

## **CHAPTER TWO**

### **LITERATURE REVIEW**

This chapter consists of four sections: the theory of Multiple Intelligences (MI), English reading proficiency, correlation between multiple intelligences and English reading proficiency, as well as research questions of the present study. The first section presents an overview of Gardner's MI theory including an introduction to the development of intelligence theory; definition, principals, and myths of MI theory; as well as the application of MI theory to ESL/EFL instruction. The second section deals in turn with what reading is, theories of reading in a second language, and theories of beginning reading. The third section displays relevant studies on the correlation between multiple intelligences and English reading proficiency and application of MI theory in L1 and L2 reading instruction. In the final section, research questions are raised based on the review of previous studies.

#### **2.1 The Theory of Multiple Intelligences**

To review the theory of multiple intelligences, the researcher begins with the introduction of the development of intelligence theory, then presents the definition of MI, its principal claims as well as its myths and realities, and last, offers relevant studies on the application of the MI theory to ESL or EFL instruction.

##### **2.1.1 The Development of Intelligence Theory**

Traditionally, intelligence has been defined on the basis of linguistic and logical-mathematical abilities (Richards & Rodgers, 2001). The first intelligence

quotient (IQ) test was developed by the French psychologist Alfred Binet in 1904 (Armstrong, 2000). The IQ test was founded on the notion that intelligence is a single, unchanged, inborn capacity. And the success in academic schooling could be predicted by students' IQ (Chang, 1998). As a result, the IQ test was widely adopted in schools in order to predict the academic success of a student. However, the single and narrow definition of intelligence was increasingly questioned by psychologists. Intelligence began to be believed to contain diverse cognitive abilities and intellectual abilities, rather than a single capacity determining the human performance in the tests (Armstrong, 2000). The famous theories based on different angles of human abilities include Two Factor Theory proposed by Spearman in 1904, Primary Mental Abilities advocated by Thurstone in 1938, Structure of Intellect Theory suggested by Guilford in 1959, Multiple Intelligences Theory advocated by Gardner in 1983, and Triarchic Theory argued by Sternberg in 1985 (Chang, 1998).

Among the above theories, the theory of Multiple Intelligences has drawn the great attention of scholars and educators over the past two decades owing to its premise on individual difference of human beings and its rigid multi-dimensional theoretic foundation (Campbell, 1997; Silver, Strong & Perini, 1997). Criticizing the overemphasis on the linguistic and logical-mathematical abilities and the simplification of human intelligence by means of the psychometric approach, Howard Gardner (1983) postulated an alternative view of intelligence, proposing the other seven basic intelligences in his book *Frames of Mind: The Theory of Multiple Intelligences*. Gardner reviewed a wide range of human cognitive capacities, and tried to incorporate the skills valued in different cultural settings (Armstrong, 2000). In 1997, he added the eighth intelligence (naturalist) and then continued to discuss the ninth possible intelligence, i.e., spiritual intelligence (Gardner, 1999).

### 2.1.2 The Definition of Multiple Intelligences

In 1983, Gardner defined an intelligence as “the ability to solve problems or to create products that are valued within one or more cultural settings” (p. 11) in his book: *Frames of Mind: The Theory of Multiple Intelligences*. Afterwards, in 1999, he advanced the concept of intelligence as “a biological and psychological potential to process information that can be activated in a cultural setting to solve problems or to create valuable products in a culture” (p. 33-34) in his book: *Intelligence Reframed: Multiple Intelligences for the 21<sup>st</sup> Century*. Recently, he suggested that intelligences are neural potentials rather than the things that could be seen or counted, and the activation of intelligences relies on the values of a specific culture, the chances given in that culture, and the choices made by individuals or the important people around them. Beyond the traditional idea of intelligence as the single faculty that people are either clever or stupid, he embraced more human capacities ignored in the past (Gardner, 1999). Namely, instead of a quotient produced from an IQ test in the past, intelligence is viewed as the capacity for solving problems and fashioning products in the real-life environment (Armstrong, 2000; Stanford, 2003).

To examine the existence of the candidate intelligence, Gardner set up eight criteria by considering diverse disciplines’ roots, including biological sciences, logical analysis, developmental psychology, traditional psychology and tried hard to ascertain the relevant scientific proof. The following were the sources of these criteria (Armstrong, 2000):

1. The potential of isolation by brain damage (emanated from biological sciences);
2. An evolutionary history and evolutionary plausibility (emanated from biological sciences);
3. An identifiable core operation or set of operations (emanated from logical analysis);

4. Susceptibility to encoding in a symbol system (emanated from logical analysis);
5. A distinct development history along with a definable set of expert “end-state” performances (emanated from developmental psychology);
6. The existence of idiot savants, prodigies, and other exceptional people (emanated from developmental psychology);
7. Support from experimental psychological tasks (emanated from traditional psychology);
8. Support from psychometric findings (emanated from traditional psychology).

The eight multiple intelligences contain particular characteristics and serve to certain professions. These eight intelligences are described as below:

#### **(1) Verbal/linguistic intelligence**

It refers to the production of language, abstract reasoning, symbolic thinking, conceptual patterning, reading, and writing (Gardner, 1997). People with higher verbal intelligence tend to be good at teaching, journalism, writing, law, and translation (Nolen, 2003).

#### **(2) Logical/mathematical intelligence**

It stands for the capacity to observe patterns, work with abstract symbols (e.g., numbers, geometric shapes), and detect relationships or spot connections between separate and different pieces of information (Gardner, 1997). People with higher logical intelligence are able to follow a serial of reasoning and calculate very quickly (Nolen, 2003).

#### **(3) Visual/spatial intelligence**

It means the ability to visualize objects from distinct perspectives and angles. People with higher visual and spatial intelligence excel in visual arts, navigation, mapmaking, architecture, as well as games requiring (Gardner, 1997).

**(4) Bodily/kinesthetic intelligence**

It is the ability to use the body to express emotion, to play a game, and to create a new product (Gardner, 1997). This intelligence enables people to excel in the professions such as dancing, athletics, sculpture, carpentry, plumbing, and mimics (Nolen, 2003).

**(5) Musical/rhythmic intelligence**

It represents the following capacities: the use and appreciation of rhythm, pitch, patterns and sensitivity to sounds from the environment and musical instruments (Gardner, 1997). Those with musical intelligence are often found in professions such as violinists and composers (Nolen, 2003).

**(6) Interpersonal intelligence**

It suggests the ability to cooperate with others in a group, and also the ability to communicate verbally and nonverbally with other people (Gardner, 1997). People with higher interpersonal intelligences are often found in professions such as teaching, politics, salesmen, therapists, and religious leaders (Nolen, 2003).

**(7) Intrapersonal intelligence**

It represents the internal aspects of the self, such as access to one's own strengths, range of emotional responses, thinking processes, self-reflection, and a sense of intuition about spiritual realities (Gardner, 1997). People with stronger intrapersonal intelligence are often autobiographers, the clergy, self-managers as well as those who perceive their inner world profoundly (Feng, 2000).

**(8). Naturalistic intelligence**

It shows the ability to discern patterns in nature and sort objects, sensitivity to other features of the natural world, and an understanding of different species (Gardner, 1997). Biologists and evolutionary theorists usually have higher naturalist intelligence

(Nolen, 2003).

### **2.1.3 The Principal Claims of MI Theory**

Some important claims underlying MI theory are discussed as follows:

**(1) Each person has all eight intelligences.**

MI theory, a cognitive functioning theory, proposes that each person has capacities in the eight intelligences to some degree and displays the eight intelligences uniquely (Armstrong, 2000). In other words, each person has a unique combination of these eight intelligences that trigger the individual difference (Gardner, 1999).

**(2) Most people can develop each intelligence to an adequate level of competency.**

Gardner (1999) pointed out that almost everyone possesses the capacity to develop these eight intelligences well if provided adequate encouragement, enrichment, as well as instruction. That is to say, people can change and grow the multiple intelligences in response to their biological and environmental experiences (Krechevsky & Seidel, 1998).

**(3) Intelligences usually interact in complex ways.**

Gardner (1999) believed that no intelligence exists in isolation from other intelligences in life. People will develop some of the intelligences in a complicated way simultaneously when stimulated by multi-sensory activities (Poole, 2000). This idea can also be proved by psychological studies claiming that although human brain is identified to have distinct functions at different areas in the two hemispheres, both hemispheres work together in a complementary manner to support holistic and integrated activities (Jenson, 1998). Take cooking for instance, one may adopt his verbal/linguistic intelligence to read the recipe, logical/mathematical intelligence to divide the recipe in half, interpersonal intelligence to develop a menu to meet the

needs of his or her family, and intrapersonal intelligence to placate one's own appetite as well (Armstrong, 2000).

**(4) There are a number of ways to be intelligent within each category.**

According to Gardner (1999), there is no fixed trait to determine how intelligent a person is in a particular field. People show their talents within intelligences and between intelligences in a variety of ways (Armstrong, 2000). For instance, a person with stronger linguistic intelligence may read a book but can't tell a story well.

### **2.1.4 The Myths and Realities of Multiple Intelligences**

Since the publication of Gardner's *Frames of Mind*, there has been a great number of different interpretations of what MI theory is and how to apply it in schools (Gardner 1995). However, some myths have been accumulated. Corresponding to these controversial issues, Gardner (1999) offered the realities and his comments (pp. 79-91).

**(1) Myth 1**

Now that eight or nine intelligences have been identified, researchers can create a variety of tests and secure the associated scores.

**Reality & Comment:**

In reality, MI theory is constructed upon the idea of objecting "psychometrics -as-usual" (Gardner, 1999). He criticized that traditional paper-and pencil IQ test is not "intelligence-fair" because it is a decontextualized exercise which is designed with unfamiliar materials to the testees. Instead of adopting the narrow way of linguistic or logical intelligences, Gardner (1995) suggested that intelligences be assessed in the natural and direct ways in the comfortable context with cultural roles as well as familiar materials.

**(2) Myth 2**

An intelligence is the same as a domain or a discipline.

**Reality & Comment:**

Howard Gardner (1995) claimed that an intelligence is a new kind of construct and should not be mixed up with other related concepts like a domain or a discipline. He defined an intelligence as a biological and psychological potential which can be developed to some extent as a result of the cultural, experiential and motivational factors. By contrast, a domain refers to an organized set of activities with a particular symbol system and operations. A particular intelligence can be put to work on a number of domains while a domain can involve several intelligences (Gardner, 1999).

**(3) Myth 3**

An intelligence is the same as a “learning style,” a “cognitive style,” or a “working style.”

**Reality & Comment:**

Gardner (1995) claimed that style stands for the concept of a general approach that a person can employ equally to a diversity of contents while intelligence refers to a capacity geared to a particular content of the world. More style-by-style based empirical studies are suggested to be undertaken to examine the relation between Gardner’s concept of intelligence and the diversity of conceptions about style.

**(4) Myth 4**

The MI theory is not empirical.

**Reality & Comment:**

Gardner (1995) argued that the eight intelligences were constructed on the basis of numerous empirical evidence offered by studies reviewed and identified in *Frames of Mind*. The disciplines of the studies involved brain science, psychology,



anthropology and other related disciplines. Also, he suggested that it's vital to reconceptualize the MI theory in light of new research findings offered by the laboratory or the studies.

**(5) Myth 5**

The MI theory is incompatible with *g* (general intelligences used by psychometricians), with hereditarian accounts, and/or with environmental account of the nature and causes of intelligences.

**Reality & Comment:**

Gardner (1995) claimed that MI theory do not reject the existence of *g* but the sphere and explanatory power of *g*. In reality, the MI theory is neutral on the issue of the intellectual heritability. Rather than emphasizing heritability of specific intelligences, MI theory puts more emphasis on the interaction between genetic and environmental factors.

**(6) Myth 6**

MI theory broadens the concept of intelligence to include all psychological constructs and therefore, it depreciates the usefulness and the usual connotations of the term.

**Reality & Comment:**

In Gardner's view, the traditional definition of intelligence focuses only on the scholastic performance (linguistic or logical/mathematical) of human capacities and entails all spheres of human talents. Therefore, it underscores those who do not do well in the psychometric testing. However, MI theory concerns human intellect in cognitive aspects. Besides, MI theory has no involvement with issues beyond the intellect such as personality, character, will, morality, attention, motivation or any other psychological constructs (Gardner, 1999).

### **(7) Myth 7**

There is a single “approved” educational approach based on MI theory.

#### **Reality & Comment:**

Gardner (1999) emphasized that MI theory is by no means an educational prescription and claimed that “A gulf always exists between scientific claims about how the mind works and the practical application of actual classroom” (p. 89). He suggested that educators think of how and what extent to implement and adapt MI theory in the classroom. He made no imperatives for so-called MI schools but emphasized the following three key points: humans are not all the same; humans don’t have the same kinds of minds; education would be more effective when considering individual differences of learners (Gardner, 1999).

### **2.1.5 Application and Criticisms of the MI Theory in ESL/EFL Instruction**

After the theory of multiple intelligences was proposed by Howard Gardner in 1983, a large number of books, papers, journal articles have been published to discuss the application of MI theory to language learning and teaching. Generally speaking, the MI theory has offered positive impact on both teachers and students through the implementation of MI theory in EFL curriculum designing and assessment (Christison, 1996; Feng, 2000; Gahala & Lange, 1997; Hall Halley, 2004; Ko, 2002; Tai, 2002).

The implementation of MI theory in language classrooms brings teachers and students great benefits. First, the MI theory stimulates ESL/EFL teachers to examine their teaching techniques and strategies in light of human differences (Christison, 1996). Hall Halley (2004) pointed out that teachers who incorporated the MI theory discovered multiple paths to enhance their overall effectiveness as educators and thus became more energetic and enthusiastic about their teaching. Besides, Campbell

(1997) suggested that integrating multiple intelligences into the classroom setting does not require teachers to create a new curriculum or teaching methodology. And it is unlikely to present and awaken every intelligence involving in classrooms (Freeman, 1986). Generally speaking, teachers just supplement and revise existing lesson plans with creative and innovative ideas (Hall Haley, 2004). On the other hand, students are given more choices to learn and demonstrate their learning through the MI-based teaching, which transfers control from teachers to learners (Christison, 1999). Thus, students may maximize their learning to higher academic achievement and enhance their motivation when taking responsibility for their own learning through the learner-centered instruction (Gahala & Lange, 1997; Hall Halley, 2004).

Although multiple intelligences theory is not a prescribed teaching method, curriculum, or technique, and there is no particular syllabus for MI-based language curriculum, some scholars offered some suggestions to help practitioners in the implementation of the MI theory in the second/foreign language instruction. First of all, a basic developmental sequence is offered to incorporate multiple intelligences concept in lesson planning (Lazear, 1991):

**1. Awaken the intelligence.**

Students are given exercises and activities which make use of sensory bases (five senses), intuition, or metacognition to stimulate a particular intelligence.

**2. Amplify the intelligence.**

Students practice with the awakened intelligences and improve them through the activity. Intelligence will be strengthened with more use and practice like any skill.

**3. Teach for/with the intelligence.**

Teachers design the lesson with the structure of multiple intelligences and put emphasis on adopting different intelligences in the teaching/learning process.

#### **4. Transfer the intelligence.**

Teachers help students reflect on their learning in the previous stages and relate the lesson to their real lives, such as solving problems and confronting challenges in the real life.

Furthermore, Christison (1996) pointed out three important steps to follow. First, teachers identify frequent teaching activities adopted in language classes and then categorize them. Next, teachers track what they are doing with multiple intelligences. Last, according to the track, teachers can understand the distribution of students' multiple intelligences and then make good use of students' stronger intelligences in the teaching activities.

Christison and Kennedy (1999) offered the following four ways for teachers to involve MI theory with ESL learners:

##### **1. Helping students understand and appreciate their own strengths and learning preferences.**

Through the MI inventory developed by Christison (1999), learners identify their preferred intelligences and teachers may adapt the activities to meet the needs of learners.

##### **2. Understanding learners' intelligences profoundly.**

MI theory broadens teachers' awareness of learners' different knowledge and skills so as to realize each student's strengths and potential.

##### **3. Supplying multiple ways for learners to involve and present their learning.**

The identification of personal strengths help students become more receptive to learning activities and gain successful experiences and confidence.

##### **4. Designing lesson plans to satisfy different learners' needs.**

Learners become more interested in learning because they gain greater

understanding for the lesson when they are allowed to learn in their favored and comfortable way.

Although the MI theory cast light on language learning, there are still some criticisms on the application of MI theory in language instruction. First, the connection between MI theory and language education is insufficient and the MI theory lacks a few basic elements linking directly to language and language learning (Christison, 1997; Reid, 1997). Besides, Richards and Rodgers (2001) pointed out some teachers think it is impractical to identify and respond to a wide range of students' differences in the real classroom. Thus, the innovative courses infused with MI perspectives need to be evaluated. What's more, Gardner (1995) pointed out several common misconceptions of multiple intelligence in classroom activities: (1) all concepts or subjects can be taught using all of the multiple intelligences; (2) going through the motions of certain intelligences is sufficient; (3) materials associated with intelligence used as a background will address the given intelligence for learning; (4) using intelligence as mnemonic devices is equivalent to teaching multiple intelligences; (5) interpersonal intelligences implies cooperative learning, and applies to outgoing extroverted people; (6) intrapersonal intelligence suggests self-esteem programs, or applies to people who are introverts or loners. Meanwhile, Gardner (1995) provided some promising possibilities for the application of MI theory to improve the above misconceptions: cultivation of desirable capabilities/ skills; approaching concepts and subject matter in a variety of ways; spending time on key concepts, generative ideas, essential questions but examining them from various angles; personalization of education.

## **2. 2 Theories of Reading**

As reading is another concern of the present research, the researcher reviews the literature on L1 and L2 Reading, and reading at beginning level. First of all, the studies on L1 reading, including the definition of reading and reading process, are examined. Next, the researcher synthesizes the studies on L2 reading in terms of the components and skills of reading, as well as differences between L1 and L2 reading. Finally, three approaches to reading at beginning level are presented sequentially.

## **2.2.1 Studies on Reading in the First Language**

### **2.2.1.1 The Definition of Reading**

Speaking of the definition of reading, many people can come up with a general idea that reading is the process of acquiring information from a text (Grabe & Stoller, 2001). However, Eskey (2002) argued that this statement is incomplete because reading is an invisible subconscious process and difficult to be demonstrated by generating any product. Rather than the simple interaction between a reader and a text, reading is a complex process of human behavior. Bernhardt (1991) indicated that reading is an interactive sociocognitive process involving a text, a reader, and a social context. Furthermore, Hudelson (1994) described reading as a transaction within the text that engages the reader's interpretation on the text, as well as his experiences, language, cultural framework and purpose of the reading. On the other hand, according to Leipzig (2004), reading ability, in its technical sense, consists of the two main abilities: word recognition and comprehension. Word recognition stands for the process to identify words in the text; comprehension refers to the process of understanding from words in the text. Some other educators have considered reading as a set of interrelated subskills for children to learn and integrate (Carrell, Pharis & Liberto, 1989). Overall, reading, in the present research, refers to the basic ability to

recognize words, sentences, and get the meaning from the printed material.

### **2.2.1.2 The Process of Reading**

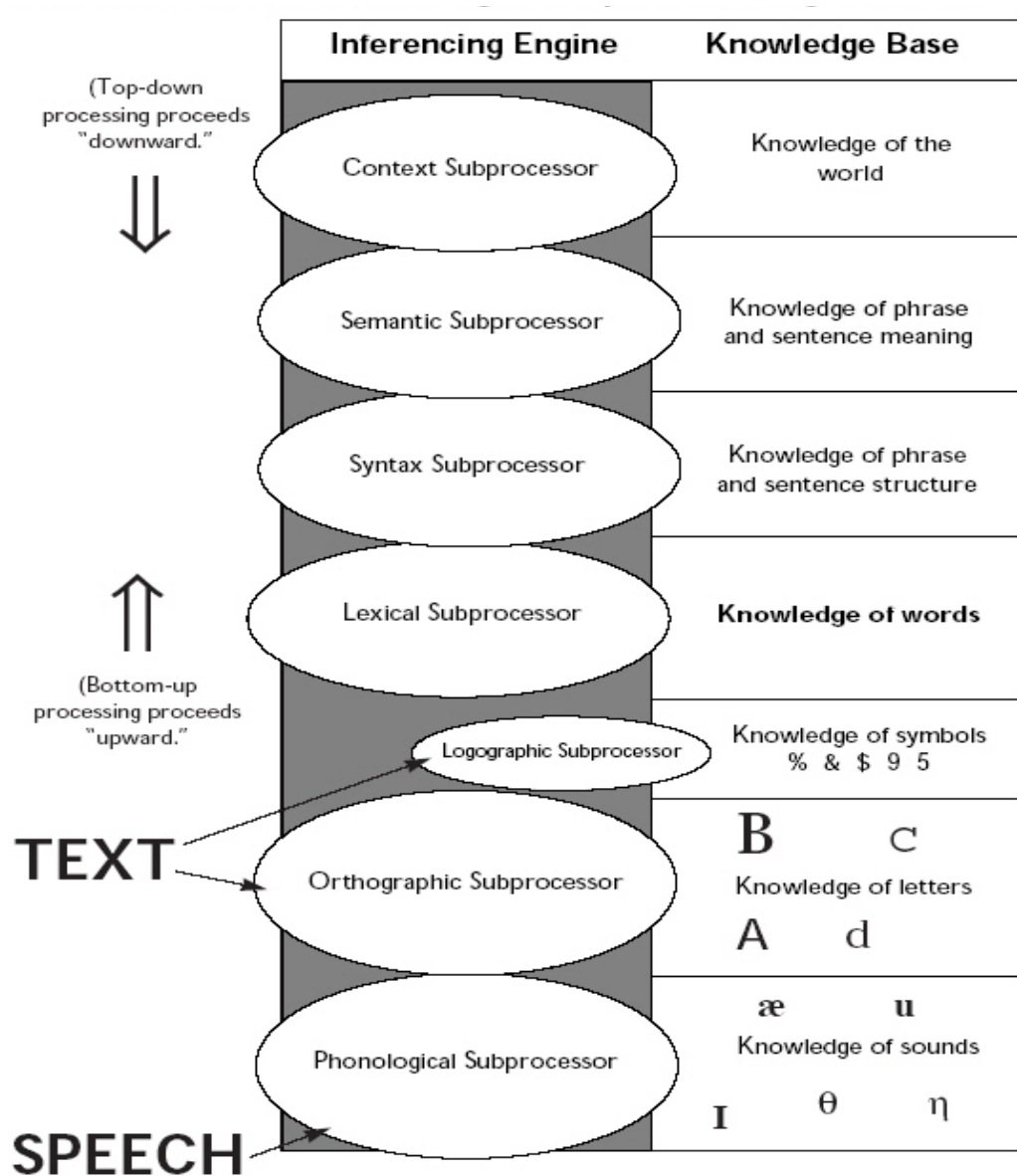
Just as Kenneth Goodman (1970) pointed out in his book, *Reading—a Psycholinguistic Guessing Game*, reading is a psycholinguistic process with many delicate subactivities to tackle with the text. During the reading process, several human mechanisms influence the reading process to some degree. First of all, the studies concerning eye movement of readers indicated that their eyes don't move smoothly in the whole context but move in a short chunk of text much like the mouth have a chunk of food with each bite (Eskey, 2002). Therefore, the brain can decode the language forms into meaning on the basis of the minimum amount of visual information. An efficient reader doesn't read everything on the page but gets the meaning of the text. In addition to decoding the words in a text, the brain adopts previous background knowledge which is organized like a network (the so called schema) to construct meaning (Smith, 1975). That is to say, our brain will make sense of the print by relating new information from the text to the much larger body of knowledge. Some other research also claimed that human memory system also plays a role in the reading process. There are three elements forming human memory system: sensory store, short-term memory and long-term memory (Eskey, 2002). Sensory store helps produce the visual image of the text. Afterwards, the short-term memory will transfer the image to meaningful information. However, it merely contains five to seven units each time (a competent reader usually has larger units), and the units are better not to be individual words which receive little meaning by themselves. At last, readers connect the meaningful information to their background knowledge to form concepts or ideas in our long-term memory.

In addition to the above human mechanisms, three main models of the reading process have been widely discussed by a number of researchers over the past decades. These models include bottom-up model, top-down model, as well as interactive model. In bottom-up processing, a data-driven operation, readers identify the linguistic signals through text and subsequently, sort and organize the information by their linguistic data-processing mechanisms (Goodman, 1970). The linguistic signals consist of letters, morphemes, syllables, words, phrases, grammatical cues, discourse markers, etc. The process is operated from letter features to letters, and then to words, last to meaning. Thus, this model is classified as low-level of reading process in order to acquire an accurate knowledge of language itself (Brown, 2001; Goodman, 1970). Top-down processing, on the contrary, is conceptually driven. Readers use their brain, intelligence, and experience to infer and to predict the meaning of the text. Complementing with bottom-up processing, it stands for a higher level of reading process in order to integrate the whole information (Goodman, 1970). Based on many recent studies, interactive reading combining the previous two models has been regarded as a primary element in successful and efficient reading. Interactive processing entails the above two processing models (Nutall, 1996). That is to say, a reader shifts from one to the other according to the needs. For instance, a reader adopts top-down to predict probable meaning and then move to the bottom-up approach to examine whether the writer is correct. Because interactive model offers a balanced way to contribute to the creation of meaning from a text by making use of both the text and the brain, this model is often considered the best (Eskey, 2002).

Perhaps, what's most noteworthy is the hypothetical model of the English Expert Reading Processor (see Figure 1), proposed by Birch (1998) who adapted from a model by Adams (1990) and another by Medsker and Liebowitz (1994). In this model,



English-speaking readers start to read by the means of the phonological subprocessor so as to comprehend spoken English in infancy. While readers begin to read, this delicate phonological subprocessor is linked to the orthographic subprocessor, which promotes readers to more proficient reading. Because English writing is alphabetical, the letters are supposed to correspond to the sounds of English. After the orthographic subprocessor matches the incoming letters to the sounds, the brain transfers



*Figure 1. Interactive Model of the English Expert Reading Processor (Birch, 1998, p. 19)*

this information to the lexical subprocessor. In the following stage, the readers employ the lexical subprocessor to recognize words and the syntax subprocessor to chunk the incoming words into phrases and clauses for constructing meaning as an early step. Finally, the reader will adopt the semantic subprocessor to get the needed meaning of the text by the knowledge of phrase and sentence meaning, and make use of the context subprocessor to verify and promote the profound understanding of the text by referring to the knowledge of the world. During the above process of reading, these subprocessors interact with each other. Therefore, the information flows both upwards and downwards continually to construct a meaning for the reader. To sum up, the whole model is a system which is executed by the engines that draw and verify the inferences about the printed material on the basis of the background knowledge stored in the knowledge base.

## **2.2.2 Studies on Reading in a Second/Foreign Language**

### **2.2.2.1 The Components and Skills of Reading**

A good way to know what reading is is to examine what fluent readers do and how they get meaning from words in the complex process. As a matter of facts, a fluent reader comprehending texts by resorting to multiple skills and strategies displays the skills of effective reading (Bazerman & Wiener, 1994).

Grabe (1991) claimed that fluent readers bring together the following six general component skills and knowledge during the process of reading:

- 1. Automatic recognition skills**—virtually unconscious ability, ideally requiring little mental processing to recognize text, especially for word identification.
- 2. Vocabulary and structural knowledge**—a sound understanding of

language structure and a large recognition vocabulary.

**3. Formal discourse structure knowledge** – an understanding of how texts are organized and how information is put together into various genres of text.(e.g., a report, a letter, a narrative)

**4. Content/world background knowledge** – prior knowledge of text-related information and a shared understanding of the cultural information involved in text.

**5. Synthesis and evaluation skills/strategies**—the ability to read and compare information from multiple sources, to think critically about what one reads, and to decide what information is relevant or useful for one’s purpose.

**6. Metacognitive knowledge and skills monitoring** – the awareness of one’s mental processes and the ability to reflect on what one is doing and the strategies one is employing while reading.(p. 379)

Besides, Grabe and Stoller (2001) proposed what fluent reader typically do as below:

1. Read rapidly for comprehension;
2. Recognize words rapidly and automatically;
3. Draw on a very large vocabulary store;
4. Integrate text information with their own knowledge;
5. Recognize the purposes for reading;
6. Comprehend the text as necessary;
7. Shift purpose to read strategically;
8. Use strategies to monitor comprehension;
9. Recognize and repair misconception;
10. Read critically and evaluate information. (p. 188)

In summery, within the reading process, fluent readers will flexibly apply all the components skills to a complicated process (Ediger, 2001). That is to say, the readers will adopt their knowledge of the structure of the language, semantic and syntactic information from the text, personal experiences and knowledge of the topic to promote the comprehension of the texts.

#### **2.2.2.2 Differences between L1 and L2 Readers**

In fact, reading in a second language is affected by some factors which are not taken into consideration in L1 research. These factors should be examined to obtain a more complete picture of reading in a second language. These factors mainly come from the gaps between L1 and L2 reading in the following issues: the difference between L1-L2 acquisition and instructional settings, the transfer effects on language processing, as well as the dissimilarity of social context (Grabe, 1991).

First of all, one of the differences between L1 and L2 acquisition is the initial difference in knowledge for first and second language students. Generally speaking, first language learners are already quite fluent in their oral and aural skills which can promote their reading ability because what they are learning to read is already present in the vocabulary database (Ediger, 2001). Singer (1981) pointed out that before first language learners accept reading instruction at school, they have already learned somewhere 5000-7000 frequently used words. Besides, most of them have already developed good sense of the grammar of the language (Grabe, 1991). On the contrary, the language or vocabulary encountering in the reading process is often completely new to L2 learners whose linguistic skills are weaker and vocabulary are limited than L1 learners (Ediger, 2001; Grabe & Stoller, 2001).

Furthermore, orthograhpic differences are often considered as a potential source

of difficulty for some ESL students because of the discrepancies between language with shallow and deep orthographic structure (very regular sound-letter correspondence versus many irregular sound-letter correspondences). While some researchers have suggested that readers of shallow orthographic languages are appropriate to recoding words into sounds before direct lexical access, others have believed that direct lexical access is an efficient strategy (Besner & Hildebrandt, 1987). More specifically, some studies have indicated that orthographic differences between languages of logographic and syllabic word systems may play an important role in the preferred route for lexical access. If language teaching combines direct lexical access with phonological access to words, readers in all orthographically different languages can read prints equally rapidly (Hung & Tzeng, 1981; Just & Carpenter, 1987).

Additionally, the linguistic differences at syntactic and discourse levels may be attributed to the influence on reading comprehension even though it is much harder for us to examine the higher level reading process directly. Grabe and Stoller (2001) argued that some of the comprehension problems were caused by difficulties in recognizing how the texts are organized and how the information is presented. Mitchell, Cuetos, and Zagar (1990) indicated that syntactic parsing strategies may vary according to different languages, claiming that certain strategies for reading will be language-specific rather than universal. For instance, German readers concentrate more on the function words than the content words while English readers pay attention to content words more than function words to comprehend the text. On the discourse level, Carrell (1984) found that students from different language backgrounds were able to recall information better depending on different organizational structures of texts. She concluded that different cultures with specific

language background may favor different ways of organizing information. Therefore, comprehension of texts may be culturally oriented owing to the logical organization of the text.

Nevertheless, second language learners also have some advantages. Normally, the most academically oriented ESL learners have better conceptual sense and factual knowledge of the world because they are older than L1 learners. Hence, they can speculate and analyze texts logically by metacognitive strategies (Grabe, 1991). Some research also shows L2 learners at the beginning level may not need to wait until they are orally fluent to start to learn reading and writing if given English environment with rich reading opportunities (Grabe & Stoller, 2001). In addition to oral input, children living in the English speaking environment are able to develop L2 knowledge with the access to written language. Lastly, the L1 knowledge of L2 students may be useful to them in some daily occasions (Grabe & Stoller, 2001).

On the other hand, differences between ESL and EFL settings are worth mentioning. In ESL instructional setting, which is in the L1 English-speaking country, immigrant students often are found in secondary schools and foreign students in post-secondary settings. Conversely, EFL students learn to read English as part of a four-skill curriculum only with three to six hours of English instruction per week. Due to the influence of the instructional settings on their levels of English proficiency, learners' needs and goals of learning reading will be different (Grabe & Stoller, 2001).

With regard to the transfer effects on language processing, there are several transfer effects contributing to the difficulties for L2 learners. First of all, at the beginning level, the false cognates or near cognates may affect word cognition. Word order orientation, relative clause formation, complex noun phrase structures, as well as other complicated structural differences may be of value to reading, especially at

the threshold level (Grabe, 1991).

The last major difference is the dissimilarity in L1 and L2 social and cultural context. In fact, L2 readers generally lack the cultural knowledge that is sometimes assumed in texts. L2 students generally come from a variety of family, social, and cultural backgrounds (Grabe & Stoller, 2001). Students who get access to the libraries may hold a negative attitude toward finding out alternative sources of information or criticizing the text content. Those who come from the society with limited literacy may think little of the importance of literacy whereas students from the developed countries with a massive amount of print may come to balance against the alternative sources and challenge a text as a normal way to read. To conclude, students' social context and their access to texts are considered to have influence on their development of academic reading skills in English (Grabe, 1991).

### **2.2.3 Studies on Reading at Beginning Level**

Since the subjects of this study are mainly Taiwanese elementary school students, their English reading level is at beginning level. Thus, the researcher reviewed the related literature to obtain the relevant knowledge. Generally speaking, three models of reading at beginning level have been widely discussed, i.e., reading readiness approach, meaning-based approach and balanced approach. Each model is applied to different goals of reading programs. The reading readiness approach models is adopted to help students acquire a new linguistic system; meaning-based approach is employed when meaning from texts is the major concern in the classroom; balanced approach is the eclectic method to the previous two approaches. The researcher examined each approach by giving more detailed information below.

### 2.2.3.1 Reading Readiness Approach

Before the late 1980s, reading readiness approach was popular for helping learners acquire formal reading instruction (Teale & Yokota, 2000). The implementation of the reading readiness program is to develop the following skills of learners: visual and auditory discrimination skills, adequate speaking and listening skills, recognition of the letters of the alphabet, as well as the association of some letters with sounds. The focus of the approach is on English letter-sound relationships and the learners are expected to acquire literal reading skills.

While some researchers term “reading readiness approach” to focus on letter-sound relationship, others term it as “code-emphasis approach” (Liao, 2004). At the beginning, Chall and Stahl (1982) claimed that code emphasis approach is constructed on sound-letter relationships to achieve word recognition in beginning reading instruction. Smith (1994) pointed out code-emphasis approach consists of some elements: letter identification, word identification, and mediated word identification. Furthermore, Gambrell and Mazzoni (1999) claimed that alphabetic understanding, phonological awareness, and phonics awareness are required elements. In short, the central elements lying in code-emphasis approach include “visual discrimination” and “auditory discrimination” (Harris & Smith, 1980). “Visual discrimination” is the ability to distinguish between the printed symbols, (Harris & Smith, 1980). The printed symbols incorporate letter and word identification. Normally speaking, visual discrimination abilities are termed by several researchers as letter recognition, letter awareness or letter identification (Grabe, 1991; Harris & Smith, 1980; Smith, 1994; Teale & Yookota, 2000). Letter identification is considered more adequate for engaging not only the abilities to name symbols (letter recognition) but also the abilities to categorize the symbols which



learners had learned before (Smith, 1996). Educators are suggested to instruct children to know the name of letters, and to spell the vocabulary to recognize each letter and the difference among the 26 letters.

On the other hand, “auditory discrimination” refers to the ability to distinguish between English sounds (Harris & Smith, 1980). Phonological awareness, the ability to hear and manipulate the constituent sounds of words, is the main focus in the development of auditory discrimination (Gambrell & Mazzoni, 1999). The constituent sounds incorporate phonemes, syllables, and words. To acquire phonemic awareness, students are expected to learn English sound units and the relationships among them, to contrast the sounds, to blend and split syllables, and to manipulate sound units such as adding and deleting a phonemic element to create a new word (Jannuzi, 1998).

In addition to visual discrimination and auditory discrimination, other scholars and researchers put great emphasis on the acquisition of letter-sound correspondences, so called phonics, in beginning reading programs. Smith (1994) pointed out that reading should involve the knowledge of the sounds connected to the letters of alphabet in the identifying words. Besides, Gambrell and Mazzoni (1999) claimed that letter-sound correspondences refer to the connection between phonemes and their letter symbols. The systematic learning of phonic awareness is believed to be a good method to promote students’ ability to identify words (Chall & Stahl, 1982). However, phonics was also criticized to be inefficient for beginning learners because of the complexity of over 211 letter-sound correspondences in English (Moustafa, 2000).

### **2.2.3.2 Meaning-based Approach**

Meaning of the printed symbols began to be noticed in reading programs until the late 1980s. According to Gambrell and Mazzoni (1999), the goal of reading

program in this period is to obtain meaning from the print. Furthermore, Smith (1994) said that readers not only get the meaning from the printed symbols but also need to bring meaning or values to the printed symbols actively. With the emphasis on the meaning of the printed symbols, children are suggested to involve themselves in real reading activities such as story reading which provides students with rich language print (Ferreiro, 2003). McCarthy, Hoffman, and Galda (1999) indicated that real reading activities can trigger readers' motivation and interests at the same time. Besides, the meaningful context can develop students' linguistic learning, e.g., vocabulary and grammar, cultural awareness, personal positive effects such as reading habits interests (Kowalski, 2002). Take storybook reading for example, it may help readers enjoy reading independently as well as let readers grow in cognitive, socio-emotional, and literacy development (Liao, 2004).

### **2.2.3.3 Balanced Approach**

The balanced approach refers to the reading instruction combining the explicit linguistic skills learning and rich literature-based activities in order to promote readers' interest, understanding, accuracy and fluency of reading (Liao, 2004). According to the California Department of Education in 1996, the basic elements of balanced reading drawing from phonics approach and whole language approach include phonemic awareness, letter names and shapes, systematic and explicit phonics, spelling, vocabulary development, comprehension, and higher-order thinking, and appropriate instructional materials. Some researchers pointed out that linguistic skills and meaning should not be taught separately from the real literature and the combination of explicit skills and enjoyable reading experiences is better for readers to acquire the meaning of the print (Johnson, 1999; Stoicheva, 1999). Furthermore,

according to the report of the National Association for the Education of Young Children (1996), experts suggested that phonics, which help readers construct the skills to relate symbols and sounds, should be an indispensable skill to learn to read, but could not be isolated from linguistic context as well. Children's reading abilities should be developed by doing the real reading activities such as sharing reading with adults. In view of the deficiency of each method, researchers and scholars began to advocate the balance of both approaches, the so-called balanced approach, in reading instruction.

Besides, Cooper (1997) proposed three dynamic and interrelated components in a balanced literacy program: motivation, reading and writing instruction, and independent reading and writing. Motivation is mainly aroused by authentic reading materials, rich literature environment to readers, reading aloud methods, as well as teachers' and parents' positive support. Reading and writing instruction refers to teachers' role and teaching modes. Teachers are suggested to be a model, cooperator and guider to scaffold activities. That is to say, teachers demonstrate what and how to read in front of learners, create cooperative learning opportunities for learners, answer learners' questions in the learning process and prepare questions step by step to guide learners to comprehend gradually. The teaching modes include independent reading, cooperative reading, guided reading, shared reading, reading aloud and combination of the reading modes. To put it another way, teachers offer students the opportunities to read by themselves, divide them into groups to read aloud, as well as do guided reading activities. In addition to the dynamic interrelated components of balanced reading program, the main characteristic of balanced approach lies in the emphasis on the student's individual learning needs (Deton, 1998; National Association for the Education of Young Children, 1996). Teachers are suggested to investigate students'

learning needs by doing diagnostic test and then offer adequate resources to fulfill learner's need. Overall, the balanced approach has been considered as an efficient way to help satisfy students' needs in the beginning reading instruction by compensating the deficiency of the phonics and whole language approach.

## **2.3 Multiple Intelligences and English Reading**

In this section, the researcher will review the relevant information on the correlation between multiple intelligences and reading proficiency by drawing upon the findings of brain scan studies, two indirect studies, as well as several instructional action researches.

### **2.3.1 Correlation between Multiple Intelligences and English Reading**

As mentioned in the chapter one of the present research, few studies have been conducted to investigate the correlation between MI and English proficiency. Not surprisingly, the discussion of the correlation between MI and English reading proficiency is extremely insufficient. Therefore, the researcher collected the peripheral studies relevant to the correlation between MI and English reading.

Generally speaking, reading has been considered strongly related to linguistic intelligence because the symbols used in reading, the 26 letters of the English alphabets, are limited to this intelligence. Besides, people often contribute the achievements of poets, playwrights, novelists, hyperlexic savants to linguistic intelligence. Thus, there is a strong tendency to regard linguistic intelligence as a critical influence on reading. However, as a matter of fact, the eight intelligences play important parts in processing reading activities in the brain (Armstrong, 2003).

Armstrong (2003) pointed out reading is a whole-brain activity in his published

book *the Multiple Intelligences of Reading and Writing: Making the Words Come Alive*. He illustrated an example of speaking a printed word involving both the left and right hemispheres based on several relative brain scan researches (Coney, 1998; Coney & Evans, 2000; Fulbright et al., 1999; Geschwind, 1979; Simpson, Snyder, Gusnard & Raichle, 2001; Van Strien, Stolk & Zuiker, 1995). During the process of speaking a printed word, our left hemisphere will engage in several intelligences, including linguistic, spatial, musical, logical-mathematical, and bodily-kinesthetic responding to different areas of our brain, such as primary visual area, angular gyrus (the main place to associate multiple information and three different lobes), Wernicke's area (the place to help encode text semantically), Broca's area (the place to logically encode text grammatically) and motor cortex (the place to activate the muscles of the lips, tongue, and larynx to speak a word). On the other hand, our right hemisphere will engage in emotions, semantic decisions at the initial stage of deciding among possible words, as well as take information to comprehend texts. Furthermore, during the process of reading, human subcortical structures, such as cerebellum and limbic system, have been linked to bodily-kinesthetic functions and emotions respectively. Nevertheless, the brain study about reading is still at its initial stage; some people criticized that the brain scan research about reading had been conducted in an artificial lab and thus, more natural setting, such as home or school, are needed in the study (Ferguson, 2002).

Armstrong stated, "the person who reads and writes is doing far more than simply linguistically encoding data" (p. 19). He described the process of reading in relation to multiple intelligences. First, the reader is looking at the visual configuration of the letters by using spatial intelligence. Then the reader must match the visual letters with sounds by bringing him/her knowledge of musical sounds

(musical intelligence), nature sounds (naturalist intelligence), and the sounds of words (linguistic intelligence) to contribute to the letter-sound correspondence. Besides, the reader employs the information of her body (bodily kinesthetic intelligence) to ground these visual and auditory sensations into a structure of meaning. After the reader organizes the information grammatically, he/she will adopt the intuitive syntactic structures which connect to the logical-mathematical transformations. When the reader sets up meaning of the text, she may visualize what she reads (spatial intelligence), experience her engagement of physical way in the material (bodily-kinesthetic intelligence), gain the emotional feelings to the text (intrapersonal intelligence), guess the goals or intention of the author (interpersonal intelligence), and think critically about the article's content (logical-mathematical intelligence). In sum, in different phase of the reading, the reader draws upon different intelligences to meet the need of multi-layered reading.

In addition to Amstrong's interpretation of reading, two other studies indirectly discussed the relationship between multiple intelligences and reading. First, McMahon & Rose (2004) conducted an empirical study to evaluate the reliability of the Teele Inventory of Multiple Intelligences (TIMI) and the relationship between intellectual preferences and reading achievement of 288 American urban 4<sup>th</sup> grade students. The result showed that students with higher scores on logical-mathematical intelligence were more likely to demonstrate at or above grade-level reading comprehension scores compared with those students who scored lower on logical-mathematical intelligence. None of the other MI scales was predictive of student achievement. However, caution should be taken in interpreting the results of the TIMI for the poor internal consistency of the TIMI subscales from the findings of the study. In another study, Chen (2004) investigated the correlation between English

proficiency (including four skills) and multiple intelligences/learning styles of 107 Taiwanese high school female students. Among her results, reading proficiency, through the statistic method of multiple regression, was negatively correlated with logical-mathematical and naturalist intelligences. Besides, by implementing T-test, she found that the high achievers have significantly stronger interpersonal, musical, and intrapersonal intelligences but weaker naturalist and logical-mathematical intelligences than low achievers.

### **2.3.2 Application of MI theory in English Reading Curriculum Development**

Although the studies related to the correlation between MI and English reading proficiency has been scarce, a large number of studies have applied MI theory in English reading curriculum development. The majority of them were conducted in L1, but not in L2. The results have indicated positive effects in reading achievement, skills, motivation and vocabulary learning.

The instruction of MI theory in L1 reading has been considered effective by several studies. First of all, Alberio, Brown, Eliason, and Wind (1997) adopted the MI theory, portfolios evaluations and students' reading logs to promote reading test scores of second, third and fourth graders in Chicago. The intervention of MI theory in curriculum finally indicated an increase in reading test scores including vocabulary, comprehension, decoding, and study skills; and students demonstrated higher comprehension skills and the ability to make connection with what they were reading in their own lives. Gens, Provance, VanDuyne, and Zimmerman (1998) developed a program for sixth and seventh graders to improve reading comprehension, prediction skills, and reading strategies by conducting student-centered activities based on

multiple intelligences and extensive reading strategies. The result showed growth in reading test scores (including vocabulary and comprehension) and personalized portfolios, as well as an increase in the number of students reading at home. Besides, Herbe, Thielenhouse, and Wykert (2002) did an action research on the use of integrating multiple intelligences into daily lesson plans to promote first and fourth grade students' motivation in reading. From questionnaires, reading motivation survey and reading tests, the results showed that students enhanced their motivation in reading and developed an appreciation for reading beyond the classroom. Gaines and Lehmann (2002) did another action research on the adoption of multiple intelligences for fourth grade students to improve reading comprehension. The result pointed out that the strategy elevated students' reading comprehension as measured by the tests. Reidel, Tomaszewski and Weaver (2003) conducted a research on multiple intelligences as teaching strategies in three fifth-grade classes in Illinois. The results showed that in the reading tests on phonics, comprehension and vocabulary and students' portfolios, students had remarkable improvement in reading comprehension and skill and became a more confident, motivated and engaged students. Furthermore, Uhlir (2003) conducted an action research adopting MI-based strategies and guiding practice of reading skills to enhance fifth-grade students' reading achievement. She found students' reading skills, motivation, on-task behavior and cooperative learning skills were raised by using multiple intelligences strategies. Burman and Evans (2003) used MI instruction and parental involvement in first grade students' reading instruction in an action research. The researchers found an increase in reading skills and a substantial gain in mastery of reading vocabulary words. Last, Al-Balhan (2006) did an experiment on Kuwaiti middle school students and found that the experimental group receiving the MI-based teaching performed better in reading performances than



the control group receiving traditional tutoring. The finding also showed that female students in the experimental group exhibited statistically significant higher achievement level in reading performance in school when their multiple intelligences were incorporated into their study routine during the school year.

As for the application of MI theory in reading instruction to ESL students, the results also indicated positive influences in learning to read. Anderson (1998) conducted an experiment on the retention of foreign language vocabulary of seventh and eighth grade Latin students by using the theory of multiple intelligences and several memory improvement techniques. Her results indicated that the deemphasized verbal-linguistic approach increased the scores of vocabulary quizzes, the awareness of memory techniques for foreign language vocabulary mastery, and the awareness of varied learning styles in both teachers and students. Safi (1996) found that incorporating the theory of multiple intelligences was effective in promoting vocabulary development in reading instruction to the international and immigrant EFL university students because it could offer a wealth of techniques and other ways of thinking in teaching. In addition, Cluck and Hess (2003) did a report on a plan for incorporating the MI theory and cooperative learning in the curriculum to increase students' motivation. The students are from sixth grade reading class in a rural area, and second, fourth, and fifth grade students in a pullout ESL program in an urban area. The result showed that students' motivation, the completion of assignment, class participation, and engagement were elevated. Overall speaking, the application of multiple intelligences into reading instruction has indicated EFL/ESL students' improvement in reading achievement, vocabulary learning, and their motivation.

In conclusion, studies on the correlations between MI and English reading have focused on the implementation of MI-incorporated instruction in curriculum

development. What's more, some brain scan studies also have shown us how the human brain engages in reading activity with relation to the multiple intelligences. Relatively speaking, studies concentrating on the direct correlation between MI and English reading proficiency are extremely scarce. With this concern, this researcher anticipates to compensate for the insufficiency by investigating the correlation between multiple intelligences and English reading proficiency, hoping the findings of the research may offer an in-depth understanding of English reading proficiency so as to assist teachers in constructing effective curriculum and pedagogy in English reading.

#### **2.4 Research Questions**

Since the study was intended to gain a profound understanding of correlation between multiple intelligences and English reading proficiency, the following research questions were posed in the study:

- (1) Are students' multiple intelligences significantly correlated with their English reading proficiency? If the answer is positive, then what are the dominant multiple intelligences in English reading proficiency?
- (2) Are high and low achievers in English reading proficiency significantly different in their distribution of multiple intelligences and English reading proficiency?
- (3) Are boys and girls significantly different in their distribution of multiple intelligences and English reading proficiency?
- (4) Do different genders lead to the same dominant multiple intelligences which are significantly correlated with their English reading proficiency?

#### **2.5 Hypotheses**

The hypotheses of the present study are as follows:

- (1) Students' multiple intelligences are significantly correlated with their English reading proficiency. More specifically, some of the multiple intelligences contribute to English reading proficiency.
- (2) High and low achievers in English reading proficiency are significantly different in their multiple intelligences.
- (3) Different genders have significantly different distribution of multiple intelligences and English reading proficiency.
- (4) Different genders have different dominant multiple intelligences significantly correlated with English reading proficiency.