

# **The Role of Morphological Awareness in Children's Reading and Writing Skills**

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## **Morphology and Language Acquisition (v)**

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Grado en Estudios Ingleses

2017-2018

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Vitoria-Gasteiz

Mayo 2018

## **Abstract**

Recently there has been a growing interest in the recognition of the role of Morphological Awareness (MA) for children's literacy development. The present paper analyses a compilation of studies dealing with the idea of MA playing a role in the acquisition of English as a first language (L1) or as a second language (L2). In an attempt to identify the different contributions of MA in learning how to read or write from a very early age, results reveal that MA contributes in a significant way to the development of spelling and reading skills. At the same time, this paper proves that children from as early as kindergarten years can profit from its instruction. However, the greater the age and the practicing experience of the children, the better they perform in the different tasks and the more they leverage from such awareness. Furthermore, transfer of MA from L1 Spanish speakers to English L2 learners is observed, proving an association of MA in the L1 with that in the L2. It is therefore suggested that MA is a useful tool for developing children's reading and writing in kindergarten and primary school education, or even later, in the case of learning an L2.

**Key words:** Morphological Awareness; reading; writing; first language (L1) acquisition; second language (L2) acquisition.

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## 1. Introduction

Knowing how to read or write are the main tasks children have to face in their first school years. Teachers get involved in a process in which children are taught how to read and write through various ways. This process may start from learning the ABC, and continue with practising their handwriting until they are able to write a sentence which was first explicit in their phonological system, and is now part of their mental dictionary or lexicon (Sánchez, Rodríguez & Gázquez, 2011). In other words, children first learn how to speak and are thus aware of the sound system of the language, and then of the way in which words are built. This way, after developing their oral skills, they are said to develop writing and reading skills, for instance.

To illustrate the way in which children are able to learn the morphological units of the English language, the following paper will start by giving an insight into what morphology is and subsequently, what Morphological Awareness (MA) is. Moving on, I shall reveal the age at which researchers have claimed children to show signs of MA in their literacy development. I have then focused on the impact of MA on first language (L1) and second language (L2) readers. Finally, the contribution of Morphological Awareness in spelling tasks in the L1 will be closely looked at. To end this paper, I shall reach to a final conclusion after having gone through all of the previously stated matters, and answer the question of whether MA contributes to children's language and literacy development or not. And if so, is there any difference between MA instruction directed towards learning an L1 or an L2?

## 2. What is Morphological Awareness?

Before starting with the concept of MA, it might be interesting to refresh the idea of what morphology is. Morphology is regarded as the study of how words are formed in a language. We may also say that morphology is in charge of recovering the underlying word formation processes that contribute to the development of the morphological system of a language. Morphology is therefore responsible for showing the form and structure of words. For example, the distinction of the suffix and the root of the word *driving* can be done through morphology by saying that the root of this

word is *driv(e)* and that *-ing* is a suffix in charge of forming the gerund of the infinitive form “to drive”.

Similarly, MA can be defined as “the metalinguistic ability to understand and manipulate the smaller meaningful parts of language such as prefixes (e.g., *re-*), base words/roots (e.g., *cycle*), and suffixes (e.g., *-ing*, *-ist*) to develop morphologically complex word forms” (Wolter & Pike, 2015, p. 1). Resulting from this ability to process and take control over meaningful units of a language, Wolter and Green (2013) argue that MA could speed up literacy achievement at an early age for children with or without literacy developmental problems such as dyslexia or aphasia. However, this study will narrow its scope to children without literacy deficits for matters of specificity.

In addition to the previous, Wolter and Green (2013) state that children with an awareness of the various morphological structures in words, are said to be able to group words for their components or morphemes, and are thus capable of extracting meaning. At the same time, children will also be able to pronounce a word of which they have never heard before. Besides, as it will later be proved, researchers in the field found that this aptitude of extracting meaning of words also contributes to the development of complex word reading, to the understanding of written texts, and to the spelling of complex words. For example, if a child knows that the word *astronaut* means a traveller of the space, when he or she might encounter the word *oceanaut*, they will realize that the particle of the word *-naut* is a suffix meaning “traveller” and thus conclude that the word “oceanaut” means a traveller of the ocean even if he or she had not heard about this word before (Green & Wolter, 2011).

Being aware of the fact that morphology plays a role in the formation of these new complex words such as *astronaut* and *oceanaut* implies that the child is aware of the fact that words can change their meaning through the implementation of a suffix such as *-naut*. However, if one wanted to state the previous in a more scientific way, we could say that three processes ought to be taken into an account for explaining this shift in meaning or quality of words: Inflection derivation and compounding. According to Booij (2006), inflection is said to produce different forms of a lexeme with markers of the plural, time, gender, etcetera. For instance, the words *walks* and *walked* are forms of the lexeme WALK which have been added a plural marker and a past tense marker

respectively. As for derivation, it refers to the formation of new lexemes due to the attachment of affixes to pre-existing lexemes. Serving as an example, Booij (2006) proposed the lexeme WALKER which has been added the suffix *-er* and has thus changed its category from a verb to a noun (deverbal noun). This scholar further explained that the differentiation between derivation and inflection lies in “the creation of different forms of lexemes versus the creation of different lexemes” (p. 654). Besides, compounding refers to a process by which words are brought together and create new and more sophisticated forms. For example, the words *machine* and *gun* can be put together, forming the new words *machinegun*. Thus, derivation and compounding are referred to as word formation processes.

Previous to moving onto when MA appears, it would be reasonable to take into account that MA is not the only skill that accounts for the correct acquisition of literacy. Linguistic skills such as phonological awareness, orthographic awareness, syntactic and semantic awareness also play a role in reading, writing and speaking (Kirk & Gillon, 2009). However, phonological awareness, regarded as “the ability to recognise and manipulate the sound segments of a language” (Schwiebert, Green & McCutchen, 2002, p. 4), is said to play a greater role than the other components that ought to be paid attention to, such as orthographic, semantic and syntactic awareness, in the acquisition of reading and writing tasks (Sánchez et al., 2011). The reason for this lies in the fact that children at a very young age, but more importantly, teachers, may have a clearer knowledge of the phonological system in their mother tongues rather than of the morphological system. This system may be less explicit in our daily life since when we speak, we are not being aware of the morphological units of the word uttered, but rather about the phonological traits of the words. Researchers have claimed that English language learners may write *sher* instead of *share* due to guiding themselves by the sounds of the word or a phonologically based strategy (Treiman & Cassar, 1996, p. 168). The previous facts may be one of the reasons explaining why beginner learners commit so many mistakes when they first approach a writing task in English since it is a language that is not phonologically transparent.

Nevertheless, it is not always the case that beginner learners of a certain language at an early age commit as many errors as learners of a different language: speakers of the Spanish language, as we will see further on in this paper, do not commit

as many mistakes in their first writing attempts, since the Spanish language has a one to one correspondence between sounds and letters. Put differently, one can say that in Spanish all of the letters in the alphabet have a one and only associated sound, resulting in the literal spelling of a sound by the phoneme that represents it. For example a Spanish beginner would not have much of a problem in writing the word *mesa*, the equivalent of *table* in English, since it is pronounced in the same way as it is written. After having explained the way in which MA works, I shall introduce the matter of when children show first signs of MA in the following section.

### **2.1. Early Morphological Awareness in Children**

At this stage, it may be interesting to take a closer insight into the main concerns of the paper such as when MA appears. This question was assessed by Sanchez et al. (2011) who suggested that there are two major phases in the development of MA:

1) A first one in which children show implicit MA which can also be termed as intuitive awareness, since it refers to the knowledge of morphemes students have acquired during their exposure to the language without having notice of it. Despite the fact, they are still able to use this knowledge but they are not aware of it.

2) A second phase in which explicit MA develops. This time, children are aware of the word structure, and can develop their knowledge of words and their mental dictionaries more rapidly. They can now make use of strategies to group words by their components. For example they will have learnt that all of the words with the suffix *-less* refer to a lack of a certain object or thing such as a tooth in the word *toothless* (Wolter & Green 2011, p. 31).

So as to evaluate this transition from an implicit type of knowledge to an explicit one, Sanchez et al. (2011) focused on kindergarten and primary school children. Kindergarten pupils were said to have a more rapid vocabulary explosion in which most of the morphological, syntactic and phonological content appears. This content was acquired through observation and through hypothesising rules which will be proven by language production. However, it is not the case that children from different countries are able to master their first language at the same ages. For example,

a Spanish speaking kindergarten student will have learnt by the age of 6 to use the superlative and diminutive morphemes. Conversely, this is not the case for English speaking children, who cannot manage to use these morphemes correctly until the age of 8 or 10. Sanchez et al. (2011) give an explanation to this issue, and affirm that the English language usage of these morphemes implies a greater difficulty than in the Spanish language, since, according to them, English has a greater variety of forms to express a superlative or a diminutive version of a word. For example if we wanted to form diminutives, we could use the suffixes *-let*, *-y* or even *-ish*, whereas in Spanish *-ito* would serve to form any diminutive of a word.

At the same time, Wolter, Wood, and D'zatko (2009) intended to answer this same question about when explicit signs of MA appear in the learning process. After having observed other researchers' results on this same aspect, Wolter, et al. (2009) stated that according to Carlisle and Fleming (2003), signs of explicit MA may appear at a very early age, as happens with kindergarten pupils who are still developing the plural marker *-s* or first grade students who may still be learning derivational affixes and are confined to more transparent and simpler derivational words. Evidence of this comes from a study conducted by Treiman and Cassar (1996), who affirmed that first-grade students of L1 English, showed to have basic morphological techniques with which they omitted the first consonant of a one-morpheme word with a cluster; for example they would produce the word *brad* instead of *brand* (p. 288). Nevertheless, these discoveries will be further on discussed in the writing skills section.

On top of this, a model has been proposed to explain how children develop morphological processing. It is said that the representation of morphemes ought to be activated in children's minds through various phases. Firstly, children learn to distinguish the affixes of the words, then, children are able to label these words and gather the syntactic role of the various components and find correspondences between form and meaning. Finally, children will be able to process semantic and syntactic information and will store the acquired knowledge of words in their mental lexicon (Schreuder & Baayan, 1995, as cited in Carlisle & Fleming, 2003).

According to the question proposed by Wolter et al. (2009) regarding the stage at which MA was reflected in children's literacy development, these researchers administered MA tasks to first-grade native English students, so as to shed light on their

MA prior to any instruction in the area. In order to carry on with their study, they gathered 48 first-grade (6-7 years) native English students with no explicit training in the area of morphology and provided them with two different tasks:

1) An *Oral Morphological Production Task* consisting in showing a base word such as “farm” to the students, and asking them to complete a sentence such as “My uncle is a .....” (Expecting the inflected form *farmer*) (Wolter et al., 2009, p. 289).

2) A *Single-Word Morphological Spelling Task*, to show whether these children only used phonological knowledge to spell words containing a flap spelt with a *t* or a *d* such as *dirty* (*t* flap) and *spider* (*d* flap).

Students exhibited “explicit awareness of morphological relations” (Wolter et al., 2009, p. 290) with a mean score of 7 correct responses out of 15 chances, which is in fact a fairly high score, considering the partakers’ age, and the fact that no previous instruction was imparted to them. Thus, students did not only use phonological knowledge of words, because if they had one so, they would have spelt both words with a *d* flap. Instead, morphological knowledge of the base from *dirt* helped them to spell correctly the inflected form *dirty* with a *t* flap (Wolter et al., 2009, p. 289).

Besides, I consider interesting to mention that in the *Oral Morphological Production Task*, children performed better producing inflected words such as *cars* than producing derived transparent words such as *scientist*. This can be taken as a clue that would exemplify that children at this age get familiarised first with the inflection markers of gender, tense, number, etcetera, than with the derived forms of certain nouns such as *farm* and *farmer*.

However, if we wanted to develop MA earlier in time, or wanted to see its contribution to literacy development, instruction in MA will be needed. Researchers such as Wolter and Pike (2015) have analysed the contribution of Dynamic Assessment, an assessment involving a first test previous to any morphological instruction; a second part in which students deal with MA; and finally, to see whether morphological instruction was of any use, the initial test is distributed once again to show whether MA contributed or not to the children’s literacy development. Results from these researchers’ study, revealed that Dynamic Assessment of MA was closely

related to spelling literacy, together with reading vocabulary and reading comprehension development. Besides, as stated previously, this type of assessment has been used for evaluating reading skills as on the case of the following section which will be dealing with the implementation of MA instruction to determine whether it contributed or not to the improvement of children's reading vocabulary and reading comprehension skills.

### **3. Impact of Morphological Awareness on Reading**

Students of a language may come across various difficulties when reading a text for the first time. They may encounter words or terms of which they have never heard before and struggle upon them while reading the text. It is at this point when the role of MA comes into question. Will MA have a positive impact on a learner's reading skills?

Multiple studies have proved the positive contributions of MA to both first and second language learners in a variety of languages; however, we will narrow our scope by focusing uniquely on its effect on the English language, which is at the same time the language in which most of the research has been conducted. Serving as an example, Green and Wolter (2013) stated that by keeping in mind that words are composed by different affixes, learners would be able to deduct a word's meaning and pronounce an unaccustomed word. We can therefore believe that MA can serve as an important tool for developing reading skills. Therefore, Carlisle (2000) suggested that the whole purpose of raising awareness about the existence of morphemes in every language is based on the idea that the meaning of words can be constructed through the analysis of constituents.

As a matter of fact, not everyone agrees about morphological awareness playing a role in any sort of literacy achievement. Schwiebert et al. (2002) cited what Smith (1995) stated about morphemes not being necessary to master a language, since the only thing we need are "full lexical entries for words that are typically considered morphologically complex such as *atheoretical* and *dissatisfied* (p.7). Other researchers take a less extreme stance towards this matter and argue that morphology is very much related to phonology, and that its separation may be difficult to achieve,

since for example the plural marker *-s* can be pronounced differently as in *cats* or *dogs* (Stemberger, 1995, as cited in Schwiebert et al., 2002).

Despite these researchers' statements about a nonexistent relation between MA and its contribution to the improvement in reading skills, Schwiebert et al. (2002) took evidence against the previous from Stoltz and Feldman's (1995) study which stated that "since the reading of a target word is primed by the information contained in the morphemes making up the priming word, [...] morphology does play a role in reading independent of phonology and orthography" (p.9). Serving as an example, if one read the morphologically complex word *harden*, it would be easier for the speaker to form the simpler form *brighten*. Therefore, Schwiebert et al. (2002) concluded that MA plays an important role "in the area of word identification" (p.9).

Furthermore, as stated above, the effectiveness of the exposure to this so called MA varies along different ages. Since not every child is able to analyse constituents as well as an adult, tasks ought to be adapted so as to fit the objectives that one might want to accomplish (Carlisle, 2000). In addition, another element that plays a role in the acquisition of MA is said to be the fact of learning the constituents of your mother tongue (L1) or learning the constituents of an L2. With this I am intending to suggest that researchers in the field have found significant differences when the speakers analyse morphological information in their L1 or in their L2. However, these differences will be discussed in the upcoming sections dealing first with MA in the L1 and then with MA in the L2.

### **3.1. Morphological Awareness and L1 English readers**

Children corresponding to different ages are said to perform differently in their reading skills due to many factors that depend on their mental or cognitive development. More interestingly, phonological and orthographic knowledge, which are very closely related to MA, are said to play a role in the development of this skill (Schwiebert, et al., 2002).

Schwiebert, et al. (2002) argued that reading acquisition is developed alongside a constant interchange between morphological and orthographic systems of a language. This development appears to be a rapid one, since first grade children (6-7 years) are

thought to master a range of 6,900 words, as opposed to speakers of fifth grade who have increased their mental dictionary up to 22,900 words (Anglin, 1993). In order to overcome certain problems having to do with morphology, a useful strategy speakers may come up with is that of breaking the words into the various morphemes that compose it. For example, if a student was given the word *treelet* of which they have never heard, but still, they know the meaning of *tree* and the meaning of *piglet*, they may decide that *treelet* must refer to a “small tree” (Anglin, 1993). However, a speaker that is aware of the phonology but not of the morphology of the word “walked” may spell it *walkt*, since he or she may not know that the past tense of regular verbs is always formed with the suffix *-ed*. In the same manner, a child was asked to spell the words *careless*, *easier* and *produced* and wrote *carlles*, *esere* and *prodest* (Schwiebert et al. 2002, as cited in McCutchen, et al., 2000). Thus, this child did not succeed in gathering the meaning of these words since he was unaware of the morphological markers *-less*, *-er* and *-ed*. As for this case, Schwiebert et al. (2002), agreed about the fact that it was not a lack of phonological or orthographic awareness, but that of morphological awareness.

Carlisle (2000) was now concerned with older students from third and fifth grades. She explored the relation between awareness of morphological structure and its contribution to reading complex forms and the consequent improvement in reading comprehension tasks. For the fulfilment of her study, Carlisle (2000) gathered 34 students in third grade (8-9 years) and 25 students in fifth grade (10-11 years). In addition, students were given:

- 1) A *Word Reading Test (WRT)*, through which participants would demonstrate their aptitudes in reading morphologically complex forms such as *powerful* or *puzzlement* (p. 175). (See table 1 below for WRT examples)
- 2) A *Test of Morphological Structure (TMS)* to show whether they are aware of the structure of words through decomposition of derived words, and production of the same. (See table 1 below for TMS examples)
- 3) A *Test of Absolute Vocabulary Knowledge (TAVK)* which, by means of an interview, participants will have to chose the appropriate definition of certain words.

4) A *Comprehensive Testing Program (CTP)* through which reading comprehension would be assessed.

<b>Word Reading Task</b>	
<b>Transparent words:</b> Powerful Suddenly Harmful Movement Addition Friendly Government	<b>Shift words:</b> Explanation* Easily* Solution* Natural* Heavily* Trial** Invention***
<b>Test of Morphological Structure</b>	
<b>Derivation:</b> - Farm. My uncle is a _____. (farmer) - Warm. He chose the jacket for its _____. (warmth) - Permit. Father refused to give _____. (permission) - Glory. The view from the hill top was _____. (glorious)	
<b>Decomposition:</b> - Growth. She wanted her plant to _____. (grow) - Dryer. Put the wash out to _____. (dry) - Agreeable. With that statement I could not _____. (agree) -Acceptance. Is that an offer you can _____? (accept)	

*Table 1: examples of WRT and TMS. Taken from Carlisle (2000)*

\* Words with both phonological and orthographic shift

\*\* Words with orthographic shifts

\*\*\* Words with phonological shifts

Previous to explaining the results obtained by Carlisle (2000), the meaning of shift words and transparent words has to be made explicit so as to have a clearer view of the outcome in the tasks. Shift words are words which involve a change in the phonology and/or in the orthography of the words due to an attachment of a suffix to the root of the words. For example, as shown in table 1, the word *explain* pronounced

/iks'pleɪn/ changes in pronunciation and spelling when it has attached the suffix *-tion*: *explanation* pronounced /eksplə'neɪʃən/. With regard to transparent words, we can say that, as opposed to shift words, even if these words have a suffix attached, they will not change in sound or spelling. An example of a transparent word can be *friendly* which has the adverbial suffix *-ly* but it is still pronounced like the root *friend*: /'frend/ or /'frendli/ (p.189).

Having explained the meaning of these two terms, results for Carlisle's (2000) research revealed that third and fifth graders relied very much on association of concepts or affixes they already knew and applied them to the different tests. However, shift words did not appear to be as easy for the students as transparent words at both grade levels. Still, fifth graders performed significantly better than third graders in the derivation and decomposition task of shift words and in reading transparent words. Overall, fifth graders scored statistically significant or valuable scores ( $p < 0.05$ ) as opposed to third graders. Having said this, reading achievement of fifth graders seemed to have a clear relation with the awareness of certain morphological structures, whereas the TMS did not show a correlation with the achievement of reading comprehension for third graders. The younger students performed better with simpler words such as transparent ones, than with more complex shift words since they may be achieved at a later stage in the development of their lexicon or mental dictionary. This is why fifth graders were more capable of deriving and decomposing the proposed words.

On top of this, MA does play a role in reading comprehension, but it seems to have a more severe effect on fifth graders than on third grades who are, seemingly, still training their reading skills and acquiring new vocabulary from their everyday lives and from the different environments in which they interact. The previous coincides with what Carlisle (2000) stated about reading experience being a crucial factor in order to develop MA. The more opportunities children have to read along their lives, the better they will perform in their reading tasks.

In a later study, Carlisle and Fleming (2003) dealt with the issue of whether lexical processing of complex words, this is, if the grouping of letters into meaningful units of language, predicted an improvement in the performance of children's reading vocabulary and reading comprehension skills. For Carlisle and Fleming's (2003)

purpose, 34 students belonging to third grade and 26 students from fifth grade in Chicago were first given:

1) A *Word Analysis Test (WAT)* to see whether these children could decompose a word morphologically. They were given agentive words such as *carpenter*, past tense verbs such as *filled* and words ending with the suffix *-y* such as *rainy* (Carlisle & Fleming, 2003, p. 8).

2) A *Definition Task* intending to determine the number of lexical entries students could master. For this, students were asked for the meaning of certain words like *knotless* and had to choose the most appropriate meaning.

3) A *Test of Morphological Structure (TMS)* was given. The model for this test was actually taken from her paper in the year 2000.

Finally, at the end of this study, a *Reading Vocabulary* and a *Reading Comprehension Test* was carried out to see which of the previous tests contributed most in their reading performance.

Results showed that the *Definition Task* was the task that contributed the most in children's performance on reading, since, even if decomposition was important, these children's access to meaning and information of words has been proved to have a greater contribution in the reading measures.

Bearing the previous in mind, it is important to highlight the close relation of lexical processing to an awareness of morphological structures. Given that the *Definition Task* was the one that accounted for the greater variance in reading skills, Carlisle and Fleming (2003) argued that the processing of these lexical entries co-occurs alongside a constant processing of morphemes and the storage of these in the children's mental lexicon. Thus, awareness of the different morphological structures was said to contribute to vocabulary and reading comprehension, together with the lexical analysis of complex words.

Now that the contribution of MA has been proved to be valuable for L1 readers of the English language, it is time to have a look at its contribution in L2 reading learners of English.

### 3.2. Morphological Awareness and L2 English readers

Many studies have focused on the contribution of MA in native speakers of English; however, this is not the case for children learning English as a foreign language. Having a closer look at L2 readers of English might prove that there are many other interesting facts with regard to their performance in reading comprehension tasks. Besides, adults may be more likely to perform better than children after having been exposed to MA tasks, due to the cognitive advantages that age may presuppose in their performance. However, Carlisle (2000) argued that even if MA played a role for them, their ability to store and organize morphemes in their mental lexicon is still to be determined.

Research on MA and its contribution to L2 speakers of English has been conducted by Kiefer et al. (2013) among others. These researchers built their study on previous works conducted by other researchers in the field who had focused primarily on L1 speakers of English (Carlisle, 2000; Green & Wolter, 2011; Schwiebert et al., 2002; McCutchen et al., 2000). However, this time the study had its main focus on speakers of English as an L2. These researchers' intention was to elucidate the question of whether MA made any sort of contribution in students of sixth (11-12 years), seventh (12-13 years) and eighth grade (13-14 years) belonging to a Spanish speaking language minority (LM) community in Massachusetts. Researchers investigated their reading comprehension abilities, together with the direct and indirect contributions that MA may have among these limited English proficient students.

First of all, Kiefer et al. (2013) pointed out which of these hypothesised contributions of MA were the direct and indirect ones. They affirmed that MA directly contributes to working out the meaning of unknown words during the reading process. Also, MA was said to contribute to the syntactic recognition of words such as *character*, *characterised*, *characterise* and *characterization* (p. 702). Conversely, the indirect contributions enriched vocabulary, made word reading easier and more rapid, together with facilitating reading of sentences in texts.

According to their first research question dealing with the contribution of MA to reading comprehension, students were asked to complete reading comprehension, reading vocabulary, sight word reading fluency and passage reading fluency tasks

which showed that MA played a significant role in reading comprehension. Interestingly, MA contributed even more at the level of passage reading fluency than at the level of word reading fluency. This led Kieffer et al. (2013) to draw various conclusions such as one having to do with the gathering and collection of knowledge, in which MA simply speeds up the word reading fluency, together with a later contribution in the students' fluency at the level of passage reading. Another conclusion that they considered to be even more interesting, is the fact more skilled students in the field of derivational morphology are more capable of priming syntactic structures and can therefore read more easily whole sentences. Furthermore, there seemed to be robust but varied results between students of the different grades.

As for Kieffer et al.'s (2013) second research question dealing with the direct and indirect contributions of MA that have previously been mentioned, results reveal that MA seemed to contribute directly in most of the aspects such as in the efficiency of vocabulary reading, listening comprehension, passage reading and sight word reading, being this last one the one to which MA contributed the least. However, indirect contributions were only seen in vocabulary reading, and similarly in passage reading fluency but not in sight word reading fluency. Another interesting finding was that due to the "advanced" age and cognitive development of these students, there was no significant differences between the three different grades (Kieffer et al., 2013).

Thus, Kieffer et al. (2013) concluded that even if students may be very skilled in terms of MA, they may not always succeed in reading every word in the text since they may have not seen it before. Still, these researchers affirmed that the students belonging to grades six, seven and eight will be able to extract the overall meaning which is the most important task to accomplish.

In a previous study by Ramirez, Chen and Geva (2009) research was conducted with Spanish-speaking children who were English Language Learners from a large city in Canada. The researchers' intention was to know whether MA played a role in the English and the Spanish language reading, and if there was a transfer of MA from their L1 (Spanish) to their L2 (English). Before reaching an explanation for these questions, Ramirez et al. pointed out various reasons for the contribution of MA in English and Spanish word reading. They affirmed that English has a "deep" orthography, meaning that words have a large amount of phonological and

morphological information in them. Alternatively, these researchers highlighted that even if Spanish has a very “shallow” orthography, its morphology is probably more complex than the English morphology, accounting for a higher difficulty of the language. Ramirez et al. (2009) claimed that Spanish is “a language with a rich morphology [and] has a much more complex inflectional system” (p. 339) than the English language.

So as to shed light on the questions proposed, Ramirez et al. tested 97 children from fourth (9-10 years) and seventh grade (12-13 years). With regard to their first research question dealing with the contribution of MA to L2 English readers, results revealed that, as happens with Native-English speakers, age seemed to be a decisive factor. Older students outperformed younger students in all of the tasks. In addition to these results, English word reading seemed to be associated with awareness on Spanish morphological production and on Spanish Morphological structure, but this was not the same with the English language MA contributing to the performance in the Spanish reading tasks. At the same time, MA seemed to have a greater contribution in the Spanish language (11% of the variance) than in English (6% of the variance). Researchers claimed that the reason for these results may be due to Spanish having a more complex morphological system in comparison to English. In other words: when a language has a more complex morphological system, the impact of MA instruction on reading will be considerably higher.

In relation to the second question by Ramirez et al. (2009), transfer of MA was being looked at to see if English MA was crucial for Spanish word reading and vice versa. Results revealed that Spanish morphological production together with Spanish morphological structure tasks contributed in 5% of the variance in English word reading. Alternatively, English MA tests did not reveal any variance in Spanish word reading.

Keeping the previous in mind, researchers concluded that since English MA accounted for a 6% of the variance, and transfer from Spanish to English accounted for a 5% of the variance, “morphological awareness developed in their first language, is just as important for English word reading as English morphological awareness” (Ramirez et al. 2009, p.352). As for the reason of why Spanish MA contributes to English word reading, Ramirez et al. (2009) claimed that it had to do with the

sensitivity developed due to the complexity of the Spanish morphology. Serving as an example, in the production test, students would have to complete the Spanish sentence “*esta mañana trajo las cartas el \_\_\_\_\_ (this morning the letters were brought by the \_\_\_\_\_)*” (p.352) expecting the answer *cartero*, or the equivalent to *postman* in English with the agentive *-ro*, also present in English words like *butch-er*, meaning the “doer” of something, and with the suitable gender marker (*-o* for masculine or *-a* for feminine).

Moving onto further evidence found by other researchers, a weaker language such as Arabic, was found not to contribute to transfer its MA to a stronger language such as English (Saiegh-Hadadd & Geva, 2008). Saiegh-Hadadd and Geva (2008) affirmed that MA is specific to each language which means that it works relatively independent in the brains of children speaking two languages such as Arabic and English. In conclusion, transfer of MA was said to be closely related to the complexity of the morphological system in each language.

#### **4. Impact of Morphological Awareness on Writing**

With respect to a completely different skill from reading, MA in writing has also been closely looked at. Scholars wanted to see whether an awareness of the morphemes in L1 English speakers contributed significantly to the performance of children’s writing skills like it had done in the reading skills. However, the main concern of this section will not be with the whole field of writing skills, but with a small and crucial part for of the total: spelling. Spelling, could in fact be considered to be one of the most useful components, since without a correct command in the spelling of a language, writing would not be an efficient communicator for the message that an unskilled learner may intend to transmit to the reader. This is similar to what Treiman and Cassar (1996) stated about “children who spell poorly or laboriously [being] unable to devote their full attention to higher-order writing processes” (p. 141).

Theories coming from Treiman and Cassar’s (1996) paper, account for a sound-based process through which children guide themselves in the process of spelling. Beginners would resort to a division of the word into the smaller phonological units, leading them to represent each sound in the pronunciation of the word with a diagraph

they believe to be adjusted to the quality of the sound. Serving as an example, children speaking American English would spell the word *water* as in *wodr* (/wɔdər/) leading them to a sound-based error coming from the English variety in which the flap is pronounced as a /d/ instead of a /t/ (p.142).

Moreover these researchers' intention was to discover whether the only processes that children would use to solve spelling problems were sound-based strategies, or if there were any other strategies, such as morphological spelling strategies, that they could use in order to improve their spelling abilities.

In this same study, Treiman and Cassar (1996) noted that first graders had some explicit orthographic knowledge since they would double certain word's consonants such as the "s" in *face* producing the word *fass* or the "r" in *supermarket* leading the students to write something like *suprmorrkit* (p. 143). Later studies from these same scholars, revealed that kindergartens and first graders would also rely very much on the spelling of the stem words such as *dirt* for spelling the derived form containing a flap *dirty* (p. 143).

It is only these previous examples that evidence the presence of morphological instruction in the improvement of spelling skills, but the omission of first and second consonant clusters is also a matter that ought to be paid attention to. Therefore, Treiman and Cassar (1996) asked themselves whether a connection existed between the omissions of one grapheme in one and two morpheme words. For this purpose, two different experiments were carried out:

1) The first one was a *Spelling Dictation Task* consisting of a group of one and two-morpheme words given orally to the students by an instructor for them to try and produce the most accurate spelling. Serving as an example, students were asked to spell words such as *feast* (one-morpheme word), *shared* (two-morpheme word) or *rake*, a word with no final cluster or also referred to as a stem (Treiman & Cassar, 1996, p. 147).

2) The second one was *Spelling Completion Task* in which children were asked to complete the endings of one-morpheme words such as *bra(nd)* or the endings of two morpheme words such as *tu(ned)* (Treiman & Cassar, 1996, p. 155).

To carry out number 1), 23 students of first (6-7 years), second (7-8 years) and fourth grades (9-10 years) respectively were tested over fifteen words with one final consonant and thirty words with two-consonant final clusters.

Results for experiment 1) revealed that the amounts of correct spellings of both final consonant clusters were the most common answers, and that they increased from one grade to another. In addition, spellings of the second final consonant cluster in one morpheme words (*brad* for *brand*) prevailed over the spelling of the first final consonant cluster (*man* for *mand*), especially in the first and second grades, but not in grade four. Moreover, Treiman and Cassar (1996) found out that students would tend to preserve the “n” in the spelling of the two-morpheme word *tuned* since it is based on the stem *tune* that they knew beforehand, rather than preserving the “n” in the one-morpheme word *brand* (p. 151). Due to the previous findings, these scholars deduced that if children simply relied on sound-based spelling strategies, they would have not taken into account the fact that *tuned* is formed out of the stem *tune* and would have therefore spelled something similar to *tud*. Treiman and Cassar (1996) thus affirmed that the omission of certain consonants in clusters was dependant also on word-structure.

In relation with experiment 2) Treiman and Cassar (1996) gathered twenty five kindergarten students and twenty three first graders who took part in the spelling completion task which used the same words as experiment (1). This time students would be presented with *bra\_\_* for *brand* and *tu\_\_* for *tuned* and ought to guess the missing letters.

Results for this second experiment showed that, as happened in experiment 1), correct spelling of both final consonants increased as the age of the students did so. More interestingly, kindergarten students seemed to prefer spelling the second consonant of the cluster in both one and two-morpheme words. For example, they would rather spell *brad* instead of *brand*. In the case of first graders, these students usually spelt the first consonant of two-morpheme words like *rac(ed)* spelling the “s” sound but not the “d”. Another common structure among first graders was to write the second consonant of one-morpheme words producing something like *blo(n)d* instead of *blond* (p. 168). Treiman and Cassar (1996) could therefore conclude from these two

experiments that kindergarten students performed similarly to first graders who had only received the first test but not the second one.

Later on in this same study, a third experiment was carried out due to Treiman and Cassar's (1996) curiosity to see whether these spellings varied if the tasks were changed. In other words, these two scholars were looking for any variance in the children's performance due to the nature of the tasks: one being a word spelling task and the other one being sentence spelling task. Results from this third study did not coincide with any specific spelling pattern. Students' spelling of clusters was affected by the morphology of the words in both word and sentence spelling tasks.

After having examined the effect of MA in the spelling of children as young as kindergarten age, Treiman and Cassar (1996) reached the conclusion that children use their linguistic knowledge of word sounds and their knowledge of morphological relations so as to improve in the linguistic process of learning how to spell, and consequently learning how to write in an appropriate manner.

## **5. Conclusion**

This paper has aimed at analysing children's MA in the English language, taking into account reading and writing skills, which are two of the most essential skills in children's literacy achievement. MA studies started gaining ground after proving that not only orthographic or phonological awareness were important linguistic abilities, but also MA, which played a role in children's literacy achievement.

The current study has examined the various possible contributions that MA may have in children's literacy development from the age of 5 up to 14, confirming that students can benefit from MA instruction since a very early age. Carlisle (2000) revealed that the chances of profiting from MA though, are greater for children at a later stage in their learning process due to the experience gained with time and practice. She also proved that the grouping of letters and morphemes into meaningful units of language predicted an improvement in the performance of children's reading vocabulary and reading comprehension skills.

With respect to speakers of English as an L2, Kieffer et al. (2013) reflected that MA predicted a better performance of sixth (11-12 years) seventh (12-13 years) and

eighth grade (13-14 years). Thus, L2 English learners were able to construct the meaning of a complex word while reading as they gathered the meaning of complex sentences due to MA. Besides, because of the advanced age of the partakers in this research, age was not a decisive factor that contributed to a different performance in the different tasks.

Additionally, Ramirez et al. (2009) revealed that L2 English speakers of L1 Spanish seemed to profit from MA instruction in the English language, but MA contributed more significantly in learning Spanish, due to its complex morphological system. With these results, Ramirez et al. were able to conclude that MA in the L1 was as important as in the L2, and that transfer of this MA may be possible from a more morphologically complex language such as Spanish to a less morphologically complex language like English.

Concerning writing skills, Treiman and Cassar (1996) displayed that sound-based processes seemed to be quite common among L1 English writers of first grade (6-7 years), however, this was not the only strategy first, second (7-8 years) and fourth grade (9-10 years) students would use. Students showed that they would preserve certain letters of familiar words such as the “n” in the inflected word “tuned” as they knew the root “tune”. These researchers concluded that L1 English learners would apply their knowledge of word sounds and their knowledge of morphemes to construct the meaning of morphologically complex words.

All in all, we can conclude that MA does contribute to the reading and writing learning process of L1 English speakers, and also to the achievement of English as an L2 in beginner learners. Furthermore, MA has been proved to be of great use for children’s literacy development aside from orthographic and phonological awareness. But above all, this paper has validated the usefulness of MA instruction and given rise to a possibility of including such instruction in the language learning educational system. There is still a need to conduct further research on the topic in order to have a clear stance of the ways in which MA may contribute to children’s literacy development. Still, the existing knowledge is a good starting point for future studies in the field.

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