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SVEUČILIŠTE U ZAGREBU
UČITELJSKI FAKULTET
ODSJEK ZA UČITELJSKE STUDIJE

MATEA SVIBEN

DIPLOMSKI RAD

**PRE-SERVICE EFL TEACHERS AND
MULTIPLE INTELLIGENCES**

Zagreb, rujan 2020.

SVEUČILIŠTE U ZAGREBU
UČITELJSKI FAKULTET
ODSJEK ZA UČITELJSKE STUDIJE
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DIPLOMSKI RAD

Ime i prezime pristupnika: Matea Sviben

**TEMA DIPLOMSKOG RADA: Pre-Service EFL Teachers and
Multiple Intelligences**

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ABSTRACT

The theory of multiple intelligences (MI), developed by Howard Gardner, is of great importance both for EFL teachers and teachers in general because it gives them a better perspective into their students' thoughts, needs, and ways of learning. In order to understand MI and be able to apply it in their classrooms, teachers have to be aware of it, and gain enough education related to this theory. This thesis shows the results of the research conducted in order to examine pre-service EFL teachers' awareness of Gardner's multiple intelligences theory, their attitudes towards its implementation in the EFL classrooms, and their most common types of intelligences according to the results of an MI Inventory. Participants in the study were first, second, third, fourth, and fifth year students of the integrated undergraduate and graduate teacher education studies of the following faculties: Faculty of Teacher Education, University of Zagreb and Faculty of Humanities and Social Sciences, University of Zagreb. The participants were asked to complete an online questionnaire comprised of three parts. The first part collected their bio data, the second was constructed as an MI Inventory, and the third one examined the participants' awareness of, and attitudes towards the theory. The obtained data were analyzed quantitatively and qualitatively. The results indicate that the majority of the participants are fairly aware of the theory and they mostly have positive attitudes toward implementing it in the EFL classrooms. They also showed that the two intelligences identified by most participants as predominant are interpersonal and intrapersonal intelligences.

Key words: Howard Gardner, the theory of multiple intelligences, pre-service EFL teachers, MI Inventory.

SAŽETAK

Teorija višestrukih inteligencija, koju je razvio Howard Gardner, od velikog je značaja za sve učitelje, pa tako i za učitelje engleskoga jezika, jer im pruža uvid u učenikova razmišljanja, potrebe i načine učenja. Kako bi učitelji bili u mogućnosti razumjeti i primijeniti ovu teoriju, moraju biti upoznati s njom i imati dovoljno znanja i obrazovanja u tom području. Ovaj diplomski rad prikazuje rezultate istraživanja provedenog s ciljem da se ispita u kojoj su mjeri budući učitelji i nastavnici upoznati s Gardnerovom teorijom, koji su njihovi stavovi o primjeni teorije u nastavi engleskoga jezika te koji su najčešći tipovi inteligencije zastupljeni kod budućih učitelja prema rezultatima upitnika višestrukih inteligencija. Sudionici ovoga istraživanja bili su studenti prve, druge, treće, četvrte i pete godine integriranih preddiplomskih i diplomskih sveučilišnih studija s Učiteljskog fakulteta Sveučilišta u Zagrebu i Filozofskog fakulteta Sveučilišta u Zagrebu. Sudionicima je poslan online upitnik sastavljen od tri dijela. Prvim dijelom prikupljeni su osnovni podaci o ispitanicima, drugi je dio napravljen u tipu upitnika višestrukih inteligencija i u trećem je dijelu ispitano njihovo poznavanje teorije višestrukih inteligencija i stavovi o istoj. Podaci su obrađeni kvantitativno i kvalitativno. Rezultati istraživanja pokazali su da je većina sudionika upoznata s teorijom i da uglavnom imaju pozitivne stavove prema uvođenju teorije u nastavu engleskoga jezika. Oni su također pokazali da su kod najvećeg broja sudionika dominantne dvije vrste inteligencije, a to su – interpersonalna i intrapersonalna inteligencija.

Ključne riječi: Howard Gardner, teorija višestrukih inteligencija, budući učitelji engleskoga jezika, upitnik višestrukih inteligencija.

1. INTRODUCTION

At least once in their educational life, all students get judged based on their intelligence. These evaluations are usually based on students' IQ test results or grades in mathematics. Is intelligence really that simple to measure? This question, and many others, have been a frequent topic in numerous discussions and debates throughout history. Traditionally, intelligence was defined in terms of intelligence quotient (IQ) which measures only logical-mathematical and verbal-linguistic abilities. It was also considered as a permanent characteristic that everyone has in themselves when they are born. Howard Gardner proposed a new approach to intelligence in 1983. He, in contrast to traditional opinions, claims that each person has several types of intelligences which are not at all static and cannot all be measured by traditional IQ tests. Gardner (1983) also states that each person has their unique combination of those types of intelligences.

Anyone who works with students knows that each of them has different abilities and strengths, and that is why the theory of multiple intelligences (MI), introduced by Howard Gardner, is of great importance for teachers. They have to know how to adapt their lessons to each student, otherwise there is a possibility their students will develop negative emotions towards learning. Students can easily become frustrated or anxious because they are "slower" than their friends in the classroom and cannot reach their full potential.

The process of learning in general, as well as foreign language learning, involves a synergy of many factors connected to human intelligence. Therefore, an analysis of learners' intelligences is of vital importance, especially in EFL teaching and learning.

Having said that, the main objective of this thesis was to examine if pre-service EFL teachers are aware of what the theory of multiple intelligences is, what their attitudes towards it are, and what their strongest intelligences are. The next chapter of this thesis (chapter 2) provides a short introduction to the MI theory with the general facts and thoughts about intelligence and brief description of the eight intelligences proposed by Howard Gardner. The third chapter gives an insight into the theory of multiple intelligences both in the classroom in general, and in EFL classrooms, and it also presents a selection of classroom activities for different MI profiles. The fourth chapter

shows some views on the topic of EFL teachers and their awareness of the theory. The fifth chapter of the thesis presents the research - study aim and research questions, participants, research instruments and procedure, and finally results and discussion. The last chapter is conclusion, i.e. summary of the most important research findings.

2. GARDNER'S MULTIPLE INTELLIGENCES THEORY

Throughout history, people have been evaluated on the basis of many different abilities or skills. For example, the Romans were considered as great human beings if they were courageous and physically ready for anything. The Chinese, on the other hand, have traditionally respected people who possess good poetry, music or calligraphy skills. Nowadays, in more modern times, especially in the Western societies, people do not admire, and do not seek for a man who is physically strong, built as a soldier, has great music skills, etc. It is the man who is intelligent that is held in high regard. Many philosophers, psychologists, and other scientist in the field of human mind have tried to explain and define this term. This has been an extremely difficult job because the concept of intelligence is very complex and difficult to define and measure. Despite its complexity, a number of definitions of intelligence have been proposed. So, what is intelligence?

It has been defined as “the ability to learn, understand and think in a logical way about things; the ability to do this well” (Intelligence, n.d.). Another definition sees human intelligence as “mental quality that consists of the abilities to learn from experience, adapt to new situations, understand and handle abstract concepts, and use knowledge to manipulate one’s environment” (Sternberg, 2020).

When it comes to defining and perceiving intelligence throughout history, it is clear that the distinction between the Eastern and Western world existed in the past (as already mentioned), but more importantly, it exists even nowadays. The predominant belief in the Western world is that intelligence is highly heritable, which means that a person can find out how intelligent he or she is by determining their parents’ and grandparents’ intelligence. Some Western psychologists believe that people have single intelligence called *g-factor*. “Spearman proposed that the *g-factor* is a sort of ‘mirror’ or reflection of one’s intelligence” (Hally, 2012, p. 1). Lynn Waterhouse (2006, p. 210), also known as the biggest critic of Gardner’s work, explains: “General intelligence has been theorized to reflect overall brain efficiency or the close interconnection of a set of mental skills or working memory”. On the other side of the world, the Eastern view, contrarily, presupposes that how hard one works indicates how intelligent they are. When talking about IQ, Gardner (2006, p. 3) states the following:

What is the vision that led to the excitement about IQ? At least in the West, people had always relied on intuitive assessments of how smart other people were. Now intelligence seemed to be quantifiable. Just as you could measure someone's actual or potential height, now, it seemed, you could measure someone's actual or potential intelligence. We had one dimension of mental ability along which we could array everyone.

The members of the first generation of the psychology of intelligence, Spearman (1927) and Terman (1975), both agreed on the opinion “that intelligence was best conceptualized as a single general capacity for conceptualization and problem solving” (Gardner, 2011, p. 31).

Howard Gardner, the John H. and Elisabeth A. Hobbs Research Professor of Cognition and Education at the Harvard Graduate School of Education, has presented a radically different view of intelligence. In 1983, he published *The Frames of Mind*, a book in which he, for the first time ever, defined intelligence in a completely different way. Gardner (2011, pp. 64 – 65) says that,

a human intellectual competence must entail a set of skills of problem-solving – enabling the individual to resolve genuine problems or difficulties that he or she encounters and, when appropriate, to create an effective product – and must also entail the potential for finding or creating problems – thereby laying the ground work for the acquisition of new knowledge.

He also proposed the following definition: “An intelligence is the biopsychological potential to process information in certain ways, in order to solve problems or fashion products that are valued in a culture or community” (Gardner, 2004, p. 29). Although this definition by Howard Gardner sounds similar to the one introduced by the first psychologists of intelligence, he significantly exceeded them in explaining and defining intelligence. According to Gardner (1983 as cited in Zhu, 2011, p. 408),

a. We all possess multiple intelligences that we combine and use in our own unique ways. b. IQ tests are only a measure of a small range of these intelligences (logical/mathematical and verbal/linguistic). c. Each intelligence type consists of numerous sub-intelligences. d. Each intelligence develops at its own rate. e. Rather than focusing on an IQ score, we should instead focus on establishing a cognitive profile.

These features and the definition of intelligence were incorporated in a theory proposed by Howard Gardner and presented as *the theory of multiple intelligences*.

The eight intelligences that this theory reveals, and Gardner believes all people have, are:

1. Musical intelligence
2. Bodily-kinesthetic intelligence
3. Logical-mathematical intelligence
4. Linguistic intelligence
5. Spatial intelligence
6. Interpersonal intelligence
7. Intrapersonal intelligence

These seven intelligences were presented by Gardner in the early 1980s. Later, in the 1990s, he added the eighth one.

8. Naturalist(ic) intelligence.

Gardner has informally talked and written about additional types of intelligences. The one that he mentions and suggests the most in his works is the existential intelligence. Nowadays, when writing about existential intelligence, people refer to it as a “half-intelligence”. Gardner (2011) does not want to devalue the existential talents; he merely points out that there is not enough evidence against the eight criteria. He also states that he has given much thought into pedagogical and moral intelligence but has not been able to prove them yet either.

The eight accepted intelligence types have been defined by Gardner (as cited in Davis, Christodoulou, Seider, & Gardner, 2011, p. 488) as follows,

- (1) Musical intelligence is the ability to produce, remember, and make meaning of different patterns of sound.
- (2) Bodily-kinesthetic intelligence is the ability to use one’s own body to create products or solve problems.
- (3) Logical-mathematical intelligence is the ability to develop equations and proofs, make calculations, and solve abstract problems.
- (4) Linguistic intelligence is the ability to analyse information and create works involving written and oral language.
- (5) Spatial intelligence is the ability to recognize and manipulate large-scale and fine-grained spatial images.
- (6) Interpersonal intelligence is the ability to recognize and understand other people’s moods, desires, motivations, and intentions.
- (7) Intrapersonal intelligence is the ability to recognize and understand one’s own moods, desires, motivations, and intentions.
- (8) Naturalist(ic) intelligence is the ability to identify and distinguish among different types of plants, animals, and weather formations that are found in the natural world.

In Gardner's view, it is necessary to recognize and nurture all of these intelligences, and most importantly, all of the combinations of intelligences. None of these intelligences is more significant than the others; therefore, they are of a neutral value. They are understood as tools that every learner possesses and that help to make sense out of new information which can be stored for later use. In addition, "each of these frames is autonomous, changeable and trainable and they interact to facilitate the solution of daily problems" (Armstrong, 1999, p. 59).

For a better understanding, it is essential to take a closer look at each one of the intelligences proposed by Gardner.

1) *Musical intelligence*

"I would rather write 10,000 notes than a single letter of the alphabet."

- Ludwig van Beethoven

Many musicians would surely agree with Ludwig van Beethoven on this thought. It is a popular belief among people that professional musicians can feel fulfilled only when writing or playing music. They are definitely the best representatives of people with strong musical intelligence. Gardner (as cited in Armstrong, 2009, p. 7) says that this intelligence is:

The capacity to perceive (e.g., as a music aficionado), discriminate (e.g., as a music critic), transform (e.g., as a composer), and express (e.g., as a performer) musical forms. This intelligence includes sensitivity to the rhythm, pitch, melody, and timbre or tone colour of a musical piece.

Although Gardner focuses on the ones that have developed this intelligence to the highest level, many people who have played an instrument during their childhood or have a sense for musical forms, can say that they have a strong musical intelligence as well. One of those examples can be found in the book *Multiple Intelligences in Practice* (2006). The author Mike Fleetham (2006, p. 24) describes it in the following way:

I walk in, attracted by the music that's playing, and suddenly a different set of brain areas spring to life. I'm thinking music: I'm hearing drums, strings, horns, synthesis, singing; I'm picking out the rhythm, melody, harmony, and the 'feeling of the music'... I'm using part of my musical intelligence. This is the intelligence that helped me struggle through piano lessons from the age of seven; the one that produced some of the horrendous noises made in a series of sixth form and university bands.

2) *Bodily-kinesthetic intelligence*

“The dance can reveal everything mysterious that is hidden in music, and it has the additional merit of being human and palpable. Dancing is poetry with arms and legs.”

- Charles Baudelaire

Coming from one of the greatest poets of all times, this quote has a very strong impact on the readers. Dancers, who, among others, use their body to express themselves, according to the founder of the MI theory, are people who have strong bodily-kinesthetic intelligence. Gardner (2011) emphasizes the role of bodies in people's everyday lives. He describes it as the vessel of the individual's sense of self, and also comments that one's body is not just another machine, and that someone's most personal feelings and aspirations can be expressed through them. He also claims:

Characteristic of such an intelligence is the ability to use one's body in highly differentiated and skilled ways, for expressive as well as goal-directed purposes... Characteristic as well is the capacity to work skillfully with objects, both those that involve the fine motor movements of one's fingers and hands and those that exploit gross motor movements of the body. (Gardner, 2011, p. 218)

Some professions which Gardner proposes for people whose bodily-kinesthetic intelligence is highly evolved are: dancers, swimmers, artisans, ballplayers, instrumentalists, surgeons, inventors, or actors. “This intelligence includes specific physical skills such as coordination, balance, dexterity, strength, flexibility, and speed, as well as proprioceptive, tactile, and haptic capacities” (Armstrong, 2009, p. 7).

3) *Logical – mathematical intelligence*

“The first man who noted the analogy between a group of seven fishes and seven days made a noticeable advance in the history of thought. He was the first man who entertained a concept belonging to the science of pure mathematics.”

- Alfred North Whitehead

At one time, it was a real discovery and success to figure out the analogy between seven fishes and seven days, and nowadays, mathematics has gone much further than that. Nevertheless, not all people can work effectively with numbers or logical patterns

and relationships. According to the MI theory, the ones who have developed logical – mathematical intelligence are to a great extent suitable candidates for working with numbers and everything related to them. Gardner elaborates this intelligence (as cited in Armstrong, 2009, p. 2) as follows,

Logical–mathematical: The capacity to use numbers effectively (e.g., as a mathematician, tax accountant, or statistician) and to reason well (e.g., as a scientist, computer programmer, or logician). This intelligence includes sensitivity to logical patterns and relationships, statements and propositions (if-then, cause-effect), functions, and other related abstractions.

Gardner also adds a few points of challenges these professions and this type of intelligence bring with them:

While the products fashioned by individuals gifted in language and music are readily available to a wide public, the situation with mathematics is at the opposite extreme. Except for a few initiates, most of us can only admire from afar the ideas and works of mathematicians. (Gardner, 2011, p. 143)

As one of the advantages of mathematics, he points out its role in, for instance, dealing with anxiety. “A mathematician finds his own monastic niche and happiness in pursuits that are disconnected from external affairs. In their unhappiness over the world, mathematicians find a self-sufficiency in mathematics” (Gardner, 2011, p. 148).

4) *Linguistic intelligence*

“The purpose of a writer is to keep civilization from destroying itself.”

- Albert Camus

This quote can be interpreted in so many ways. The thing that comes to mind immediately is that writers have an immense power when it comes to leaving a strong impact on the readers. Books can be a massive help in people’s lives. So, according to Gardner’s theory, if linguistic intelligence is the one that is dominant in a person, he or she has an excellent prerequisite to become a writer. Gardner defines linguistic intelligence as the ability to use language effectively and creatively. He explains that the language can be used both orally and in writing, and this intelligence relates to the meaning, rhythms and sounds of words. However, not all of us who have the linguistic intelligence as the dominant one must or will become writers, poets, etc. In his book

Frames of Mind (Gardner, 2011), he reveals four aspects/uses of linguistic intelligence:

1. “The rhetorical aspect of language – the ability to use language to convince other individuals of a course of action” (Gardner, 2011, p. 82).

This is the ability that politicians and legal experts (lawyers, judges) have developed to the highest degree. It should be noted that this aspect, like all the others, can already be seen from a child’s early age. One of the examples for that would be when a child succeeds in convincing his or her parents to give him/her more cake using good language skills.

2. “The mnemonic potential of language – the capacity to use this tool to help one remember information, ranging from lists of possessions to rules of a game, from directions for finding one’s way to procedures for operating a new machine” (Gardner, 2011, p. 82).

In addition to that, if a person has good mnemonic techniques, he or she can help people to understand things easier and more effectively. This person is a superb candidate for a teacher or a tutor of some kind.

3. “The third aspect of language is its role in explanation. Much of teaching and learning occurs through language – at one time, principally through oral instructions, employing verse, collection of adages, or simple explanations; and now, increasingly, through the word in its written form” (Gardner, 2011, p. 82).

If a person is a scientist, their predominant intelligence will most certainly be logical-mathematical, but without the linguistic one, such a person may not be able to convey the basic concepts in textbooks. Also, language provides us with the metaphors that are crucial for launching and explaining new scientific developments.

4. “Finally, there is the potential of language to explain its own activities – the ability to use language to reflect upon language, to engage in “metalinguistic” analysis” (Gardner, 2011, p. 83).

Armstrong (2009, p. 6) states,

The linguistic intelligence is the capacity to use words effectively, whether orally (e.g., as a storyteller, orator, or politician) or in writing (e.g., as a poet, playwright, editor, or journalist). This intelligence includes the ability to manipulate the syntax or

structure of language, the phonology or sounds of language, the semantics or meanings of language, and the pragmatic dimensions or practical uses of language.

5) *Spatial intelligence*

“Architects can’t force people to connect, they can only plan the crossing points, remove barriers and make the meeting places useful and attractive.”

- Denise Scott Brown

The quote used to describe spatial intelligence was proposed by one of the most influential USA architects of the twentieth century. To be a successful architect, one must possess highly developed spatial intelligence. Gardner (2011, p. 185) explains it as

the ability to recognize instances of the same element, the ability to transform or to recognize a transformation of one element into another, the capacity to conjure up mental imagery and then to transform that imagery, the capacity to produce a graphic likeness of spatial information, and the like.

Apart from this, Gardner (2011) divides the professions with developed spatial intelligence in two groups. The first one involves the ability to perceive the visual-spatial world accurately, and some of the professions in this group are a hunter and a scout. The second group consists of professions which are done by people who have the ability “to perform the transformations upon those perceptions (e.g., an interior decorator, architect, artist, or inventor). This intelligence involves sensitivity to color, line, shape, form, space, and the relationships that exist between these elements” (Armstrong, 2009, p. 7).

6) *Interpersonal intelligence*

“Whenever you’re confronted with an opponent, conquer him with love.”

- Mahatma Gandhi

When we think of people who have had the greatest impact on the humanity, one of the first names that strikes most of us is surely Mahatma Gandhi. Even Gardner mentions him when describing people who had or who have highly developed forms of interpersonal intelligence. Except in political and religious leaders like Gandhi,

Gardner sees interpersonal intelligence in skilled parents and teachers, and in individuals in the helping professions (therapists, counsellors, shamans). In addition to that, Armstrong (2009, p. 7) describes it as

the ability to perceive and make distinctions in the moods, intentions, motivations, and feelings of other people. This can include sensitivity to facial expressions, voice, and gestures; the capacity for discriminating among many different kinds of interpersonal cues; and the ability to respond effectively to those cues in some pragmatic way.

In the related literature another term for this intelligence frequently appears. The term is: *people smart*. Skills that people who are *people smart* are considered to have are: understanding people, expressing themselves clearly, asserting their needs, exchanging feedback, influencing others, resolving conflict, being a team player, shifting gears (Silberman, 2000).

7) *Intrapersonal intelligence*

“No one saves us but ourselves. No one can and no one may. We ourselves must walk the path.”

- Buddha

Buddha affected countless people in his life with many different sayings. This one definitely describes one's leaning on oneself. These people and all of us who can do that, have developed intrapersonal intelligence. As reported by Gardner (2011, p. 253), “at its most advanced level, intrapersonal intelligence allows one to detect and to symbolize complex and highly differentiated sets of feelings”. In other words, a person with highly evolved intrapersonal intelligence can access one's own feeling life, he or she can distinguish complex feelings like pain and pleasure, and eventually label them. When it comes to professions that are perfect for people with highly developed intrapersonal intelligence, they are very similar to the ones for interpersonal intelligence. Gardner mentions great religious leaders like the Buddha, psychologist Sigmund Freud, novelist Marcel Proust, etc.

To sum up, intrapersonal intelligence is the potential to reflect on one's feelings, thoughts and actions, it describes how well a person knows and understands him or

herself. Intrapersonal learners are reflective, analytical and intuitive about who they are and how and what they learn.

8) *Naturalist(ic) intelligence*

“Going to the mountains is like going home.”

- John Muir

This quote applies to all people who feel at home and enjoy spending time in nature. There are certain people who actually like to depend on nature and they are the ones who have a strong naturalist intelligence. Unfortunately, these people are a minority in relation to the ones who do not appreciate nature and do not spend much time in nature. According to Armstrong (2009, p. 11), the core components of this intelligence are “expertise in distinguishing among members of a species; recognizing the existence of other neighbouring species; and charting the relations, formally or informally, among several species”. Some of the professions suitable for people with highly evolved naturalist intelligence are naturalists, biologists, animal activists, etc. Also, Gardner says that some of the people with this kind of intelligence and known to everybody are Charles Darwin, E. O. Wilson and Jane Goodall.

In conclusion, understanding and learning about different types of intelligences and the whole concept of the theory of multiple intelligences is very significant for people in general, but especially for teachers. Therefore, the possible effects and the ways of implementing multiple intelligences in the classrooms will be explained in the following chapter.

3. THE THEORY OF MULTIPLE INTELLIGENCES IN THE CLASSROOM

This chapter will talk about identifying teachers' and students' multiple intelligences, implementing the MI theory in the classroom, as well as teaching students about MI and applying the theory in the EFL classrooms.

When we look at very young children, both as parents and teachers or educational workers, it is possible to see that they express their emotions, needs and wishes through some symbols or actions. With that being said, multiple intelligences can be recognized from the earliest age of child's development. This is of great significance for teachers, especially those who are willing to identify their students' predominant intelligences.

According to Armstrong (2009), the first step in implementing the MI theory in the classroom is identifying one's own strengths and weaknesses regarding multiple intelligences. Therefore, this is the first step each teacher should take before applying the MI theory with students. This is not an easy task to do and it cannot be done overnight. The teachers should be aware of its complexity and the fact that it is very time-consuming.

The best way to assess your own multiple intelligences is through a realistic appraisal of your performance in many kinds of tasks, activities, and experiences associated with each intelligence. Rather than perform several artificial learning tasks, look back over the kinds of real-life experiences you've already had involving these eight intelligences. (Armstrong, 2009, p. 21)

There are different MI inventories which consist of many grouped or regrouped statements that every adult, in this case, teachers, can tick and thus find out which are their highly evolved intelligences and which are not.

The second step in implementing the MI theory in the classroom is to assess students' intelligences. According to Armstrong (2009), the best way to do this is to observe students. He does not underrate some of the tests made for this purpose, but he is somewhat skeptical, and he strongly advises,

This isn't to say that formal testing can't provide some information about a student's intelligences; as I discuss later, it can provide clues to various intelligences. The single best tool for assessing students' multiple intelligences, however, is probably one readily available to all of us: simple observation. (Armstrong, 2009, p. 34)

The thing that can help teachers in this step is to observe what students love and need, and the way they think. Armstrong (2009) presented a table with eight ways of learning (Figure 1).

3.1 Eight Ways of Learning			
Children who are highly . . .	Think . . .	Love . . .	Need . . .
Linguistic	in words	reading, writing, telling stories, playing word games	books, tapes, writing tools, paper, diaries, dialogue, discussion, debate, stories
Logical-Mathematical	by reasoning	experimenting, questioning, figuring out logical puzzles, calculating	materials to experiment with, science materials, manipulatives, trips to planetariums and science museums
Spatial	in images and pictures	designing, drawing, visualizing, doodling	art, Legos, videos, movies, slides, imagination games, mazes, puzzles, illustrated books, trips to art museums
Bodily-Kinesthetic	through somatic sensations	dancing, running, jumping, building, touching, gesturing	role-play, drama, movement, building things, sports and physical games, tactile experiences, hands-on learning
Musical	via rhythms and melodies	singing, whistling, humming, tapping feet and hands, listening	sing-along time, trips to concerts, playing music at home and school, musical instruments
Interpersonal	by bouncing ideas off other people	leading, organizing, relating, manipulating, mediating, partying	friends, group games, social gatherings, community events, clubs, mentors/apprenticeships
Intrapersonal	in relation to their needs, feelings, and goals	setting goals, meditating, dreaming, planning, reflecting	secret places, time alone, self-paced projects, choices
Naturalist	through nature and natural forms	playing with pets, gardening, investigating nature, raising animals, caring for planet earth	access to nature, opportunities for interacting with animals, tools for investigating nature (e.g., magnifying glasses, binoculars)

Figure 1. Eight ways of learning, Armstrong, 2009

Armstrong's table provides some examples of how different intelligence types think, what they need and things they love. By observing and learning this about students, teachers can easily assess which of the eight intelligences is the strongest with each of the students. The teachers can also consider checklists or MI inventories when describing students' intelligences. Apart from these two ways of assessing students' intelligences, there are some additional methods teachers can use with their students. Armstrong (2009) proposes the following: collecting documents, looking at school

records, talking with other teachers, talking with parents, asking students or setting up special activities. To sum up, teachers should use all of their resources, take time to collect them and then include everything they have to assess their students' intelligences.

The third step would be introducing the theory to the students. It is important for them to know the key facts about this theory because they will be confronted with the word intelligence their whole educational life. This step should not be a problem because of the fact that Gardner's theory does not consist solely of complicated scientific terms and can therefore be explained in a simple and easily understandable way. It is also not abstract to them, the theory uses very simple and concrete words, like music, the body, words, numbers, pictures, people, the self, and nature. Therefore, this theory can be explained to students in five minutes, and not only to the older ones, but the first-graders, too. Armstrong (2000, p. 32) shares his 5-minute presentation for students in the following way,

All of you are intelligent – and not in just one way. Each of you is intelligent in at least eight different ways. I draw an MI Pizza (a circle divided into eight slices) on the blackboard and then begin to explain the model. First, there is something called word smart. I use simple terms to describe the intelligences since words like linguistic are mouthful for many children... Then I ask questions: How many people here can speak? Usually, I'll get a lot of hands with this question! Well, in order to speak, you have to use words, so all of you are word smart!

Armstrong (2009) uses this method when explaining all types of intelligences, not just linguistic.

Furthermore, the research conducted with students from ages 6 -18 by Haley (2002) confirmed that introducing and implementing this theory in EFL classrooms can have positive consequences for students. According to Haley (2002, p. 171),

One surprising result of MI study was the affective outcome. Most students expressed positive feelings about teachers using a variety of instructional strategies as well as assessment practices that addressed the multiple intelligences. Teachers attributed this positive reaction to the greater degree of flexibility, variety, and choice that MI strategies allowed students in their classrooms.

3.1. EFL Classrooms and the Theory of Multiple Intelligences

Teachers of English as a foreign language have always had many challenging tasks to complete during planning their lessons. In order to teach a successful lesson, there are many things a teacher has to think about. Implementing the MI theory in the planning can definitely take up more of their time, but it surely can bring more benefits to the students (Nicholson-Nelson, 1998). According to Nicholson-Nelson (1998, p. 25), “it’s important to be aware of which intelligences are used in each lesson, it’s not necessary to make a radical change in the way you teach. Instead, teaching with MI stretches good teaching into the realm of extraordinary teaching by including more ways for students to use all of their intelligences”.

There are many suggestions when it comes to implementing the MI theory in the EFL classrooms, but not as many concrete and thorough lesson planning examples. The experts have mostly shown similar points when it comes to implementing the MI theory in EFL environments. Activities (some have already been presented in the previous chapter) which are often suggested for teachers are: reading a book on Multiple Intelligences, identifying one’s MI profile, identifying students’ MI profiles, categorizing classroom activities according to intelligence types, combining language skills activities and intelligence types, suggesting language skills activities for different intelligence types, identifying the MI profile of a foreign language workbook, identifying the MI profile of a foreign language lesson, preparing an MI-based lesson outline, and preparing an MI lesson plan checklist (Palmerg, 2008).

In his book, Palmerg (2008) shows a plan checklist as one of the important steps in conducting a lesson using multiple intelligences. He claims that using this checklist is a part of the last step, so it should be done after the lesson, looking back to it and as an improvement for the future.

An MI lesson plan checklist

intelligence	checklist	yes	no
linguistic	Have you included reading, speaking, listening, writing, spelling activities, word games?		
logical-mathematical	Have you included grammar practice, problem-solving tasks, logic puzzles, calculations, critical thinking activities?		
visual-spatial	Have you included visuals, colour, pictures, graphs, video?		
bodily-kinaesthetic	Have you included movement, role play, drama, hands-on activities?		
musical	Have you included music, sounds, intonation practice, rhythm?		
intrapersonal	Have you included private learning time, self-reflexion, learning diaries?		
interpersonal	Have you included pair work, communicative tasks, role play, group work, discussions?		
naturalist	Have you included nature-related topics, classification activities, categorisation tasks?		
existentialist	Have you told your students where the linguistic input of the present lesson fits in with the linguistic input of the previous lesson and why the activities of the present lesson are important for real life?		

Figure 2. An MI lesson plan checklist (Adapted according to Nicholson-Nelson, 1998, retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.455.949&rep=rep1&type=pdf>)

Another idea comes from Haley (2004, p. 166), who states that two important steps need to be followed in order to understand how MI theory applies to teaching ESL or EFL. The first step is identification and classification of activities teachers frequently use in their classes, and the following step involves tracking what is being done in class with multiple intelligences:

1. Awaken the intelligence. Lesson begins with a riddle or brainteaser. The teacher divides students in groups and gives each one a series of riddles. The students then work collaboratively to solve the riddles.
2. Amplify the intelligence. Practice with the awakened intelligence and it will improve. Students practice describing commonly known objects.

3. Teach for/with the intelligence. Students describe objects in a large-group discussion.
4. Transfer the intelligence. Help students reflect on their learning in the previous stages and help them make the lesson content relevant to their lives outside the classroom.

TESOL (2000) Journal presents an article in which a teacher shared her experience with implementing the MI theory in the classroom. She was teaching her students paragraph structure through 7 different activities; hence, 7 intelligences. Here is an example of one of them: “In the final activity, students used their musical intelligence. Either individually or in groups, students wrote songs about paragraph structure, and then sang them to the class. I was quite impressed by the imagination of the students” (Simpson, 2000, p. 32). She also shared a song that resulted from this activity. The students wrote,

Writing a paragraph is not
so hard as you think it is
you have to organize the ideas
that you have in mind.

How easy it would be to
write it down right now
more than words is all you
have to do to make it real
let your mind works out
in a paragraph that's all
you have to do (Simpson, 2000, p. 32).

3.2. A Selection of Classroom Exercises for Different MI Profiles

Although implementing Gardner's theory in EFL classrooms, or classrooms in general, sounds like a very complex task for teachers, some may say impossible, there are quite a few resources a teacher can use as help in this process. Many experts in this field, who have been studying this theory in detail, have proposed different ways and steps for applying the theory in the classroom. According to Armstrong (2000), after teachers have identified their own types of intelligences, communicated about it to other teachers and the school, presented it to their students, they can start using classroom activities which will help develop students' intelligences and help them learn in a faster and more effective way. The next step for the teachers would be to observe and learn the ways in which their students learn, things they love to do, and things teachers need in order to improve their lessons. Armstrong (2009, p. 33) states that children who are highly linguistic “think in words, love: reading writing, telling stories, playing word games, and need: books, tapes, writing tools, paper, diaries dialogue, discussion, debate, stories”. On the other hand, children who are highly musical “think via rhythms and melodies, love: singing, whistling, humming, tapping feet and hands, listening, and need: sing-along time, trips to concerts, music playing at home and school, musical instruments” (Armstrong, 2000, p. 33). When teachers have considered their students' needs and things they love, they can start selecting activities which will fulfil at least most of their students' needs.

Another idea, proposed by Christinson (1996), is for teachers to write down the activities they like to use in their classes and categorize them according to different types of intelligences. For example, if the activity a teacher usually prefers and often does in his or her class is TPR, they can write it down as an activity they use for bodily-kinesthetic intelligence. They can, after that, slightly adapt the activities and maybe add some to their list (Christison, 1996). That would be a good first step towards implementing the MI theory in the classroom.

Other experts suggest allowing the students to choose an activity they prefer when solving a certain problem. One example is, according to Saedi (2009), after reading a story, allowing the students to select one activity (out of several presented to them) which they want to do. Through this activity, the teacher would check the reading comprehension of the text (Saedi, 2009). These are some of the ideas modified after

Saedi's propositions in her article *The Implementation of Multiple Intelligences Theory in the Classroom: Different Ways of Learning and Teaching* (2009):

- 1) act out a part of the story you just read (bodily/kinesthetic intelligence),
- 2) pick a song which in any way reminds you of the story and explain the relation between the song and the story (musical intelligence),
- 3) make your own mind map about the story (visual/spatial intelligence),
- 4) discuss one part of the story with your peers (interpersonal),
- 5) write about one part of the story that you found interesting (linguistic and intrapersonal intelligence),
- 6) think about different ways this story could have ended (logical/mathematical),
- 7) think about nature elements in the story, write them down and plan an environmental project regarding one of them (naturalistic).

These are only some example of adapting lessons to multiple intelligences. Palmerg (2008) also proposed some activities for nine intelligences (including existentialist). He stated that in real life all activities are suitable for three or four learner types, at least. It is obvious, in his opinion, that language exercises are always both linguistic and interpersonal or intrapersonal. Although one activity can be used for several different intelligences, he decided to present one for each (Palmerg, 2008). In this thesis, only two activities for two intelligences will be presented. The aim is to show that creating activities for each intelligence is not so complicated. It usually comes down to a slight adaptation of the activities teachers usually use in their lessons. The following activities are modified versions of the activities from the book *Multiple Intelligences Revisited* (2008) by Rolf Palmberg.

An exercise for musical learners

Some EFL students have a very difficult time dealing with grammar structures in the English language. When introducing or practicing Present Perfect, a great idea would be (especially for highly musical students) to listen to a song that has this tense in it. After listening, students should practice it by filling in the lyrics from the song as presented in the worksheet in Table 1. They should listen to the song again and write the verbs in Present Perfect in the second column according to the numbers. The song, selected by the author of this thesis, is *I Still Haven't Found What I'm Looking For* by U2.

Table 1. Worksheet with the lyrics

I _____ (1) the highest mountains	<u>1</u>
I _____ (2) through the fields Only to be with you Only to be with you	<u>2</u>
I _____ (3)	<u>3</u>
I _____ (4)	
I _____ (5) these city walls These city walls Only to be with you	<u>4</u>
But I still _____ (6) What I'm looking for	<u>5</u>
But I still _____ (7) What I'm looking for	<u>6</u>
I _____ (8) honey lips Felt the healing in the fingertips It burned like fire	<u>7</u>
This burning desire...	<u>8</u>

The answers are: 1 have climbed, 2 have run, 3 I have run, 4 I have crawled, 5 have scaled, 6 haven't found, 7 haven't found, 8 have kissed.

An exercise for bodily/kinesthetic learners

If there are some EFL students who cannot wait to move around and who concentrate more easily when there is a kinesthetic activity in the lesson, a teacher should consider an activity like the following one. When students are, for example, learning new vocabulary introduced in a text, and the teacher wants the students to learn both spelling and the meaning of the words, they can play a running game. First, the words should be written on little cards. Every word is supposed to have two different versions. On one card the word is scrambled, and on the other unscrambled (the correct version of the word). The class needs to be divided into two or more teams, and each team should stand in a line. The teacher is standing in front of the class, with all the scrambled words on the cards. The meanings of the words are written on the posters and placed on the board. There should be two such posters for two teams with the meanings of the words (or pictures if the learners are younger). Their task is to start running on teacher's cue, and find a word that the teacher is showing (scrambled) on

the floor. After that, they should stick the unscrambled word onto the poster in the right place; i.e., next to its meaning. They are not all running at the same time, only one member of each team is running. When (s)he finishes the task, another team member gets to run next. Students can be given points for the game, or it can just be used as a practicing activity. Examples of word cards and poster are presented in Table 2.

Table 2. Examples of cards and the poster for the running game

Scrambled word	Unscrambled word	The poster
LPIOT	PILOT	a person who flies an airplane
NRSEU	NURSE	a person who works in a hospital and takes care of sick people

To conclude, the most important thing about the MI theory is to get started. It is not necessary nor realistic to include all of the intelligences in every lesson. According to Christison (1996, p. 36), what is important is “that you understand the theory, your own MI profile, how it informs your teaching, and how to consciously apply it in your lesson planning and curriculum development.”

4. MULTIPLE INTELLIGENCES AND TEACHERS' AWARENESS OF THE THEORY

Teachers spend many years educating themselves and learning about teaching methods, strategies, styles, and other related topics. Do they spend enough time learning about Gardner's multiple intelligences? Are they even aware of this theory? There are not many studies available that could answer these questions. At the Faculty of Teacher Education, University of Zagreb, pre-service EFL teachers learn about this topic in their 3rd year of studies. Gardner's theory is one of the topics presented within the Introduction to ELT Methodology course. Is that sufficient for teachers to feel confident when implementing this theory in the classrooms? The answer is pretty simple – no. Pre-service teachers should study and investigate this topic much more than this. The reason teachers or pre-service teachers are not sufficiently familiar with Gardner's theory could be the fact that there is still not enough empirical evidence about the implementation of this theory and its benefits. According to Waterhouse (2006, p. 208),

To date there have been no published studies that offer evidence of the validity of the MI. In 1994 Sternberg reported finding no empirical studies. In 2000 Allix reported finding no empirical validating studies, and at that time Gardner and Connell (2000) conceded that there was "little hard evidence for MI theory" (p. 292). In 2004, Sternberg and Grigorenko stated that there were no validating studies for MI, and in 2004 Gardner asserted that he would be "delighted were such evidence to accrue" (p. 214), and he admitted that "MI theory has few enthusiasts among psychometricians or others of a traditional psychological background" because they require "psychometric or experimental evidence that allows one to prove the existence of the several intelligences" (p. 214).

Gardner responded (2006, p. 280),

Waterhouse (2006) berates Gardner for not testing MI theory, and she quotes others who claim that MI theory has not been tested. As a work of synthesis, MI theory does not lend itself easily to testing through paper-and-pencil assessments or a one-shot experiment. Rather, it is repeatedly assessed and reformulated as new empirical findings from a variety of disciplines are analysed and integrated. Theories such as evolution or plate tectonics or MI develop through the continuing accumulation of evidence, which makes the theory more or less plausible, more or less relevant for further research, and more or less useful to practitioners.

Palmerg (2011) claims that, although Gardner's theory has existed for many years now, many foreign language teachers are still not familiar enough with the theory. He

suggests this may be so because there are many teachers who consider this theory too general to be applicable to their particular field of interest. One of his first suggestions for teachers is to read a book on Gardner's multiple intelligences. "The more one knows, the better. Therefore, it is always a good idea to start by reading some of the available literature on the topic" (Palmerg, 2011, p. 19).

Christison (1996), on the other hand, states that some EFL educators are aware of Gardner's theory, they may be able to name all of the intelligences and give examples of using them in their own lives. However, not many of those EFL teachers actually consider the intelligences in lesson planning and curriculum development.

This thesis aims to provide more information about pre-service teachers' awareness of the theory. The results of the research conducted with this aim and discussion are given in the next chapter.

5. RESEARCH METHODOLOGY

The conducted research focused on multiple intelligences theory and pre-service teachers' awareness of it. This chapter provides information about study aim, research questions, participants, and instruments used in the research. It also discusses the data collected from the participants.

5.1. Study Aim and Research Questions

The aim of the research was to collect information about pre-service EFL teachers' awareness of MI theory, their attitudes towards implementing it in the EFL classrooms, and their dominant types of intelligences according to the MI Inventory.

Research questions that were addressed are:

- 1) How will the participants self-assess their most common types of intelligences according to the MI Inventory?
- 2) How familiar are pre-service EFL teachers with Gardner's theory of multiple intelligences?
- 3) What are pre-service EFL teachers' attitudes towards Gardner's multiple intelligences theory and its implementation in an EFL class?

5.2. Participants

Research was conducted on a sample that included a total of 59 participants, i.e. 41 pre-service EFL teachers attending first, second, third, fourth, and fifth year of studies at the Faculty of Teacher Education, University of Zagreb and 18 pre-service EFL teachers attending the same years of studies at the Faculty of Humanities and Social Sciences, University of Zagreb. Pre-service EFL teachers enrolled at the Faculty of Teacher Education will, after obtaining their diplomas, become EFL and class teachers, and will be qualified to teach English only in primary schools. Pre-service

EFL teachers enrolled at the Faculty of Humanities and Social Sciences, on the other hand, will be qualified to teach English in both primary and secondary schools, but cannot be class teachers. The average age of the participants was 22.9 years (SD=2.21), and the age range was between 18 and 29 years. Majority of the participants were female (N=54). There were 29 students in their 5th year of studies, 12 students in their 4th, 9 in their 3rd, 5 in the 2nd, and 4 in the 1st year of studies.

5.3. Research Instruments and Procedure

The participants were given a three-part anonymous questionnaire. The first part was a semi-structured background questionnaire (Appendix 1), and it collected general information about the participants, such as age, gender, level of English language knowledge, level of English teaching competences, year of studies, and the preferred future job – choosing between being an English teacher or a class teacher (this question was relevant only for the students enrolled at the Faculty of Teacher Education because they have this choice).

The second part of the research was an adapted version of an MI Inventory (Appendix 2), which included 48 statements out of which the participants were supposed to check those that apply to them. This MI Inventory was adapted from the book *7 Kinds of Smart* (1993) by Armstrong. The original MI Inventory contains 80 statements which were reduced to 48 in the adapted version. In addition, some of the statements were slightly changed for better understanding. In the given MI Inventory participants could check as many statements as they wished to. It contained elements of 8 intelligences like the one in Armstrong's book did. The statements contained the elements of the following intelligences: verbal/linguistic, logical/mathematical, visual/spatial, bodily/kinesthetic, musical/rhythmic, interpersonal, intrapersonal, and naturalist. Existential intelligence was excluded, as recommended by Armstrong (1993), because it can best be identified through personal reflection.

The third part of the questionnaire (Appendix 3) examined the students' awareness of Gardner's multiple intelligences theory, and it was used to elicit information such as participants' familiarity with this theory, their education at the university level concerning the theory, their opinion on it, their view on the applicability of the theory

in EFL teaching, their plans for applying the MI theory in the classroom, and the participants' attitude towards difficulties which can occur when implementing this theory in the EFL classroom. This part of the questionnaire contained four open-ended questions, which required explanations or description of the participants' answers. Apart from these four open-ended questions, the questionnaire included 2 statements that were assessed on a 5-point scale. The scale for the first one (*How familiar are you with Gardner's theory of multiple intelligences?*) was: Not at all (1), Slightly (2), Moderately (3), Very familiar (4), Completely (5), whereas the scale for the other one (*To what extent will you try to apply the multiple intelligences theory in the EFL classroom?*) was: Never (1), Rarely (2), Sometimes (3), Frequently (4), Always (5). The last question in the third part of the questionnaire, was a matching activity. The participants were supposed to match the activity used in the classrooms, such as TPR, with the intelligence which is dominant while conducting this activity in the lesson (in this case – bodily/kinesthetic).

5.4. Results and Discussion

1) Background Information

In addition to the general knowledge information, such as age and gender, data on the participants' self-assessed EFL proficiency level and teaching competences on the scale from 1 – 5 (insufficient-excellent) were collected. The mean result for self-assessed EFL knowledge in this sample was 4.4 (SD=0.64), and the grades ranged from 3-5. The teaching competences, which were also self-assessed, ranged from 1-5 and the mean result for the whole sample was 3.9 (SD=0.76). Looking at the results, it is obvious that the grades for English language knowledge were higher than those for their teaching competences. The result was expected because teaching competences are mainly developed in later years of studies (predominantly fourth and fifth), while very good knowledge of the English language is a fairly common requirement for students of all years of studies.

In the first part of the research, the following question was also asked: *When you graduate, would you like to be a class teacher or an EFL teacher?* The majority of the participants (50.85%, n=55) reported that they would like to be EFL teachers, and

40.68% (n=24) would like to be class teachers. Since Faculty of Humanities and Social Sciences students do not have this choice and only gain qualifications for EFL teachers, they all (30.51%, n=18) answered that they would like to be EFL teachers. Some of the participants (6.78%, n=4) reported they would like to be both, and only one participant (1.69%) wrote he/she would not like neither.

2) MI Inventory

One of the main concerns in this research was to examine the pre-service English teachers' dominant intelligences. In order to do that, they were given the MI checklist already described in chapter 5.3. *Instruments and Procedure*.

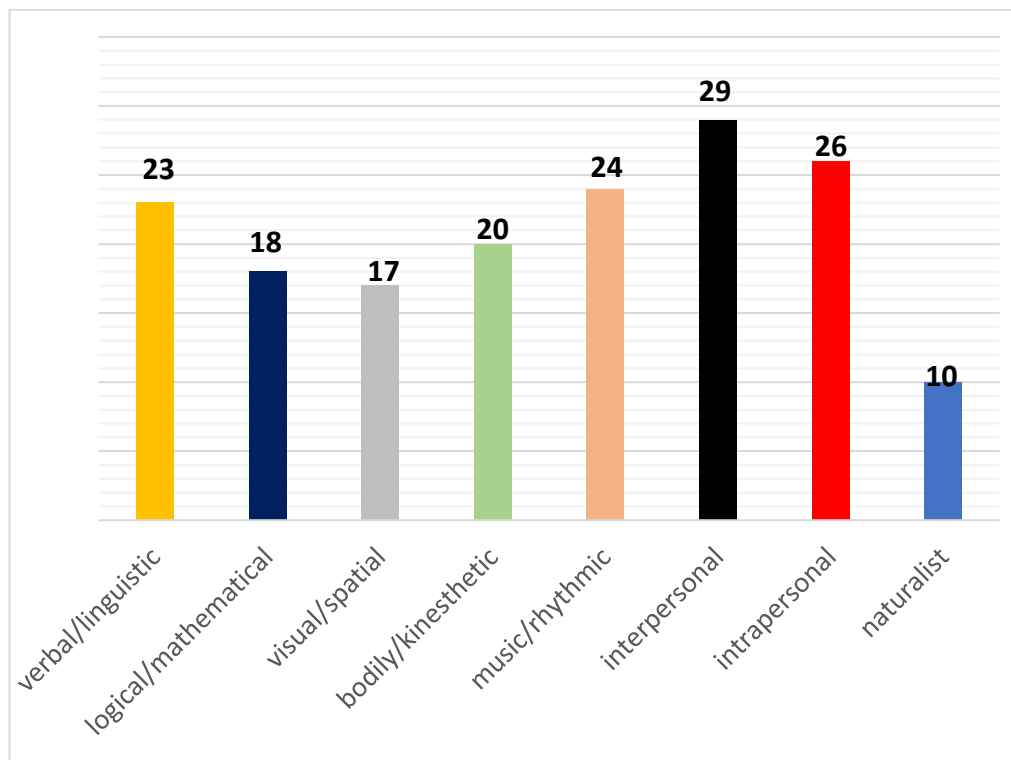


Figure 3. The results of the MI Inventory

The results presented in Figure 1 were analyzed descriptively. The statements that were checked for each participant were separated, and then counted for each intelligence. There were eight intelligences included in the questionnaire and the statements which a person checked for each intelligence were counted. The intelligence or intelligences, which had more statements checked, were considered as

dominant one/s. The results show that most pre-service English teachers in this sample selected interpersonal (n=29) and intrapersonal (n=26) as their dominant intelligences. The following intelligences identified by the participants as their dominant ones were musical (n=24), verbal/linguistic (n=23), bodily/kinesthetic (n=20), logical/mathematical (n=18), and visual/spatial (n=17), while the naturalist was identified as the strongest intelligence by the fewest participants (n=10). The biggest number of participants, according to these results, selected interpersonal intelligence, which was not a surprising outcome. In order to become a good teacher, a person has to be reflective and analytical. People who have this intelligence as their strongest one are also referred to as being “people smart”, which is also why a good teacher should have this intelligence, or at least try and develop it. The statements that the majority of participants chose for this intelligence were:

I am the sort of person that others come to for advice.

I like group games like Monopoly better than individual entertainment.

I enjoy the challenge of teaching others how to do something.

These statements indicate that people, who have interpersonal intelligence as the dominant one, have strong leadership skills, prefer working with other people – in a team, and are comfortable with teaching others. All of the mentioned skills are highly important for a teacher.

Figure 1 also shows that the second intelligence which was chosen by the greatest number of participants was intrapersonal. This result is again understandable because the participants are future EFL teachers, and they should be able to understand themselves – their moods and desires in order to understand others, primarily their learners. Even Gardner (2006, p. 15) states,

Interpersonal intelligence builds on a core capacity to notice distinctions among others – in particular, contrasts in their moods, temperaments, motivations, and intentions. In more advanced forms, this intelligence permits a skilled adult to read the intentions and desires of others, even when they have been hidden. This skill appears in a highly sophisticated form in religious or political leaders, salespersons, marketers, teachers, therapists, and parents.

The statements included in the questionnaire regarding this intelligence, and chosen by most of the participants were:

I regularly spend time alone, reflecting or thinking about important questions.

I have opinions that set me apart from the crowd.

I have a special hobby or interest that I like to do alone.

I have some important goals for my life that I regularly think about.

I consider myself to be independent-minded or strong-willed.

Naturalistic intelligence was the one that had the fewest statements checked. According to the study about the relationship between EFL teachers' and students' multiple intelligences and teaching styles conducted by Yoones, Satariyan, Reynolds, Salimi, and Mohseni (2015), the results for the naturalistic intelligence were also the lowest. The participants were EFL teachers and they, just like in our research, had naturalistic intelligence as their weakest one. The statements chosen by the majority of the pre-service EFL teachers for this intelligence in our MI checklist were:

I enjoy watching nature shows on television like the Discovery Channel or National Geographic.

I would rather spend my vacation in a cabin in the woods than at a fancy resort.

After a more detailed analysis of our checklist, we found more results regarding pre-service EFL teachers and their preferences when it comes to multiple intelligences. We wanted to know which of the statements from the checklist were chosen by the biggest number of participants, and which were not so popular with them. The results are shown in Table 3.

Table 3. The number of participants choosing statements on the MI Inventory

Multiple intelligences	Statement	Number of students
a) Verbal/linguistic	<i>1. Books are very important to me.</i>	27
	<i>2. Before I speak, read, write the words down, I can hear them in my head.</i>	33
	<i>3. I am good at word games, like Scrabble or Password.</i>	28
	<i>4. English, social studies, and history are easier for me than math and science.</i>	27
	<i>5. I have recently written something that I am especially proud of.</i>	15
	<i>6. I enjoy entertaining others or myself with tongue twisters, rhymes, or puns.</i>	18

b) Mathematical/logical	7. <i>I had an easy time understanding new math concepts in school.</i>	17
	8. <i>Math and/or science were among my favourite subjects in school.</i>	8
	9. <i>I like to play games and solve brainteasers that require tactics and strategy.</i>	17
	10. <i>I try to look for patterns and regularities in things, such as every third stair on the staircase has a notch in it.</i>	21
	11. <i>I am interested in new developments in science.</i>	13
	12. <i>I believe that almost everything has a logical explanation.</i>	29
c) Visual/spatial	13. <i>I often see clear visual images when I close my eyes.</i>	25
	14. <i>I am sensitive to colour.</i>	16
	15. <i>I am good at playing Pictionary, doing jigsaw puzzles, and solving mazes.</i>	25
	16. <i>I like to draw or doodle.</i>	16
	17. <i>I can easily imagine how something might look from a bird's eye view.</i>	19
	18. <i>I prefer looking at reading material with lots of illustrations.</i>	20
d) Bodily/kinesthetic	19. <i>I participate in at least one sport or physical activity on a regular basis.</i>	21
	20. <i>I like working with my hands, on concrete activities like carpentry, model – building, sewing, weaving.</i>	18
	21. <i>I like to spend my free time outdoors.</i>	29
	22. <i>I enjoy amusement rides and other thrilling experiences.</i>	17
	23. <i>I would describe myself as well-coordinated.</i>	31
	24. <i>I need to practice a new skill, not just read about it or see a video about it.</i>	21
e) Musical/rhythmical	25. <i>I have a pleasant singing voice.</i>	20
	26. <i>I play a musical instrument.</i>	26
	27. <i>I frequently listen to music because I enjoy it so much.</i>	32
	28. <i>I can easily keep time to music with a simple percussion instrument.</i>	13
	29. <i>Sometimes I catch myself walking along with a television jingle or song in my mind.</i>	33
	30. <i>I have a pleasant singing voice and I like to sing.</i>	19

f) Interpersonal	31. <i>I am the sort of person that others come to for advice.</i>	34
	32. <i>I prefer group sports (like softball), rather than individual sports (like swimming).</i>	18
	33. <i>I like group games like Monopoly better than individual entertainment.</i>	23
	34. <i>I enjoy the challenge of teaching others how to do something.</i>	41
	35. <i>I consider myself a leader (and others call me that).</i>	16
	36. <i>I like to get involved in social activities at my school, church, or community.</i>	20
g) Intrapersonal	37. <i>I regularly spend time alone, reflecting or thinking about important questions.</i>	30
	38. <i>I have opinions that set me apart from the crowd.</i>	27
	39. <i>I have a special hobby or interest that I like to do alone.</i>	24
	40. <i>I have some important goals for my life that I regularly think about.</i>	37
	41. <i>I consider myself to be independent-minded or strong-willed.</i>	28
	42. <i>I keep a personal diary or journal to write down my thoughts or feelings about life.</i>	10
h) Naturalist	43. <i>I have a garden and/or like to work outdoors.</i>	11
	44. <i>I really like to go backpacking and hiking.</i>	12
	45. <i>I enjoy having different animals around the house (in addition to a dog or cat).</i>	15
	46. <i>I enjoy watching nature shows on television like the Discovery Channel or National Geographic.</i>	22
	47. <i>I like to visit zoos and nature centres.</i>	18
	48. <i>I would rather spend my vacation in a cabin in the woods than at a fancy resort.</i>	23

The results presented in the table indicate that the most frequently selected statements among the participants were: 34. *I enjoy the challenge of teaching others how to do something.* (n=41), and 40. *I have some important goals for my life that I regularly think about.* (n=37). The first statement (number 34) belongs to the interpersonal, and the second one (number 40) to the intrapersonal intelligence. Both intelligences are ranked high on our list when it comes to pre-service EFL teachers and their dominant intelligence, so these statements were not a surprise. It was interesting to look at the

ones which had been checked the least, and those were: 8. *Math and/or science were among my favourite subjects in school* ($n=8$), and 42. *I keep a personal diary or journal to write down my thoughts or feelings about life* ($n=10$). The first one was also expected to be chosen by the fewest participants because students who apply to the Faculty of Teacher Education or the Faculty of Humanities and Social Studies usually prefer humanities and social studies to math, i.e. natural sciences. The second statement about keeping a personal diary or journal was somewhat surprising since this statement belongs to the interpersonal intelligence, which was ranked very high in this research.

3) Awareness of the MI Theory

In the third part of the research concerned with the pre-service teachers' awareness and knowledge of the MI theory, the first question was: *How familiar are you with Gardner's theory of multiple intelligences?* The mean result was 3.2 ($SD=1.09$).

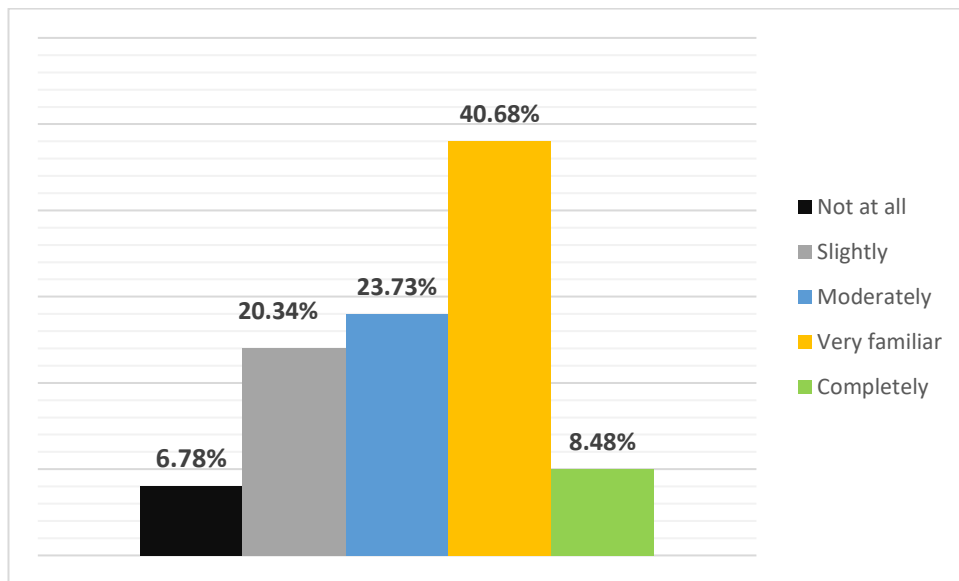


Figure 4. Familiarity with Gardner's theory of multiple intelligences

As presented in the chart (Figure 4), the majority (40.68%, $n=24$) of students said that they were very familiar with this theory, whereas 23.73% ($n=14$) of them said that they were moderately familiar with it and 20.34% ($n=12$) of the participants stated that they were slightly familiar. The smallest number of the participants (8.48%, $n=5$) were

completely familiar, and 6.78% (n=4) were not at all familiar with the theory. According to the syllabus of the EFL teacher education study program at the Faculty of Teacher Education, this theory is introduced in the 3rd year of studies, which means that the results are not surprising. Still, only 9 students participating in this study were in their 1st or 2nd year of studies and 16 students in total answered they were not at all familiar with it, or they were slightly familiar with it. Therefore, it may be proposed that students do not have enough knowledge on this topic.

Connected to the previous question was the next one, also closely related to students' knowledge about the Gardner's theory. The question was: *Have you had any education at the university level concerning the theory of multiple intelligences?* The majority of the participants said they had some education on this topic (n=45), and the rest of them (n=14) said they did not have any education, or they did not remember it. Some of the frequent answers were: *We mentioned it in psychology courses.*, *We discussed it in teaching methodology course.* Students also mentioned pedagogy courses, developmental psychology, optional reading, etc. It is interesting to see that the participants mainly used the verbs such as, *mentioned*, *discussed*, and *dealt with*. Only few chose the verb *studied* or *learnt*. This confirms our point made for the previous question, i.e. students' insufficient knowledge on this topic.

Furthermore, as one of the research questions was: *What are pre-service teachers' attitudes towards Gardner's multiple intelligences theory and its implementation in an EFL class?*, the participants were also asked to give their opinion about intelligence as defined by Gardner's multiple intelligences theory. The majority (n=51) agreed with it, and the rest of them (n=8) said they were not sure or did not know. Some of the answers were:

It makes sense because it says that not just math people are intelligent, but also many others in different things.

I agree with his theory, and the fact that not all of us learn in the same way.

I think it is a useful concept for representing intelligence as something that is not fixed and unique for everyone.

I think that this theory serves as a perfect example why intelligence should not only be seen through science and math. Instead, it is manifested through many different aspects of life and various activities.

I think it is an interesting theory because it proposes the idea that human intelligence is multi factorial. More precisely, I like that it suggests that people are not necessarily equally good at everything, but that their intelligence may be more or less prominent in certain areas.

In accordance with our expectations, most answers were positive, which means that pre-service EFL teachers approve of this theory, find it interesting, and want to know and learn more about it.

When it comes to the applicability of the theory, the participants were asked to state their opinion on it and to propose possible difficulties in the process. They were asked the following question: *How applicable do you perceive the multiple intelligences theory to be concerning EFL teaching?* Their answers were categorized and statistically analyzed. Four categories we included were: very, moderately, frequently, never, I don't know/I am not sure. The majority of the participants (n=37) answered (in their own words) that the theory was very applicable concerning EFL teaching. Six (n=6) of them claimed that it was moderately applicable, and n=4 of them said that it could be applicable frequently. Only one (n=1) participant perceived the multiple intelligences theory as something that could never be applied in EFL teaching. Ten (n=10) of the pre-service EFL teachers reported that they were not sure, or they did not know enough about the theory to answer this question.

Some of the participants' answers to this question were:

Very applicable - in terms of teaching methodology and understanding that not everyone can or should be excellent at everything (every subject or subject area).

It can be quite applicable because we can adapt the content to our learners' needs and preferences. We can also encourage the development of many types of intelligences through our teaching materials and teaching approaches or methods.

I consider it very important in order to adapt the lesson to students' wishes and interests. If you see that some students, for example, enjoy musical or linguistic

contents, you could easily include that into your lesson to make it more interesting for them.

These results were mostly in accordance with expectations and, once again, they showed that the majority of the participants are aware of the theory and think it is applicable in EFL teaching.

We used the next question to find out more about the participants' intentions for applying multiple intelligences theory in EFL teaching. We asked the participants to what extent they would try to apply it in the EFL classroom. They were supposed to choose their answer on a 5-point scale (never, rarely, sometimes, frequently, always).

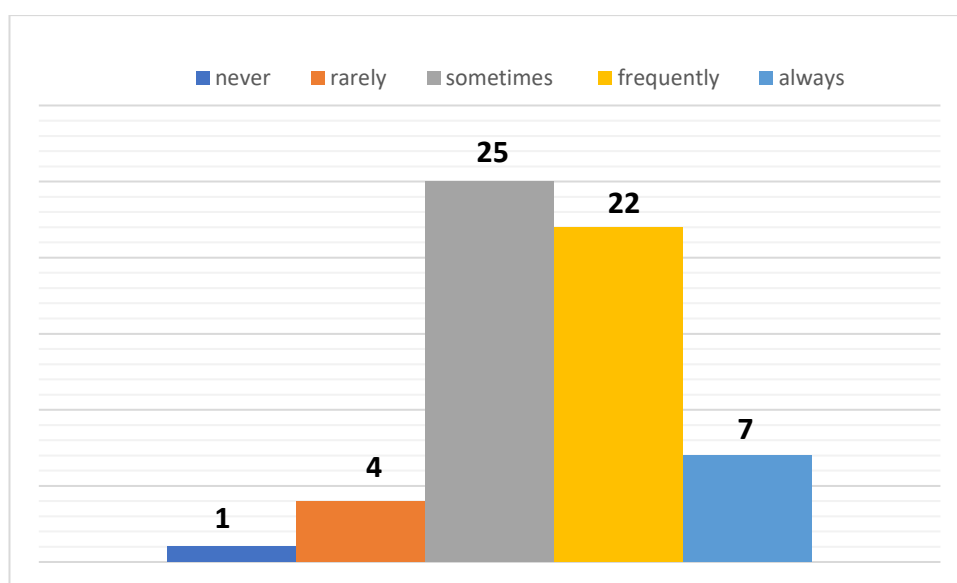


Figure 5. The participants' answers to the question: *To what extent will you try to apply the multiple intelligences theory in the EFL classroom?*

As shown in Figure 5, majority of the participants (n=25) said they would apply the theory in the EFL classrooms sometimes. Only seven (n=7) participants reported they would apply the theory always, which is probably because pre-service teachers do not have enough education on this topic, and they are unfamiliar with the ways in which the theory might be implemented in the EFL classrooms.

It was presumed that the participants might consider possible difficulties related to applying the MI theory in EFL teaching. That is the reason they were asked the following open-ended question: *What do you think are the barriers or difficulties to implementing the theory of multiple intelligences in the EFL classroom?* To analyze the results, we categorized their answers as follows: 1 - Not sure, 2 - Time

management, 3 - Number of students, 4 - Lack of knowledge, 5 - Classroom equipment and materials, 6 - Curriculum and school system, and 7 - Grading system. Categories 8-12 included a combination of the already mentioned answers: 8 - Time management and Number of students, 9 - Time management and Lack of knowledge, 10 - Time management and Classroom equipment and materials, 11 - Number of students and Classroom equipment and materials, 12 - Number of students and Curriculum and school system. The results can be seen in Figure 6 below.

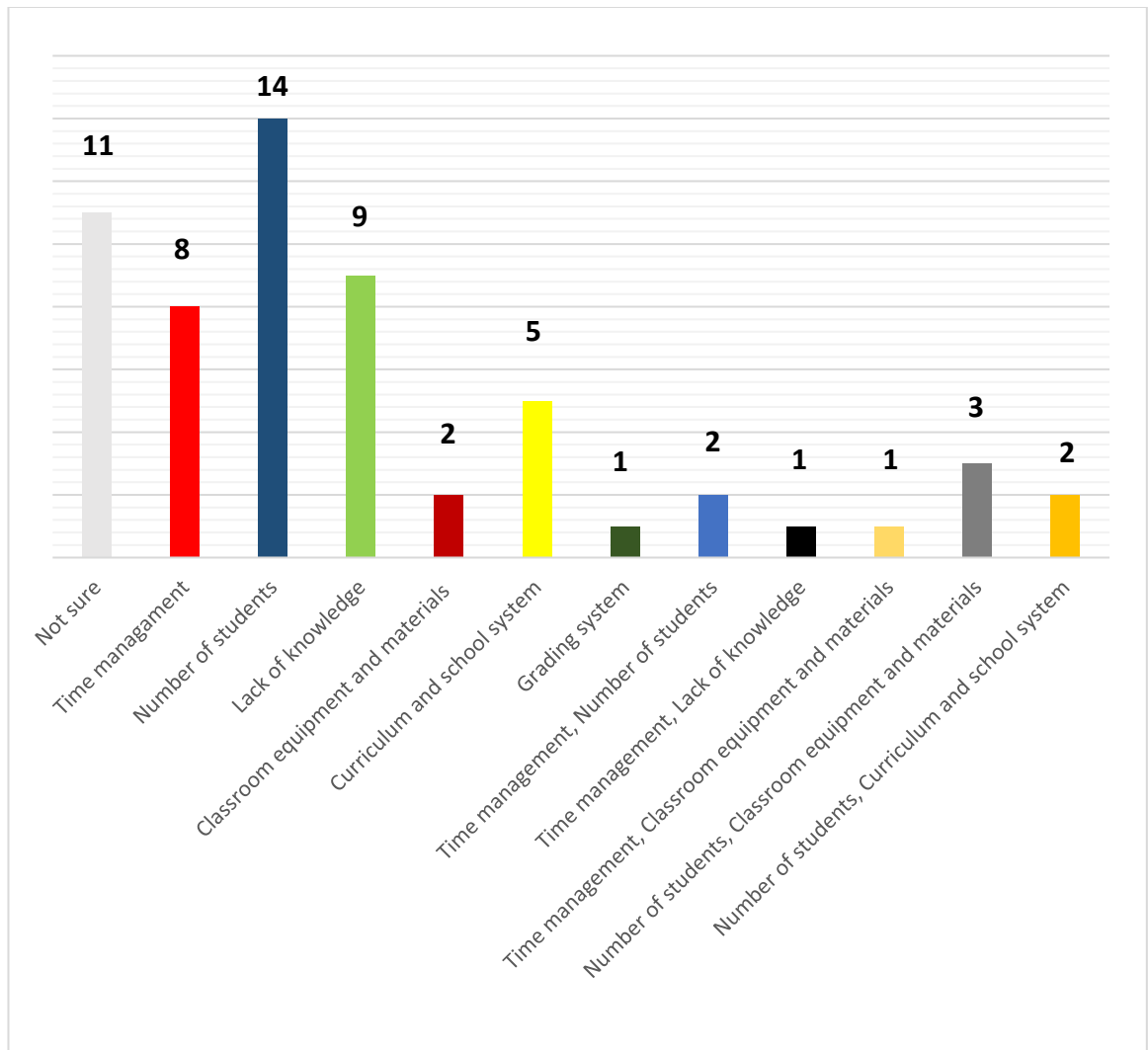


Figure 6. The participants' answers to the question: *What do you think are the barriers or difficulties to implementing the theory of multiple intelligences in the EFL classroom?*

Majority of the participants (n=14) chose the number of students as one of the difficulties while implementing the MI theory in the EFL classrooms. Some of the answers regarding this problem were:

Too many students. It is hard to focus on everyone's intelligence in the big classroom (>25 students).

Too many students in a single class - it would be hard to pay much attention to an individual; it is easier if everyone does the same thing.

There are many students in the class and they may all have different types of intelligence. Therefore, it is hard to make your lesson perfect for everybody.

As expected, the participants spotted one of the most common problems in the EFL classrooms when it comes to implementing newer theories or methods in teaching. In Croatia, the country where this research was conducted, one class usually has 25 – 30 students, which means it can be very hard to do any kind of individualized work with them.

Another big barrier, according to our participants, was definitely lack of knowledge among teachers and schools in general. Some of their answers were:

Teachers don't know how to do it, or they can't figure out what kid has which intelligence.

Lack of resources or knowledge about certain topics.

Pre-service teachers are aware that they do not have enough theoretical and practical knowledge to be able to implement this theory successfully.

Another difficulty that was also observed in this analysis was time management. Teachers have many objectives they have to achieve during the lessons, and it is a big and serious task to do. If they wanted to implement the MI theory into their lessons, they would have to adapt the whole lesson to it and consequently may not have enough time to do everything. The following were the students' answers to this question:

There is barely enough time to cover the basics in English teaching, shaping individual programs to play to each learner's strengths would be too time-consuming and very difficult overall.

Children in elementary schools are very different, and that could be a problem because you cannot teach one lecture in 9 different ways and still manage to finish everything on time.

You would need a lot of time to focus on each student individually.

It is clear that the participants detected great number of barriers and difficulties when it comes to implementing this theory in EFL teaching. The main issue that has to be addressed here is that our participants and pre-service teachers in general do not have enough practice and experience in the classroom, and that is why they consider this theory quite complex. This is why they are focused more on possible issues when applying this theory in the classroom, and are not focused enough on the benefits it can bring.

The last question in the third part of this questionnaire was a matching task. We decided to include it to gain a clearer picture about the participants' knowledge and understanding of the theory of multiple intelligences. They were supposed to link the activities used in EFL classrooms (TPR, group brainstorming, keeping a journal on a particular topic, classifying and categorizing, jazz chants, planning an environmental project, storytelling, and mind mapping) with the intelligence which is dominant when participating in these activities. The intelligences included in this task were: bodily/ kinesthetic, interpersonal, intrapersonal, logical/ mathematical, musical/ rhythmical, naturalist, verbal/ linguistic, and visual/ spatial. The results can be seen in Figure 7 below.

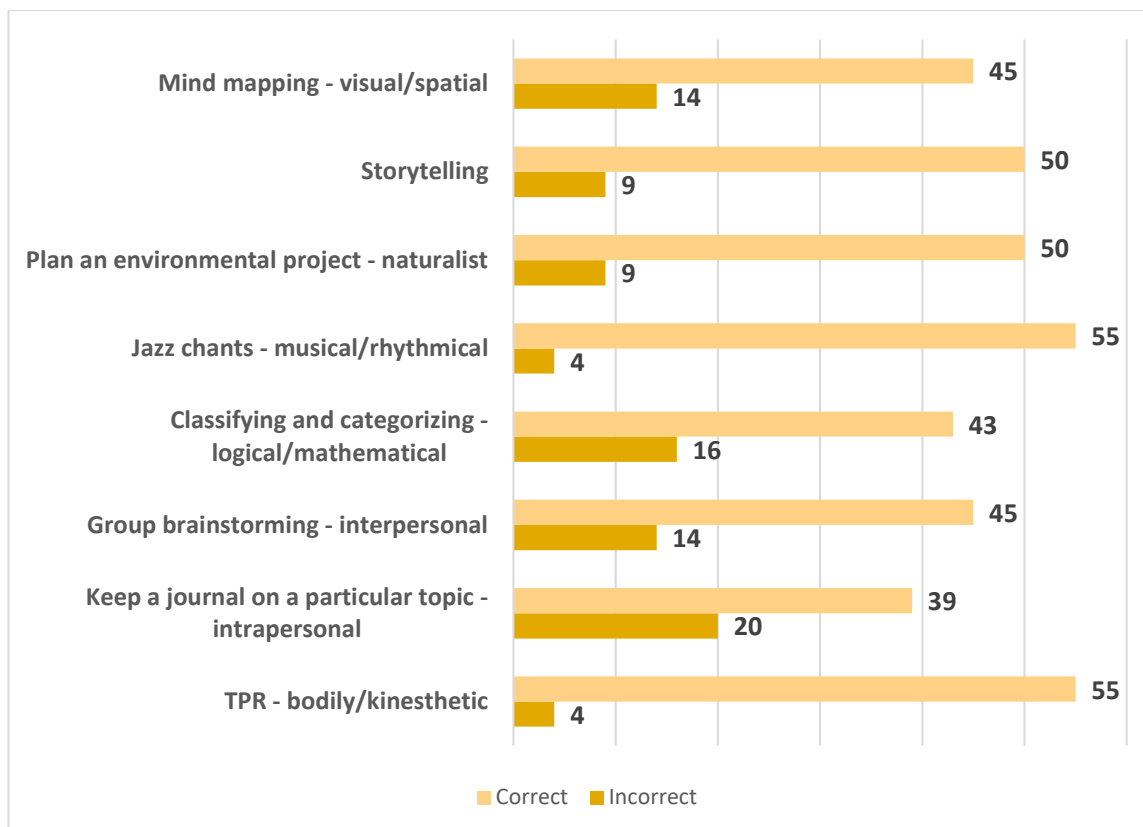


Figure 7. The results of the matching task – number of correct and incorrect answers for each intelligence

The presented results show that there were some incorrect answers in this matching task, but that was expected since some participants were not familiar with the theory. The biggest number of our participants (n=20) made a mistake regarding intrapersonal intelligence and the activity of keeping a journal on a particular topic. On the other hand, the activity that the majority (n=55) recognized and linked correctly to bodily/kinesthetic intelligence was total physical response. The same number of the participants (n=55) linked jazz chants to musical/ rhythmical intelligence. Total physical response is something that the students from both faculties encounter in their early years of studies because it is a big part of EFL teaching, and jazz chants, in addition to being introduced early in the study program at the Faculty of Teacher Education, can be easily connected to music. These could be the reasons for so many correct answers for these activities. A total of 52.5% of the participants (n=31) matched correctly all the activities to their corresponding intelligence type. That is also a good indicator of their awareness of the theory.

6. CONCLUSION

Based on the results of this research, the answer to the first research question (*How will the participants self-assess their most common types of intelligences according to the MI Inventory?*) is that the biggest number of the participants assessed interpersonal and intrapersonal intelligences as their dominant type. That was mainly expected and confirmed our assumptions about this matter because teachers work with many students and people in general. They are in constant communication with other teachers, the whole school staff, and parents. In order to have control of all of this, they have to have strong interpersonal skills which are surely typical for someone with dominant interpersonal intelligence. Next, someone who regularly works with other people, also has to have solid intrapersonal skills. One has to have time for oneself, has to have personal goals and think about one's feelings, needs and emotions. Therefore, a good teacher definitely has to know and understand him or herself.

The answer to the second research question (*How familiar are pre-service EFL teachers with Gardner's theory of multiple intelligences?*) is that most participants are fairly familiar with Gardner's theory of multiple intelligences. They have shown that they know some of the basic facts about this theory as they have learnt about it during their studies.

Next, the results pertaining to the third research question (*What are pre-service EFL teachers' attitudes towards Gardner's multiple intelligences theory and its implementation in an EFL class?*) show that, although their attitudes toward implementing the MI theory in EFL classroom were mostly positive, they are not really certain how it could be applied and they themselves do not feel competent enough to implement it. This could be inferred from their answers when asked about difficulties and barriers to implementing the MI theory in EFL classrooms. Their biggest concerns were not having enough knowledge related to this topic and having too many students in one classroom and not enough time.

Finally, some limitations to this research need to be declared. Firstly, the sample was quite small and was convenient, which does not really allow any generalization of the obtained results. Secondly, in addition to the questionnaire, for a better insight into the data, additional research instruments may be appropriate.

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8. LIST OF FIGURES AND TABLES

Figure 1 Eight ways of learning

Figure 2 An MI lesson plan checklist

Figure 3 The results of the MI Inventory

Figure 4 Familiarity with Gardner's theory of multiple intelligences

Figure 5 The participants' answers to the question: *To what extent will you try to apply the multiple intelligences theory in the EFL classroom?*

Figure 6 The participants' answers to the question: *What do you think are the barriers or difficulties to implementing the theory of multiple intelligences in the EFL classroom?*

Figure 7 The results of the matching task – number of correct and incorrect answers for each intelligence

Table 1 Worksheet with the lyrics

Table 2 The examples of cards and the poster for the running game

Table 3 The number of participants choosing statements on the MI Inventory

9. APPENDICES

Appendix 1

BACKGROUND INFORMATION

1. Please write your age.

2. Please choose a letter depending on your gender:

F (female)

M (male)

3. What grade would you use to assess your English language knowledge (1 – the lowest grade, 5 – the highest grade)?

a) 1 (F)

b) 2 (D)

c) 3 (C)

d) 4 (B)

e) 5 (A)

4. Name your faculty and study programme.

5. Which year of the studies are you currently enrolled into?

a) 1st year of bachelor's degree

b) 2nd year of bachelor's degree

c) 3rd year of bachelor's degree

d) 4th year of master's degree

e) 5th year of master's degree

6. What grade would you use to assess your English language teaching competences (1 – the lowest grade, 5 – the highest grade)?

a) 1 (F)

b) 2 (D)

c) 3 (C)

d) 4 (B)

e) 5 (A)

6. When you graduate, would you rather be a class teacher or an EFL teacher?

Appendix 2

MI CHECKLIST

(Adapted from https://www.wtc.ie/images/pdf/Multiple_Intelligence/mi7.pdf)

Check (x) each statement that you feel applies to you. You may check as many as you like.

_____ Books are very important to me.

_____ Before I speak, read, or write the words down, I can hear them in my head.

_____ I am good at word games, like Scrabble.

_____ English, social studies, and history are easier for me than math and science.

_____ I have recently written something that I am especially proud of.

_____ I enjoy entertaining others or myself with tongue twisters, rhymes, or puns.

_____ I had an easy time understanding new math concepts in school.

_____ Math and/or science were among my favourite subjects in school.

_____ I like to play games and solve brainteasers that require tactics and strategy.

_____ I try to look for patterns and regularities in things, such as every third stair on the staircase has a notch in it.

_____ I am interested in new developments in science.

_____ I believe that almost everything has a logical explanation.

_____ I often see clear visual images when I close my eyes.

_____ I am sensitive to colour.

_____ I am good at playing Pictionary, doing jigsaw puzzles, and solving mazes.

_____ I like to draw or doodle.

_____ I can easily imagine how something might look from a bird's eye view.

_____ I prefer looking at reading material with lots of illustrations.

_____ I participate in at least one sport or physical activity on a regular basis.

_____ I like working with my hands, on concrete activities like carpentry, model – building, sewing, weaving.

_____ I like to spend my free time outdoors.

_____ I enjoy amusement rides and other thrilling experiences.

_____ I would describe myself as well-coordinated.

_____ I need to practice a new skill, not just read about it or see a video about it.

_____ I have a pleasant singing voice.

_____ I play a musical instrument.

_____ I frequently listen to music because I enjoy it so much.

_____ I can easily keep time to music with a simple percussion instrument.

_____ Sometimes I catch myself walking along with a television jingle or song in my mind.

_____ I have a pleasant singing voice and I like to sing.

_____ I am the sort of person that others come to for advice.

_____ I prefer group sports (like softball), rather than individual sports (like swimming).

_____ I like group games like Monopoly better than individual entertainment.

_____ I enjoy the challenge of teaching others how to do something.

_____ I consider myself a leader (and others call me that).

_____ I like to get involved in social activities at my school, church, or community.

_____ I regularly spend time alone, reflecting or thinking about important questions.

_____ I have opinions that set me apart from the crowd.

_____ I have a special hobby or interest that I like to do alone.

_____ I have some important goals for my life that I regularly think about.

_____ I consider myself to be independent-minded or strong-willed.

_____ I keep a personal diary or journal to write down my thoughts or feelings about life.

_____ I have a garden and/or like to work outdoors.

_____ I really like to go backpacking and hiking.

_____ I enjoy having different animals around the house (in addition to a dog or cat).

_____ I enjoy watching nature shows on television like the Discovery Channel or National Geographic.

_____ I like to visit zoos and nature centres.

_____ I would rather spend my vacation in a cabin in woods than in a fancy resort.

Appendix 3

AWARENESS OF THE THEORY

1. How familiar are you with Gardner's theory of multiple intelligences?

Not at all Slightly Moderately Completely

2. Have you had any education at the university level concerning the theory of multiple intelligences? Please describe.

3. What do you think about intelligence as defined by Gardner's multiple intelligences theory?

4. How applicable do you perceive the multiple intelligences theory to be concerning EFL teaching?

5. To what extent will you try to apply the multiple intelligences theory in the EFL classroom?

never rarely sometimes frequently always

6. What do you think are the barriers or difficulties to practice the theory of multiple intelligences in the EFL classroom?

Link the activity to the right intelligence:

1. bodily/kinesthetic intelligence	<u>TPR</u>
2. interpersonal	<u>GROUP BRAINSTORMING</u>
3. intrapersonal	<u>KEEP A JOURNAL ON A PARTICULAR TOPIC</u>
4. logical/mathematical	<u>CLASSIFYING AND CATEGORIZING</u>
5. musical/rhythmical	<u>JAZZ CHANTS</u>
6. naturalist	<u>PLAN AN ENVIRONMENTAL PROJECT</u>
7. verbal/linguistic	<u>STORYTELLING</u>
8. visual/spatial	<u>MIND MAPPING</u>

10. IZJAVA O SAMOSTALNOJ IZRADI RADA

Izjava kojom ja, Matea Sviben, studentica integriranog preddiplomskog i diplomskog sveučilišnog studija primarnog obrazovanja s engleskim jezikom Učiteljskog fakulteta u Zagrebu, izjavljujem da sam diplomski rad pod nazivom ***Pre-Service EFL Teachers and Multiple Intelligences*** napisala samostalno, uz pomoć stručne literature, vlastitog znanja i uz mentorstvo doc. dr. sc. Alenke Mikulec.

Matea Sviben

Zagreb, rujan 2020.

A handwritten signature in black ink, reading 'Sviben M.', is written above a horizontal line.