reading is an essential language skill especially when learning a second language[42]. The usage of reading skill allows learners to convert writing into meaning and achieve comprehension. When reading, learners are expected to understand the meaning behind the text that leads them to develop some reading skills. These reading skills aim to facilitate the process of comprehending texts or prints being dealt with. Joy Janzen and Fredericka L. Stoller[43] conducted a research about integrating strategic reading in L2 teaching. They stated that the aim of L2 reading is to create a number of well-developed readers in terms of the strategies that they use to understand a text. This part of research is concerned with the nature of reading, the strategies incorporated in the reading comprehension process and many other constituents of the reading skill.

Reading is very beneficial and important. For example, academically, 'nothing is more important to academic achievement than being a good reader[44]'. This is because reading is part of each and every activity in the classroom. Mikulecky listed some of the benefits learners of a new language can achieve through reading[45]:

- Reading helps learners to think in the new language, rather than thinking in L1 and speaking or writing in L2.
- Reading helps learners to build a better vocabulary in order to reach fluency.
- Reading makes learners more comfortable with written English.
- Reading is undoubtedly the only way for learners to use English if they live in a non-English-speaking country.
- Reading can help if learners plan to study in an English-speaking country.

[42] Haboush, Ziyad Yousif. The Effectiveness of Using a Programme Based on Multiple Intellignces Theory on Eighth Graders' English Reading Comprehension Skills. Unpublished MA Thesis. The Islamic University of Gaza 2010 p 67.
[43] Janzen, J., and Stoller, F .L . Integrating Stratigic Reading In L2 Instruction . Reading in a Foreign Language, Northern Arizona University . 1998. Pp .251-265.
[44] Haboush, Ziyad Yousif. The Effectiveness of Using a Programme Based on Multiple Intellignces Theory on Eighth Graders' English Reading Comprehension Skills. Unpublished MA Thesis . The Islamic University of Gaza 2010 p 69.
[45] Ibid.

1.3.1 Definition of Reading

Many definitions were given to reading .Yet, none of these definitions contradicted with the other; but they were rather complementary. Reading was defined by Moyle[46] as "…turning the collection of symbols seen upon a piece of paper into 'talk', or in the case of silent reading, into an images of speech sounds". Obviously, this definition deals with a passive reading since it stated nothing about understanding or processing, which is an activation of the mental abilities required.

Unlike Moyle, Crowder[47] argued that "reading is connected with almost all mental activities that there are for that reason, it has been called visually guided thinking…" This is more comprehensive than Moyle's definition but less than Millrood's definition[48] who thoroughly and comprehensively defined reading as "…a visual and cognitive process to extract meaning from writing by understanding the written text, processing information, and relating it to existing experience".

Accordingly, reading is not just a passive process or a simple decoding of letters and words. Reading must include: visual decoding, mental processing, of what has been decoded, and relating it to one's experience. So, when learners read, they should not focus on memorizing patterns and practicing fluency; this is a passive view of reading. Strang[49] clarified that "reading is more than seeing words clearly, more than pronouncing printed words correctly, more than recognizing the meaning of isolated words. Reading requires the reader to think, feel, and imagine." Similar to MIllrood's, Strang include the issue of relating reading to one's experiences in order to better understand and comprehend texts.

1.3.2 Reasons for Reading

Whatever the reading material is, people are guided towards reading for varying reasons and needs. Individuals take time to read to satisfy a special need or to fulfil a particular goal. Reading helps people to think as it is an active mental process. It builds the readers' skills as it assists them understand difficult concepts. Reading introduces people to

[46] Haboush, Ziyad Yousif. The Effectiveness of Using a Programme Based on Multiple Intelligences Theory on Eighth Graders' English Reading Comprehension Skills. Unpublished MA Thesis . The Islamic University of Gaza 2010 p 71
[47] Ibid.
[48] Ibid.
[49] Ibid.

wider range of vocabulary, reduces boredom and strengthens the memory. Harmer (cited in Hboush, 2001) introduced the main reasons for reading[50]:

A- Instrumental (usefulness motive): it is reading for taking advantage or acquiring needed knowledge to operate something. This kind of reading includes many situations like in the case of reading textbooks at school, reading manual, brochures and instructional guides.

B- Pleasurable (interest motive): it is reading for entertaining oneself, pleaser, amusement and for passing an amusing time like reading novels, poetry and similar materials. The purpose here is not a needed knowledge or to answer questions rather than satisfy oneself.

1.3.3 Types of Reading:

When reviewing many books that are related to reading, researchers found that there is no clear answer whether this is type or skill of reading[51]. The two words skill and type were used interchangeably when talking about reading but identifying which word is the most appropriate is not important as long as both of them assists to improving the learners' reading and increase their comprehension. Haboush and Aldeson, J.C[52] (Alderson, J.C is a senior lecturer in the Department of Linguistic, University of Lancaster) consider the following as types of reading.

A- Extensive Reading:

Extensive reading is used when learners read as much as possible, for their own pleasure in slow and relaxed way. When using extensive reading, readers don't need dictionary or translation; because texts are written in the level of the reader. It aims to guide readers to enjoy what they read and build their confidence. Extensive reading is used to understand the main idea of a text and not the specific details. By the end extensive reading would result to improve the language skill, and strengthen linguistic competences within the words they already know.

[50] Haboush, Ziyad Yousif. The Effectiveness of Using a Programme Based on Multiple Intelligences Theory on Eighth Graders' English Reading Comprehension Skills. Unpublished MA Thesis . The Islamic University of Gaza 2010 p 72.

[51] For example, skimming and scanning were classified as skills of reading but in other books they are classified as types of reading.

[52] Aldeson, J.C *testing Reading Comprehension*. *Reading in foreign language*, 6(2). University of Lancaster 1990. Pp. 425-438.

B- **Intensive Reading:**

Learners are more focused in intensive reading. They are less relaxed and dedicated to achieve study objectives. Intensive reading calls a greater attention to grammatical forms, discourse, vocabulary items, and other surface structure details. Unlike extensive reading, Intensive reading takes place by the help of teachers.

C- Top-down and bottom-up:

Harmer argued that Top-down reading is much similar to looking down on a forest from a plane; but bottom-up is much similar to ones' studying individual trees within the forest as he is in the middle of it (cited in Haboush, 2010). In other words bottom-up focuses on detailed information such as sounds, words, phrases, and then put them together to accomplish the whole picture, and top-down focuses on the overall picture .The appropriate choice when readers try to find details in the texts is bottom up; but when they are looking for the main idea the choice is top-down.

D- Reading Aloud:

Reading aloud is very important activity in second language classroom learning[53]. It helps teachers to discover the reader's pronunciation problems and choose the reading materials appropriate for their level. It helps learners not only in improving their reading skill but also their listening skill[54]. It builds the student-teacher trust relationship. Before reading aloud, learners should listen to model reading either by tape or by teacher.

E- Silent Reading:

Silent reading improves learners understanding because it helps them to concentrate on comprehending the text rather than the pronunciation[55]. When using this type, readers carry out without worrying about stops or about pronouncing the words correctly. Silent reading is considered faster because we don't need to read one word at a time and it is related to the fast movement of the eye.

[53] Aldeson, J.C *testing Reading Comprehension*. *Reading in foreign language*, 6(2). University of Lancaster 1990. Pp. 425-438.
[54] Ibid.
[55] Ibid.

F- Word by Word Reading:

Word by word reading takes a lot of time and effort because the readers have a habit to mark poses and to focus more on the written text[56]. Imagine a teacher addressing his speech pausing after each word. At the end listeners will obtain a few comprehensions because of these pauses. Word by word reading is used when new idea and concepts are introduced as well as with scientific materials[57].

G- Skimming:

Skimming is one of the tools readers use in order to read more in less time. They read according to their purposes and focus only on the information they need. Skimming refers to looking only for the general or the main idea. What you should read is more important than what you leave out.

How to skim[58]:

- Read the title.
- Read the introduction or the first paragraph.
- Read the first sentence of first /each paragraph.
- Read any heading.
- Notice any picture, graph, and chart.
- Read summary or last paragraph.

H- Scanning:

Scanning is one of the tools that readers use in order to read more in less time. Learners use this type to identify and locate a specific word or piece of information quickly within whole text[59]. They will not achieve a full comprehension of the text in front of them. They selectively read and skip through sections of the passage. In scanning readers have a question in their mind and they read a passage just to find out the answer. Skimming readers are skilled in avoiding irrelevant and unimportant information.

[56] Haboush, Ziyad Yousif. The Effectiveness of Using a Programme Based on Multiple Intellignces Theory on Eighth Graders' English Reading Comprehension Skills. Unpublished MA Thesis . The Islamic University of Gaza 2010 p 69.
[57] Ibid.
[58] Aldeson, J.C *testing Reading Comprehension*. *Reading in foreign language*, 6(2). University of Lancaster 1990. Pp. 425-438.
[59] Ibid.

1.3.4 Reading Comprehension:

The reading skill is often linked to the concept of comprehension in many books. So what is comprehension? Lenz (cited in Haboush, 2010) stated that comprehension is the ability to build meanings from text through decoding the written words and previous knowledge[60]. So reading any written text is worthless if learners cannot comprehend what they read. Reading comprehension is building meaning out of a text which helps leaners understand a written text. When readers have no previous knowledge about the text under the study, this could represent a major problem for them. So it is strongly recommended to integrate what learners previously know about the text[61].

1.3.5 Reading comprehension skills:

Comprehension is a very complex activity or process that demands much from the readers. It necessitates a set of skills working all together to achieve good results in reading comprehension. Readers must develop these skills in order to help them comprehend what they read and improve their reading. Haboush (2010) categorised reading skills as follows:

1. Knowing the meaning of words from context: Readers should guess the meaning of unknown words through context. Extracting meaning is very important skill that helps readers when they find new words[62].
2. Summarizing: A summary tells you the important details in your own words[63]. After reading a passage ask yourself what is the main idea or main event.
3. Compare and contrast: When a learner compares things he tells how they are alike. And when he contrasts things he tells how they are different[64].
4. Making inference and drawing conclusions: an inference is an educated guess[65]. A conclusion is an opinion or judgment. The difference between inference and conclusion is time. Inference takes place during reading and making conclusion takes place after the reader finishes reading.

[60] Haboush, Ziyad Yousif. The Effectiveness of Using a Programme Based on Multiple Intellignces Theory on Eighth Graders' English Reading Comprehension Skills. Unpublished MA Thesis . The Islamic University of Gaza 2010 p 69.
[61] Ibid.
[62] Haboush, Ziyad Yousif. The Effectiveness of Using a Programme Based on Multiple Intellignces Theory on Eighth Graders' English Reading Comprehension Skills. Unpublished MA Thesis . The Islamic University of Gaza 2010 Pp 15-33.
[63] Ibid.
[64] Ibid.
[65] Ibid.

5. Distinguishing facts from opinion: A fact is something you can check to find out if it is true[66]. An opinion tells what a person thinks or feels about something.
6. Making predictions: A prediction is thinking about what will happen next[67]. It is also thinking about what the written passage is about

To conclude, reading is an essential language skill especially when learning a second language. Reading must include visual decoding, mental processing, of what has been decoded, and relating it to one's experience. To make reading comprehension significant, it is very important to create a variation of all Gardner's intelligences according to the nature of the written texts.

[66] Ibid.
[67] Ibid.

Conclusion:

Intelligence and reading were the main elements discussed in this chapter. Intelligence was observed as one of the most exceptional aspects of human being through the history of psychology. The word 'Intelligence' was defined as the mental aptitude and abilities which are measured by an ordinary IQ test. The Multiple Intelligences (MI) theory was proposed as an encounter view against IQ test. MI theory was first developed by Howard Gardner in 1983. This theory suggests that there are many ways people understand and perceive the world. This theory helped teachers, parents and learners to understand the importance of individual differences in terms of learning style. MI theory could be used to teach learners and help them to better understand, and this is the aim of this study. In addition to intelligence, reading is an essential language skill precisely when we are speaking about learning a second language. Reading must include visual decoding, mental processing, and relating it to one's experience. To make reading comprehension significant it is very important to use the MI theory. The use of MI theory in reading creates a variation of all Gardner's intelligences according to the nature of the written texts.

2. Chapter Two:

Methodology and Procedures

Introduction:

This chapter describes the procedures the research has gone through. It gives a full description of the methodology and procedures of the study. At first, the overall research design is explained. This is followed by the presentation of the sample and its geographical context. Then, data analysis and procedures of data collection are stated. Finally, the summary of results concerning this chapter is discussed.

2.1 Research design:

The purpose of this research is to examine the usage and reliability of MI theory in reading comprehension by enhancing variation of different learners' intelligences. This study followed an experimental approach of research since this case study tried to identify which type of intelligence is/are the most suitable and appropriate to enhance the learner's ability in English reading comprehension texts. Students will learn depending on their learning preferences and styles. When identifying which type or types of intelligence is/are most appropriate to enhance the students' performance in English reading we can increase the level of reading of any learners.

To achieve the aim of this study, a group of students will first take a survey /questionnaire in order to identify their own intelligence profiles based on the Walter McKenzie's survey (McKenzie, 1999). This survey will be used also to have an idea about the leaner's prominent preference, dominant intelligence and learning styles. In addition, these students will take a TOEFL (Test Of English as a Foreign Language) reading comprehension practice test. The TOFEL test is used to have an idea about the student's reading abilities to use and understand English in an academic setting.

The results from the reading comprehension test (TOEFL) and the MI survey were evaluated and analysed. The findings of this study will be used to come up with some sort of suggestions or recommendations to be taken into consideration when trying to design a program. The designed program that expect or regard MI theory will fit the students learning styles and integrate the appropriate intelligences that students possess to perform well in their English reading comprehension texts and avoid previous problems.

2.2 Statement of the Problem:

Learners within the same classroom score in different levels. Some score higher grades and they are recognized as the most intelligent students, others score lower grades and they are recognized as the weakest. High achievers learn the same lessons in the same manner as the other students in the classroom. They use the same teaching strategies, learning approaches and the same materials used by the normal students. The learner's intelligences are all measured according to traditional methods which take into consideration the linguistic and logical intelligences giving no chance for students with other intelligences to shine.

Individuals according to Howard Gardner's theory possess multiple intelligences that allow them to shine if those intelligences are used like it is the case with the linguistic and logical intelligences. Each learner has its unique learning style and learning preferences. Therefore, it is not fair to measure the process of learners in a given course by using standardized tests or exams based only on two traditional intelligences (linguistic and logical intelligences) giving no chance for learners with other intelligences to shine. To have more information in this area, this study aims to clarify the role of multiple intelligences theory and learning preferences in improving the students' reading comprehension.

2.3 Research Questions

The present study attempts to give answer to the following questions:

Regarding the multiple intelligence theory and the reading ability:

1) Is there any relationship between English major learners in reading comprehension and their MI profiles?
2) Which type(s) of intelligence is/are the best predictor (or responsible) of learner's performance in reading comprehension test?

2.4 Hypothesis:

1) It is hypothesised that there is no relationship between English reading comprehension and MI theory.
2) It is hypothesised that Multiple Intelligence theory cannot help learners and teachers to better understand each other and cannot improve their reading achievements.

2.5 The geographical setting of the study area:

This research was primarily conducted in the area of Laghouat and under the administration of University Amar TELIDJI of Laghouat in the academic year 2015/2016. Laghouat is an oasis province known as the gate of Sahara. It is located at 400 km south of the Algerian capital Algiers.

Founded on 18 September 2001, the University of Laghouat is named Amar TELIDJI after a long evolution marked by the creation of a Normal Superior School of Technical Education (ENSET) and an Institute of Mechanical Engineering (INGM), according to Decree No. 165-86 of August 6, 1986. The academic centre for retraining ENSET was created according to Decree No. 157-97 of 10 May 1997. Four (04) Institutes: Electric Engineering, Mechanical Engineering, Civil Engineering, Economics was involved and the name ENSET was changed to be the institution University Centre Amar TELIDJI Laghouat; promoting a multidisciplinary University centre since 18 September 2001, by Decree No. 270-01 of 18 September 2001. The reformation of the university of Laghouat was done through the creation of six faculties (Technology, Sciences, Law and Political Sciences, Humanities and Social Sciences, Humanities and Languages, Economics, Business and Management Sciences) and an institute of sciences and techniques 'sport and physical activity (sport science) by Executive Decree No. 10-198 of August 25, 2010. The starter of the LMD system and reform of education (new architecture, reorganization lessons ...) is applied since 2006. The Faculty of Medicine was created in 2013by Executive Decree No. 13-301 of 14 March 2013.

2.6 Sample of the Study:

A population commonly contains too many individuals to study accessibly, so an investigation is often limited to one sample drawn from it[68]. The participants in this study are 20 third year English students at the University of Amar TELIDJI in Laghouat in the academic year 2015-2016. They are of both genders and the average age of these students is between 20 to 31 years old. This population of third year students was mainly chosen because the students possess a more developed reading ability compared with younger students, so they can take McKenzie's survey and TOEFL reading test by their own. Even though these students can read, they still meet a lot of reading comprehension difficulties when they are not provided with the appropriate instructional materials.

2.7 Description of Variables

Variables can be classified into independent and dependent variables. Independent variable is a variable which is selected, organised, and evaluated by the researcher[69]. On the other hand, dependant variable is the variable in which the researcher observed in order to find out the effect of the independent variable. In this research the participants' grade levels of reading were the independent and the students' multiple intelligence scores are the dependent variables.

2.8 Research instruments

Any research must obtain tools or instruments for data collection that achieve the aims of a given research. In order to collect the data that helps achieve the goals of this study, the following instruments are used in this research:

- Walter McKenzie Multiple Intelligences Survey
- A TOFEL Reading Comprehension Test

2.8.1 Walter McKenzie Multiple Intelligences Survey

Walter McKenzie Multiple Intelligence Survey, a non-copyrighted instrument, was designed by Walter McKenzie in 1999. It is an inventory that can be easily used to identify individuals' MI profiles. Thanks to it we can know the predominant intelligence in human

[68] Kothari C.R. *Research Methodology Methods and Techniques*. Second edition. new age international (p) limited, publishers. New Delhi. 2004. Pp 04-15.
[69] Ibid.

being. The survey evaluates to what degree the student is Verbal/linguistic, Logical/Mathematical, Visual/Spatial, bodily/Kinaesthetic, Musical, Interpersonal, Intrapersonal, Naturalistic or existential. It consists of nine sections. Each section comprises ten (10) questions. It presents 90 statements related to each of the nine intelligences proposed by Gardner. All the ninety sections are mixed-up to avoid student's intelligence Identification during answering the questions .Each student was asked to complete the questionnaire by putting a number from 0 to 1 next to each statement that describes the most. '1' shows that the statement describes the student and '0' or blank shows that it does not.

2.8.2 TOFEL Reading Comprehension Test

The Test Of English as a Foreign Language (TOEFL) measures learners' ability of English language proficiency in reading, listening, and writing. TOFEL reading test was selected from a TOEFL reading practice tests a short version, created by Educational Testing Service 2016. The reading comprehension test consisted of several passages each one is followed by several questions about it. The participants choose the one best answer (A), (B) (C), or (D) to each question. IN total, 20 questions were answered by each participant. The reading section is mostly consisted of multiple choice questions and the raw score will be equal to the number of questions answered correctly.

2.9 Procedure of collecting data

The third year English students were asked to cooperate by answering the questions given to them and by reading the instructions carefully before answering. Walter McKenzie's survey and the TOFEL Reading Comprehension Test were both used in this research.

At first the participants had to answer ninety (90) questions which constitute the nine sections of McKenzie Multiple Intelligence survey. Students will be asked to place (1) next to each statement they feel accurately describes them. After that the score will be equal to the number of ones in each section.

Example:

Section1

__1__I enjoy categorizing things by common traits

_____Ecological (Environmental) issues are important to me

__1__I enjoy working on a garden

_____I believe preserving (saving/keeping) our national parks is important

__1__Putting things in hierarchies (system of levels) makes sense to me

_____Animals are important in my life

__1__ My home has a recycling system in place

_____I enjoy studying biology, botany and/or zoology

__1__I spend a great deal of time outdoors

__5__ Total for section 1

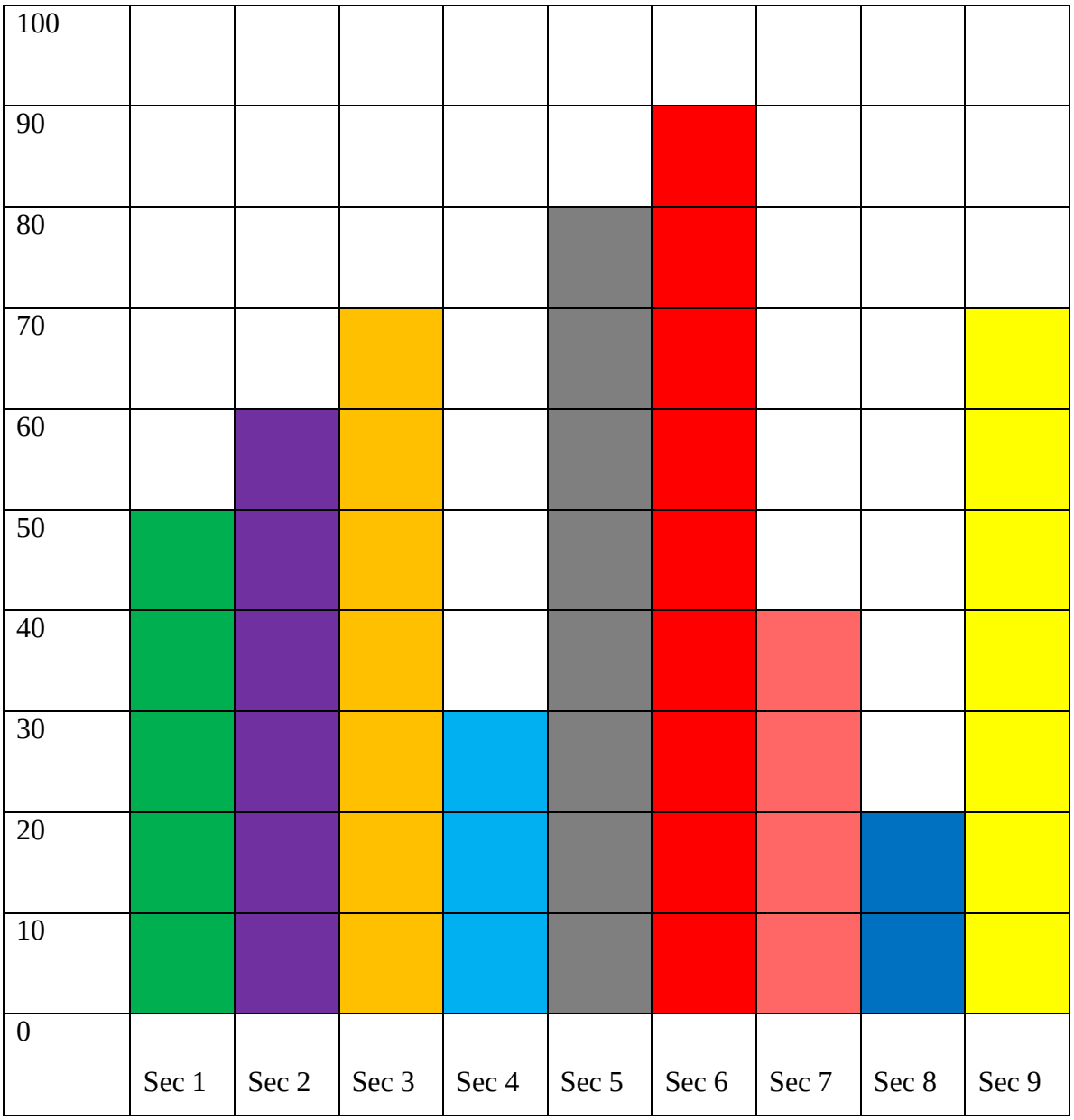
Once the survey is completed (nine section), the next step consisted of distributing the total of each section with their corresponding point under the nine heading suggested. Then the total from each section is multiply by 10. See the table below:

Table 2: Distributing total of the nine sections

Section	Total Forward	Multiply	Score
1	5	X10	50
2	6	X10	60
3	7	X10	70
4	3	X10	30
5	8	X10	80
6	9	X10	90
7	4	X10	40
8	2	X10	20
9	7	X10	70

The last step in creating MI profiles is to put scores of each section with their corresponding section under the nine sections suggested: Naturalistic, Musical, Logical, Existential, Interpersonal, Kinaesthetic, Visual, Intrapersonal, and Verbal .And this will construct the bar graph provided. The heading which got the highest scores presented the predominant intelligence.

Figure 3: Descriptive of the MI Profiles of one Participant



Section 1 – This reflects Naturalist strength

Section 2 – This suggests Musical strength

Section 3 – This indicates Logical strength

Section 4 – This illustrates Existential strength

Section 5 – This shows Interpersonal strength

Section 6 – This tells Kinaesthetic strength

Section 7 – This indicates Verbal strength

Section 8 – This reflects Intrapersonal strength

Section 9 – This suggests Visual strength

After they finish answering the nine sections of McKenzie Multiple Intelligence survey, the same participants had to answer twenty (20) questions which constitute the TOEFL Reading Comprehension Test. The participants will read some passages followed by several questions about each passage. They choose the one best answer (A), (B), (C), or (D) to each question. They are asked to answer all questions following the passage on the basis of what is stated or implied in the passage.

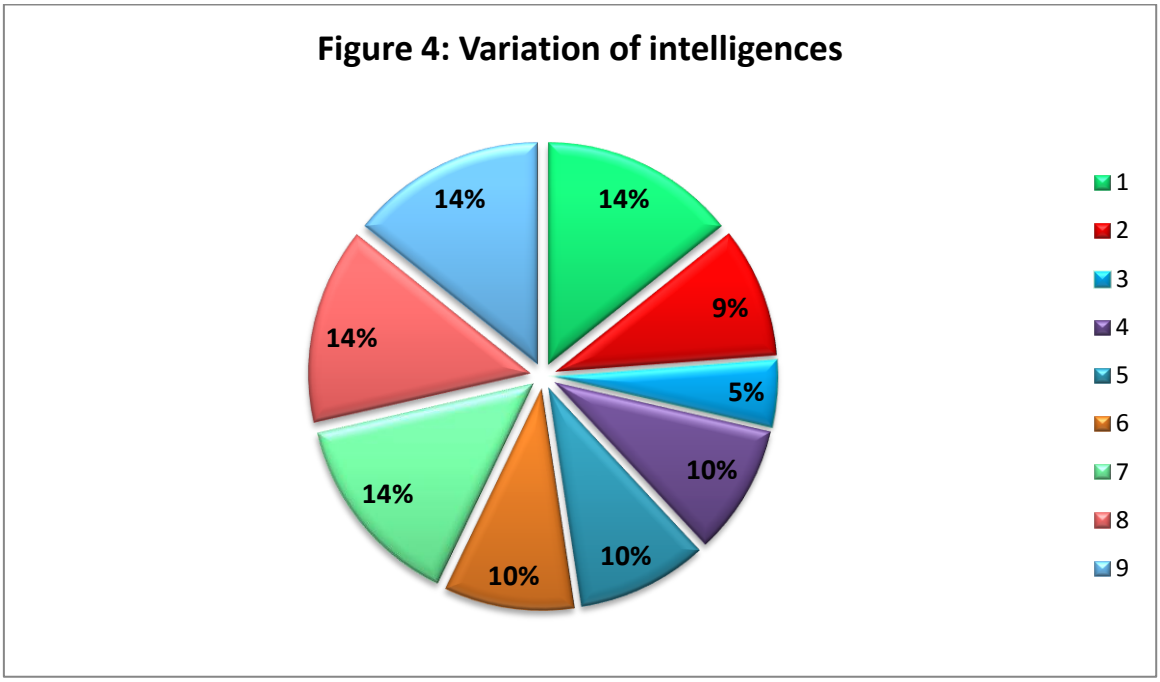
2.10 Summary of results

A MI profile of each student was made, which represents the strongest and the weakest intelligence the student possesses. The scores of the survey were subject to a descriptive statistical analysis and the results are shown in Table below.

Table 3: Distribution of the MI Profiles of the Participants

Name	*Naturalist*	*Musical*	*Logical*	*Existential*	*Interpersonal*	*Kinaesthetic*	*Verbal*	*Intrapersonal*	*Visual*	*strength*
1	50	40	60	30	30	60	50	50	70	***Intrape***
2	70	40	40	50	20	50	60	30	60	***Visual***
3	30	70	20	40	70	60	30	40	20	***Visu-Exist***
4	50	80	80	60	60	40	40	60	30	***Music***
5	40	90	90	70	20	50	20	70	80	***Music***
6	60	70	60	80	40	60	30	50	70	***Logic***
7	80	40	70	20	50	80	90	60	60	***Kinaes***
8	90	20	30	60	60	30	60	80	30	***Natural***
9	40	70	50	50	70	20	70	30	40	***Interper***
10	80	60	60	40	20	60	50	20	50	***Natural***
11	30	80	70	30	30	40	40	40	60	***Interper***
12	70	50	60	20	80	70	30	60	50	***Exist***
13	40	60	30	50	60	50	70	30	30	***Kinaes***
14	60	40	40	80	40	60	60	90	70	***Verbal***
15	90	40	50	80	50	90	50	70	60	***Natural***
16	30	30	20	60	60	30	40	80	40	***Verbal***
17	70	40	60	80	30	80	80	90	30	***Logic***
18	70	20	30	40	50	80	70	40	30	***Interper***
19	60	30	70	30	60	70	50	20	40	***Visual***
20	30	60	20	50	70	40	40	30	90	***Intrape***

The distribution of the MI Profiles of the Participants gives the researcher an idea about the sample chosen. This demonstrates that the sample was well chosen, and all the intelligences are present within the sample. The variation of participant's intelligence is shown in chart below.



1 represents the students who have Naturalistic intelligence.

2 represents the students who have Musical intelligence.

3 represents the students who have Logical intelligence.

4 represents the students who have Existential intelligence.

5 represents the students who have Interpersonal intelligence.

6 represents the students who have Kinaesthetic intelligence.

7 represents the students who have Verbal intelligence.

8 represents the students who have Intrapersonal intelligence.

9 represents the students who have Visual intelligence.

The results of TOEFL reading comprehension test are shown in the table blow.

Table 4: Descriptive of the participant's TOEFL reading comprehension (N=20).

Test	**N**		**Minimum**	**Maximum**
	Valid	Missing		
Reading	20	0	04	19

Conclusion:

The variation of participant's intelligences gives the researcher an idea about the MI Profiles of each Participant. The results from the reading comprehension test (TOEFL) and the MI survey were evaluated and analysed. The findings of this chapter will be used, in the next chapter, to come up with some sort of suggestions or recommendations to be taken into consideration when trying to design a program. The next chapter will represent the data analyses and discussion of results obtained in this second chapter. This will demonstrate the students learning styles and integrate the appropriate intelligences that students possess to perform well in their English reading comprehension texts and avoid previous problems.

3. Chapter Three:

Results' Discussion and Recommendations

Introduction

This study aims to discover the influence that multiple intelligence theory provides in increasing the students' reading comprehension. This chapter represents the data analyses and discussion of results obtained in the second chapter. It is an analytical study of tests that was concentrating towards assessing the students multiple intelligences profiles and their reading comprehension abilities. The results reached from this study were subject to a statistical analysis to provide an answer to the research questions. Tables and graphs were used for additional clarification of data interpretation.

3.1 Statistical terms:

The results were figured through a number of statistical processing formulas such as means frequencies, variance and standard deviation. It is important in any research to calculate the mean frequencies, variance and standard deviation in order to establish relationships between variables. To make things clear the definition of these terms and example are given below:

Deviation just means how far from the normal the number is. The Standard Deviation is a measure that is used to quantify the amount variation or how spreads out numbers are. Its symbol is σ (the Greek letter sigma). The formula is very easy: it is the square root of the Variance. Standard Deviation $\sigma = \sqrt{}$ Variance

So now you ask, what is the Variance? The Variance is defined as the average of the squared differences from the Mean. The Variance measures how far each number is from the Mean. In order to calculate the variance you need to follow these steps:

- Calculate the Mean (which is the simple average of the numbers in a data set)
- Then for each number: subtract the Mean and square the result (squaring the differences to make them positive).
- Then work out the average of those squared differences.

Example:

You and your friends have dogs. You just want to measure the heights of your dogs (in millimeters). The heights of each dog at the shoulders are: 600mm, 470mm, 170mm, 430mm and 300mm. Now can you find out the Mean, the Variance, and the Standard Deviation?

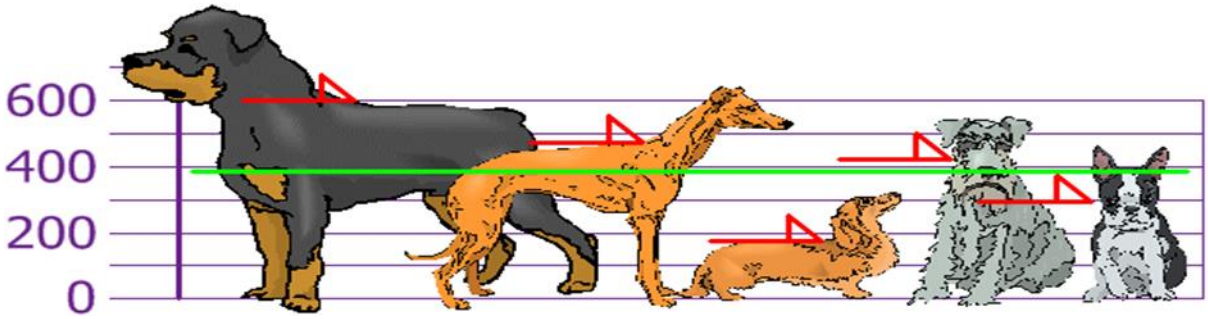
Answer:

Your first step is to find the Mean:

Mean = (600 + 470 + 170 + 430 + 3005) /5 = 1970 /5 = 394

So the mean (average) height is 394 mm. Let's plot this on the chart (the green line in the middle represent the Mean).

Figure 5: The Mean.



Now we calculate each dog's difference from the Mean:

To calculate the Variance, take each difference, square it, and then average the result:

Variance: $\sigma^2 = \frac{206^2 + 76^2 + (-224)^2 + 36^2 + (-94)^2}{5}$

$$= \frac{42.436 + 50776 + 50.176 + 1.296 + 8.836}{5}$$

$$= \frac{108.520}{5} = 21.704.$$

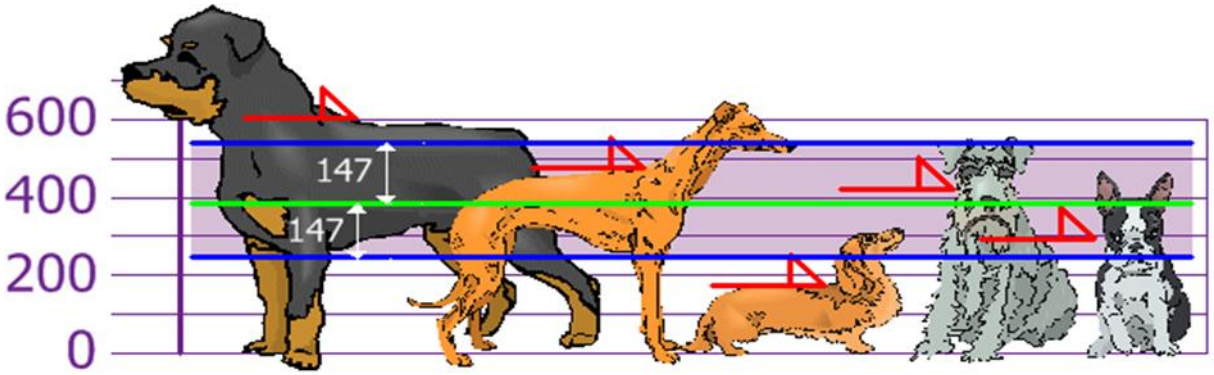
So the Variance is 21.704

And the Standard Deviation is just the square root of Variance, so:

Standard Deviation σ = √21.704 = 147, 32... = 147 (to the nearest mm)

And the good thing about the Standard Deviation is that it is useful. Now we can show which heights are within one Standard Deviation (147mm) of the Mean:

Figure 5: The Standard Deviation



So, using the Standard Deviation we have a "standard" way of knowing what is normal, and what is extra-large or extra small.

3.2 Data Analysis and Interpretation

The students' MI profiles were identified. The intelligences mean and standard deviation were calculated. The results are shown in the table below.

Table 5 Descriptive Statistics of the Mean and Standard Deviations (N=20)

Intelligences	N		Mean	Std. Deviation	Minimum	Maximum
	Valid	Missing				
Naturalistic	20	0	53,5	19,81	20	90
Musical	20	0	48,5	21,27	20	90
Logical	20	0	51,5	20,31	20	90
Existential	20	0	48,5	18,24	20	80
Interpersonal	20	0	54	19,59	20	90
Kinaesthetic	20	0	51,5	18,06	20	90
Verbal	20	0	52	22,04	30	90
Visual	20	0	50,5	19,04	20	90
Intrapersonal	20	0	52,5	19,26	20	80

The Mean of each intelligence is calculated to decide which is the strongest and the weakest intelligence the students possess. According to Table 1 results, the students show strength with the interpersonal intelligence (Mean= 54). The students' second highest intelligence is the Naturalistic (Mean= 53.50) followed by Intrapersonal intelligence (Mean= 52.50). The weakest intelligence the students possess is the Existential (Mean= 48.50). Other intelligences include verbal intelligence (Mean=52), bodily kensthitic and

logical intelligence (Mean=51.50), then Visual and Musical intelligence (Mean=50.50). The students'' reading comprehension ability was also evaluated using a TOFEL Reading Comprehension test. The results are shown in the table below.

Table 6: Descriptive results of reading' Mean and Standard Deviations (N=20)

Test	N		Mean	Std. Deviation	Minimum	Maximum
	Valid	Missing				
Reading	**20**	**0**	**11,05**	**4,50**	**3**	**19**

According to the table, the mean of the reading comprehension TOFEL test is M=11.05 and the standard deviation is Std-deviation=4,50 . The scores are ranging between 3 as a minimum score and a 19 as a maximum score. From observing the lowest score which is 3 and the Mean which is M=11.05, it is obvious that some participants faced difficulties in understanding the given texts. The difficulty comes as a result of the complex words and sentence structures and that is what characterized academic text. When regarding the standard deviation which is Std-deviation=4,50 and the Mean M=11,05 so the deviation of majority students' scores are included between11,05plus or minus 4,50(07,20 and 16,20).

3.3 Description of research questions and results

In this study two research questions were proposed. The first question is concerned with the relationship between English major students in reading comprehension and their Multiple Intelligence profiles. The second question is concerned with recognizing the type of intelligence(s) that is\are the best predictor of learner's performance in reading comprehension test. A numerous analysis was conducted using the reading scores as an independent or criterion variable and the nine types of intelligence scores as a dependant or predictor variables. The results are showed in table 7.

Table 7: Distribution of the different intelligences along with TOFEL marks

Name	*TOEFLM*	*Natur*	*Music*	*Logic*	*Existential*	*Interperson*	*Kinaesth*	*Verbal*	*Intraperson*	*Visual*	*strength*
1	11	50	40	30	30	60	50	50	70	30	***Intrape***
2	13	70	40	50	20	50	60	30	60	80	***Visual***
3	04	30	70	40	70	60	30	40	20	70	***Visu-Exist***
4	09	50	80	60	60	40	40	60	30	50	***Music***
5	08	40	90	70	20	50	20	70	80	30	***Music***
6	10	60	70	80	40	60	30	50	70	40	***Logic***
7	18	80	40	20	50	80	90	60	60	60	***Kinaes***
8	19	90	20	60	60	30	60	80	30	50	***Natural***
9	05	40	70	50	70	20	70	30	40	30	***Interper***
10	18	80	60	40	20	60	50	20	50	40	***Natural***
11	04	30	80	30	30	40	40	40	60	70	***Interper***
12	13	70	50	20	80	70	30	60	50	60	***Exist***
13	06	40	60	50	60	50	70	30	30	40	***Kinaes***
14	11	60	40	80	40	60	60	90	70	60	***Verbal***
15	19	90	40	80	50	90	50	70	60	50	***Natural***
16	07	30	30	60	60	30	40	80	40	20	***Verbal***
17	13	70	40	80	30	80	80	90	30	80	***Logic***
18	14	70	20	40	50	80	70	40	30	40	***Interper***
19	12	60	30	30	60	70	50	20	40	80	***Visual***
20	07	30	60	50	70	40	40	30	90	70	***Intrape***

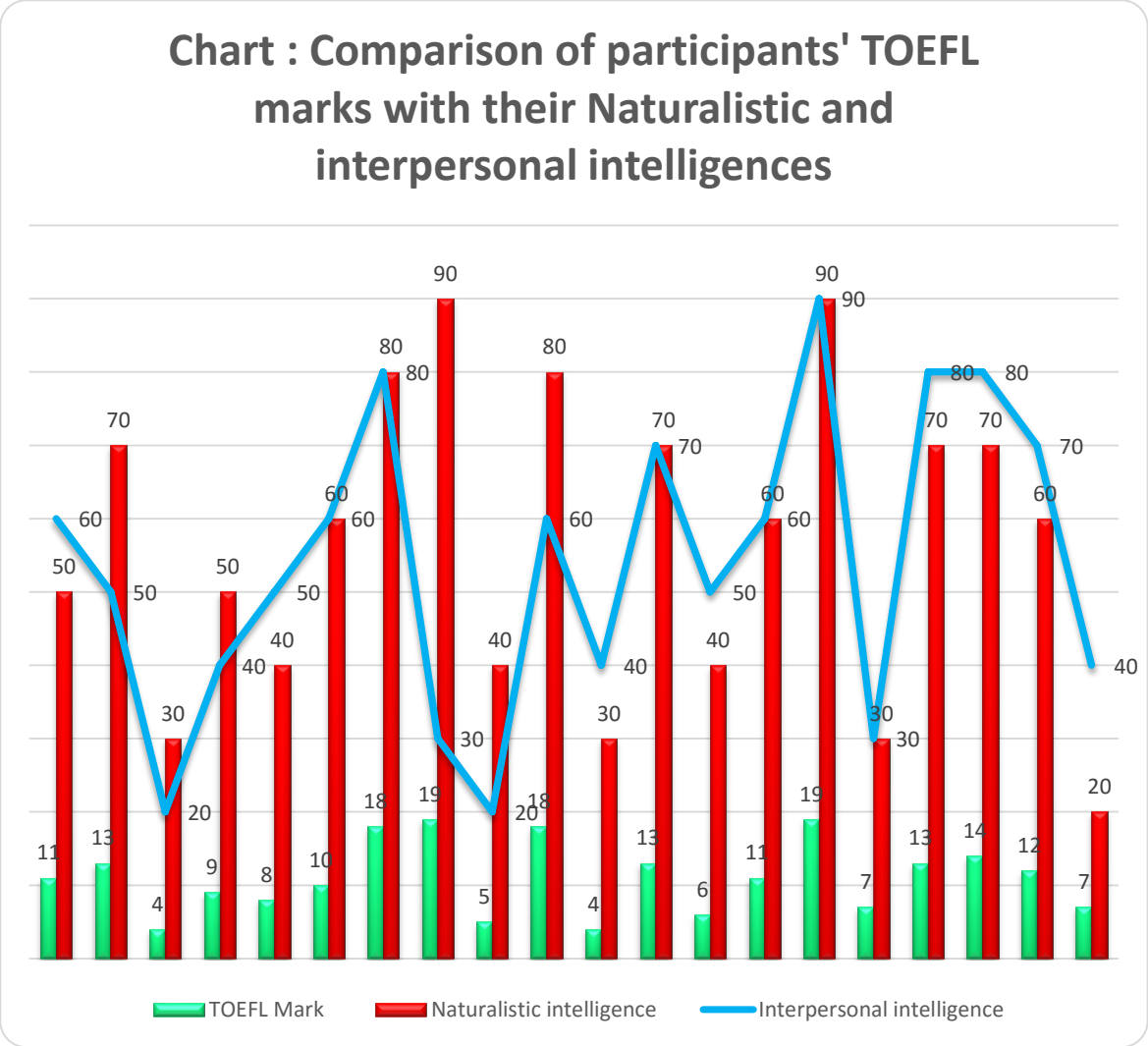
It is not easy to recognize any relationship between participants' reading marks and their MI profile in big table. For that reason nine tables of reading marks and each intelligence were prepared and analysed. We look for the table in which participants' reading marks match with their intelligence. The choking result is in table 8.

Table 8: Comparison of participants TOFEL marks with their Naturalistic and Interpersonal intelligences

Name	Interpersonal intelligence	*TOEFL Mark*	Naturalistic intelligence
1	60	11	50
2	50	13	70
3	20	04	30
4	40	09	50
5	50	08	40
6	60	10	60
7	80	18	80
8	30	19	90
9	20	05	40
10	60	18	80
11	40	04	30
12	70	13	70
13	50	06	40
14	60	11	60
15	90	19	90
16	30	07	30
17	80	13	70
18	80	14	70
19	70	12	60
20	40	07	20

From the table above we noticed that 11 participants have a high level (more than50) in naturalistic intelligence. And 9 participants have a high level in interpersonal intelligence. Many students their TOFEL reading marks match with their predominant intelligences (naturalistic and interpersonal intelligences). The results established from the table prove demonstrate that there is a strong relationship between reading and some types of intelligences. This led the researcher to realise that there is a significant correlation between the reading and the MI theory. By this result the first research question which is "Is there any relationship between MI theory and Reading" is answered. And from these

result we can say yes there is a strong relationship between MI theory and Reading. Further results can be obtained from the chart below.



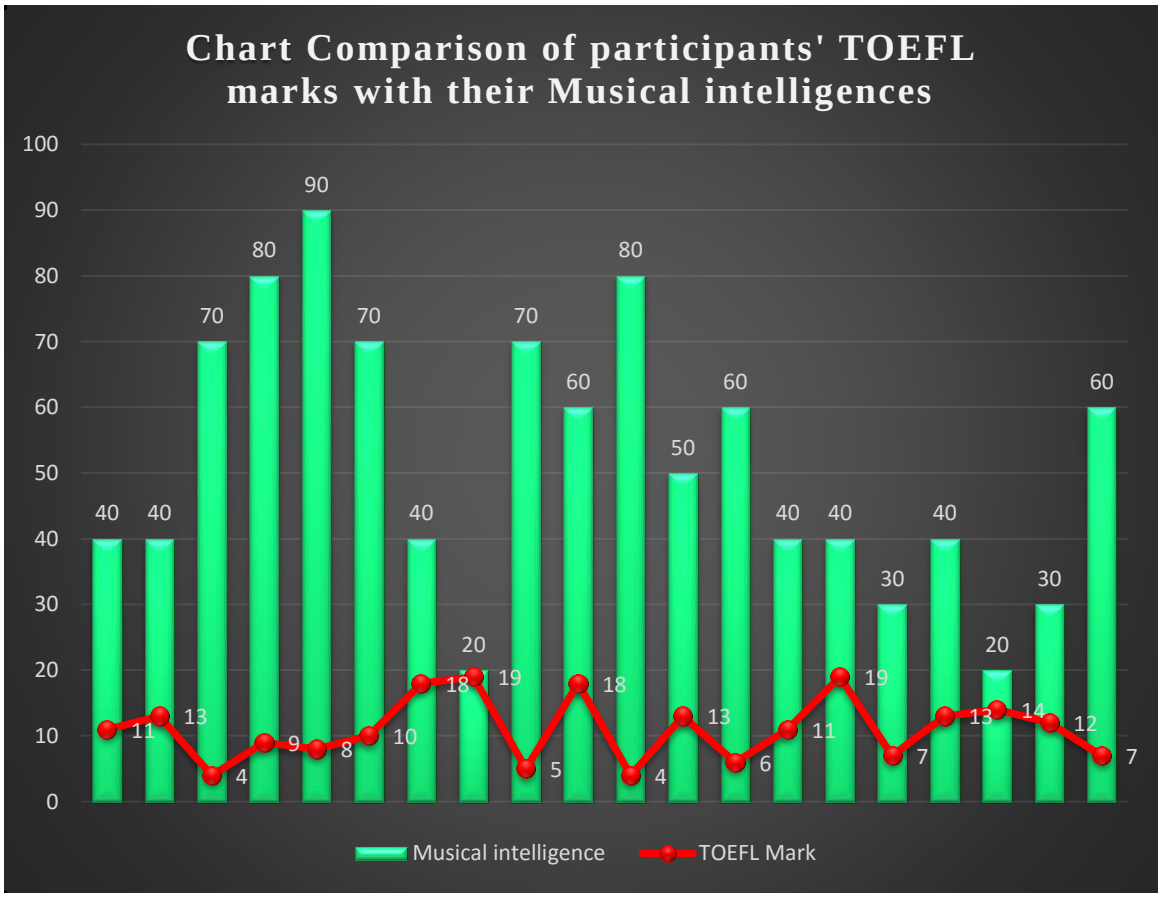
In this chart the comparison of student's reading ability, naturalistic and interpersonal intelligences is more understandable. When the predominant intelligence of any participant is naturalistic or interpersonal, the reading ability is higher. We can easily recognize that the more naturalistic or interpersonal intelligences are in high level, the more TOFEL reading mark is better and vice versa. In other words, all participants that have a predominant naturalistic or interpersonal intelligences are good readers. And by this result the second research question concerning the type of intelligences which are the best predictor of learner's performance in reading comprehension test is answered.

Further results could be recognized when comparing participants' TOEFL reading marks and their musical intelligence. The below table and the following chart make results very clear and understandable.

Table 9: Comparison of participants' TOEFL marks with their Musical intelligences

Name	Musical intelligence	*TOEFL Mark*
1	40	11
2	40	13
3	70	04
4	80	09
5	90	08
6	70	10
7	40	18
8	20	19
9	70	05
10	60	18
11	80	04
12	50	13
13	60	06
14	40	11
15	40	19
16	30	07
17	40	13
18	20	14
19	30	12
20	60	07

In order to make the table above very clear and understandable, the blow chart is presented. The below chart represent a comparison of participant's TOEFL reading marks with their musical intelligence.



The table above helps to create the chart which help researcher to announce further results. From the chart we can easily recognise that there is statistically significant difference between participants' musical intelligence and their TOEFL marks. It seems that high achievers in reading may have lower musical intelligence. In other words the better readers may be less intelligent 'musically'.

3.4 Implications and suggestions

It is important to understand that learners learn differently and teachers need to be prepared with the skills to teach them. Educators should identify their learners' intelligence and learning styles to design the appropriate classroom activity for them. MI theory make it clear that all learners are intelligent but in different ways. Multiple intelligences theory decrease the usual boring atmosphere inside the classroom for the reason that it uses many learning styles. Also, there need to be further research in the field of multiple intelligences theory.

Other suggestions that are helpful to MI theory and can help both teachers and learners include:

- ✓ The motivation of learners: it is a sort of awareness and curiosity, which helps the learner's environment.
- ✓ All new approaches, used by teachers, will be more successful where there are occasions for any sort of exchanges among general practitioner.
- ✓ The choice within the classroom permits to provide meaningful options for curriculum and assessment of student learning.
- ✓ School needs a platform and curriculum that must be rich in all intelligences. A curriculum which is rich all intelligences can effectively address the full range learners.

Conclusion

This practical and analytical part has confirmed that naturalistic and interpersonal intelligences play an important role in reading comprehension. By the accomplishment of this result the research questions are answered. Furthermore, this result indicates that teachers should develop naturalistic and interpersonal intelligences in learners to reach better results in reading. The usage of multiple intelligences theory has established to be beneficial in improving students' reading comprehension. Further results indicate that high achievers in reading may have lower musical intelligence. In other words the better readers may be less intelligent 'musically'. This necessitates analyses of lesson plans. More details will be said in recommendation.

General conclusion

Individuals according to Howard Gardner's theory possess multiple intelligences that allow them to shine if those intelligences are all used. Gardner's theory is opposed to the idea of intelligence being a single measurable attribute. He argued that each learner has his/her unique learning style and learning preferences. This study aimed to discover the influence that multiple intelligence theory provides in increasing the students' reading comprehension. A number of tests were conducted to address the research questions. The research started by identifying learners' multiple intelligence profiles of twenty English students using Walter McKenzie's survey (1999) to know the learners dominant intelligence. Moreover all students were asked to answer TOEFL reading comprehension test to evaluate their reading ability.

Results showed that there is a strong relationship between learners multiple intelligence profile and their reading abilities. Other results showed that naturalistic and interpersonal intelligences reacted as predictor of learner's reading abilities. Accordingly, the use of multiple intelligences theory has proven to be beneficial in improving the students' ability in reading comprehension tests. Therefore, multiple intelligences theory needed to be used in teaching reading and other skills.

When using multiple intelligences theory, teachers are not expected to explain lessons eight or nine times. They plan lessons taking into consideration variety of learning preferences and styles. It is important for teachers to understand that learners learn materials differently. Students should be complemented for their ideas and ways to learn instead of limited to only a few ways to express what they know.

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Appendix A. Walter McKenzie's Survey

Multiple Intelligences Survey

Walter McKenzie,

Part I

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

Section 1

_____ I enjoy categorizing things by common traits
_____ Ecological issues are important to me
_____ Hiking and camping are enjoyable activities
_____ I enjoy working on a garden
_____ I believe preserving our National Parks is important
_____ Putting things in hierarchies makes sense to me
_____ Animals are important in my life
_____ My home has a recycling system in place
_____ I enjoy studying biology, botany and/or zoology
_____ I spend a great deal of time outdoors

_____ TOTAL for Section 1

Section 2

_____ I easily pick up on patterns
_____ I focus in on noise and sounds
_____ Moving to a beat is easy for me
_____ I've always been interested in playing an instrument
_____ The cadence 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 for 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 for Section 3

Section 4

_____ It is important to see my role in the "big picture" of things
_____ I enjoy discussing questions about life
_____ Religion is important to me
_____ I enjoy viewing art 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 for 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 for 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 for Section 6

Section 7

_____ I enjoy reading all kinds of materials
_____ Taking notes helps me remember and understand
_____ I faithfully contact friends through letters and/or e-mail
_____ It is easy for me to explain my ideas to others
_____ I 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 for 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 for 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 and blueprints

_____ TOTAL for Section 9

Part II

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

Section	Total Forward	Multiply	Score
1		X10	
2		X10	
3		X10	
4		X10	
5		X10	
6		X10	
7		X10	
8		X10	
9		X10	

Part III

Now plot your scores on the bar graph provided:

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

Part IV

Key:

Section 1 – This reflects your Naturalist strength
Section 2 – This suggests your Musical strength
Section 3 – This indicates your Logical strength
Section 4 – This illustrates your Existential strength
Section 5 – This shows your Interpersonal strength
Section 6 – This tells your Kinaesthetic strength
Section 7 – This indicates your Verbal strength
Section 8 – This reflects your Intrapersonal strength
Section 9 – This suggests your Visual strength

Remember:

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

Appendix B. TOEFL Reading Comprehension Test

TOEFL® Reading-Comprehension

Answer all questions about the information in a passage on the basis of what is **stated** or **implied** in that passage.

Passage 1

Please read the passage before answering the questions

The Alaska pipeline starts at the frozen edge of the Arctic Ocean. It stretches southward across the largest and northernmost state in the United States, ending at a remote ice-free seaport village nearly 800 miles from where it begins. It is massive in size and extremely complicated to operate. The steel pipe crosses windswept plains and endless miles of delicate tundra that tops the frozen ground. It weaves through crooked canyons, climbs sheer mountains, plunges over rocky crags, makes its way through thick forests, and passes over or under hundreds of rivers and streams. The pipe is 4 feet in diameter, and up to 2 million barrels (or 84 million gallons) of crude oil can be pumped through it daily.

Resting on H-shaped steel racks called "bents," long sections of the pipeline follow a zigzag course high above the frozen earth. Other long sections drop out of sight beneath spongy or rocky ground and return to the surface later on. The pattern of the pipeline's up-and-down route is determined by the often harsh demands of the arctic and subarctic climate, the tortuous lay of the land, and the varied compositions of soil, rock, or permafrost (permanently frozen ground). A little more than half of the pipeline is elevated above the ground. The remainder is buried anywhere from 3 to 12 feet, depending largely upon the type of terrain and the properties of the soil.

One of the largest in the world, the pipeline cost approximately $8 billion and is by far the biggest and most expensive construction project ever undertaken by private industry. In fact, no single business could raise that much money, so 8 major oil companies formed a consortium in order to share the costs. Each company controlled oil rights to particular shares of land in the oil fields and paid into the pipeline-construction fund according to the size of its holdings. Today, despite enormous problems of climate, supply shortages, equipment breakdowns, labor disagreements, treacherous terrain, a certain amount of mismanagement, and even theft, the Alaska pipeline has been completed and is operating.

PRACTICE QUESTIONS

1. The passage primarily discusses the pipeline's

(A) operating costs

(B) employees

(C) consumers

(D) construction

2. The word “it” in line 5 refers to

(A) pipeline

(B) ocean

(C) state

(D) village

3. According to the passage, 84 million gallons of oil can travel through the pipeline each

(A) day

(B) week

(C) month

(D) year

4. The phrase “Resting on” in line 15 is closest in meaning to

(A) Consisting of

(B) Supported by

(C) Passing under

(D) Protected with

5. The author mentions all of the following as important in determining the pipeline’s route EXCEPT the

(A) climate

(B) lay of the land itself

(C) local vegetation

(D) kind of soil and rock

6. The word “undertaken” in line 31 is closest in meaning to

(A) removed

(B) selected

(C) transported

(D) attempted

7. How many companies shared the costs of constructing the pipeline?

(A) Three

(B) Four

(C) Eight

(D) Twelve

8. The word “particular” in line 35 is closest in meaning to

(A) peculiar

(B) specific

(C) exceptional

(D) equal

9. Which of the following determined what percentage of the construction costs each member of the consortium would pay?

(A) How much oil field land each company owned

(B) How long each company had owned land in the oil fields

(C) How many people worked for each company

(D) How many oil wells were located on the company’s land

10. Where in the passage does the author provide a term for an earth covering that always remains frozen?

(A) Line 4

(B) Line 15

(C) Line 23

(D) Line 37

Passage 2

Directions: Each sentence has an underlined word or phrase. Below each sentence are four other words or phrases marked (A), (B), (C), and (D). You are to choose the **one** word or phrase that **best keeps the meaning** of the original sentence if it is substituted for the underlined word or phrase.

PRACTICE QUESTIONS

1. Receptors for the sense of smell are located at the top of the nasal cavity.

(A) upper end

(B) inner edge

(C) mouth

(D) division

2. Passenger ships and aircraft are often equipped with ship-to-shore or air-to-land radio telephones.

(A) highways

(B) railroads

(C) planes

(D) sailboats

3. Dotting the marshy expanse of the Florida Everglades are little islands known locally as hummocks.

(A) generally

(B) to all

(C) in that area

(D) occasionally

4. It is not possible for people to remember everything that they have thought, felt, or done.

(A) recall

(B) appreciate

(C) repeat

(D) discuss

5. When preparing a diet, a person should be aware that vitamin D acts to increase the amount of calciumabsorbed by the body.

(A) schedule of exercise

(B) nutritional plan

(C) study of longevity

(D) medicinal chart

6. It is difficult to get young people to plan for their old age, which seems very distant to them.

(A) impossible

(B) faraway

(C) observable

(D) fearful

Passage 3

Please read the passage before answering the questions

A new atomic clock being developed for navigation satellites will perform better than previous devices. The clock, which incorporates a hydrogen maser, will use anew microwave cavity design to provide a compact and lightweight package, and new electronic techniques to maintain long-term stability. The clock can provide precise navigation information because it is stable to one second in three million years. The

differences in the time when signals from four satellites arrive at one location can be used to calculate that position to within a few yards.

7. From the passage, it can be inferred that which of the following characteristics of the clock mentioned will be most impressive?

(A) Its compact size

(B) Its weight

(C) Its accuracy

(D) Its ability to measure distance

8. It can be inferred from the passage that the new clock will be

(A) long-lasting

(B) harmful to humans

(C) produced in great numbers

(D) very attractive looking

9. According to the passage, signals from how many satellites will be used to calculate a position?

(A) 1

(B) 2

(C) 3

(D) 4

10. What is the primary purpose of the passage?

(A) To teach a lesson

(B) To sell a product

(C) To support a theory

(D) To provide information