Morphological awareness and its relationship with reading performance among children with dyslexia

دراسة الوعي المورفولوجي وعلاقته بالأداء القرائي لدى الأطفال المصابين بعسر القراءة

Zahira Boulhia *

Associate professor (MCA),

University of Algiers 2

Zahira.boulahia@univ-alger2.dz

Received: 08/02/2026 **Accepted : 30/05/2026** **Published : 02/06/2026**

- **Abstract**: This study reports on the relation between the morphological awareness and reading for eight dyslexic primary school children (04th and 05th grades) aged 09 to 10 year. They were chosen on purpose based on given criteria. The exploratory study uses the correlation descriptive method relying on Pearson correlation coefficient. For measurement, we used the morphological awareness test of Lais Ismail and the reading test of Zeddam Hadda. Findings show average statistically insignificant correlations between the degrees of morphological awareness and the degrees of reading, the degrees of grammatical patterns and the degrees of reading, the morphological production and reading, and the judgment of the morphological relation and reading, and a very low statistically insignificant correlation between the degrees of morphological decomposition and the degrees of reading and the choice of morphologically different word and reading.

Therefore, the study recommends opening the field of future studies to investigate the relationship between morphological awareness and reading mechanisms in the normal child and the child with dyslexia, due to its importance in developing the appropriate treatment protocol.

- **Keywords:** morphological awareness; reading; dyslexia.

- **الملخص:** تهدف الدراسة الحالية إلى الكشف عن العلاقة بين الوعي المورفولوجي بالأداء القرائي لدى الأطفال المصابين بعسر القراءة في السنة الرابعة والخامسة ابتدائي، ولتحقيق أهداف هذه الدراسة الاستكشافية تم الاعتماد على المنهج الوصفي الارتباطي عن طريق استخدام الأسلوب الإحسائي المتمثل في معامل ارتباط بيرسون لملائمته مع طبيعة الدراسة، وتم استخدام مجموعة من الأدوات ممثلة في اختبار الوعي المورفولوجي للعيس إسماعيل واختبار القراءة لزدام حدة على عينة مكونة من (08) تلاميذ تتراوح أعمارهم ما بين9و10سنوات مشخصين بعسر القراءة ،وقد تم اختيارهم بطريقة قصدية وفق مجموعة من الشروط والمعايير المحددة.

- بعد المعالجة الإحصائية توصلت الدراسة الى النتائج التالية:
- توجد علاقة ارتباطية متوسطة غير دالة احصائيا بين درجات الوعي المورفولوجي ودرجات الأداء القرائي لدى الأطفال المصابين بعسر القراءة.
- توجد علاقة ارتباطية متوسطة غير دالة احصائيا بين درجات بين التعرف على الأنماط الصرفية ودرجات الأداء القرائي لدى الأطفال المصابين بعسر القراءة.

*Auteur correspondant

- توجد علاقة ارتباطية ضعيفة جدا غير دالةاحصائيا بين درجات بين التفكيك الصرفي ودرجات الأداء القرائي لدى الأطفال المصابين بعسر القراءة.
- توجد علاقة ارتباطية متوسطة بين الإنتاج الصرفي والأداء القرائي لدى الأطفال المصابين بعسر القراءة.
- توجد علاقة ارتباطية متوسطة بين الحكم على العلاقة الصرفية والأداء القرائي لدى الأطفال المصابين بعسر القراءة.
- توجد علاقة ارتباطية ضعيفة بين اختيار الكلمة المختلفة صرفيا والأداء القرائي لدى الأطفال المصابين بعسر القراءة.

ومنه توصي الدراسة إلى فتح مجال دراسات مستقبلية للبحث في العلاقة بين الوعي المورفولوجي وميكتزمات القراءة لدى الطفل العادي والمصاب بعسر القراءة لما له من أهمية في وضع البروتوكول العلاجي المناسب.

- **الكلمات المفتاحية:** الوعي المورفولوجي، الأداء القرائي، عسر القراءة.

Introduction:

Dyslexia is one of the common learning difficulties that affect reading and writing despite the ordinary intelligence. Estimates show that 05 to 10% of world population suffers dyslexia; therefore, it is a social, not only an educational, challenge. This issue causes troubles in processing the linguistic voices and understanding the relation between the letters. However, modern studies showed that other factors play vital roles, such as the morphological awareness, which denotes the ability to recognize the internal structure of words, including the roots and affixes. In addition, the morphological awareness is not a tool to understand the linguistic meaning; rather, it is tightly linked to reading and writing skills. This study aims at a better understanding of dyslexia by focusing on the morphological and linguistic aspects intervening in reading. Besides, good awareness about morphology helps improve education and provide equal chances. Since reading differs with language, so does dyslexia, as it a reading trouble. Therefore, we shall focus on the morphological awareness and reading for children with dyslexia.

Reading is a psychocognitive process that requires the ability to transform written symbols into oral. It is one of the main skills in language, educational goals, and socialization skills. It is a multidisciplinary focal point, mainly that it may witness disruption by some psychological, linguistic, neurological, and speech troubles (Ibrahim, 2010, p. 32). Learning reading is a complicated process that requires different skills,

including the phonological and morphological, to process the written symbols. Besides, learning reading needs developed cognitive skills, such as memory, intelligence, attention, cognition, etc. In this regard, the phonological decoding of words is crucial. According to Dehaene (2007), compatibility between grapheme and phoneme in learning reading is important to master reading for beginners and perceive language. The morphological awareness is the knowledge about the morphemes and structures, and the ability to derivate and conjugate to produce and understand words respecting language rules. Besides, it is defined as the ability to identify words and master meaning (Chenafi, 2019, p. 08).

Reading may be disrupted by dyslexia, which is a birth unexpected learning difficulty that affects words' recognition, spelling, and comprehension due to issues in the phonological system. In addition, it causes bad experience in reading, weak vocabulary development, omission, addition, substitution, repetition, reversal, fast incorrect reading, slow reading, and perplex (Jehifa, 2018, p. 449). The morphological awareness troubles for children with dyslexia imply difficulties in understating words' structures and morphological components (roots and affixes), and in analyzing words (Chenafi, 2019, p. 11). In this regard, the study of Chenafi Abd al Malek (2019) on the effect of morphological and phonological awareness on learning Arabic for normal and dyslexic children revealed statistically significant effect for this awareness on reading, and statistically significant differences between the phonological and derivational morphological knowledge and reading.

Moreover, Taha & Syagh Haddad (2012) found out that children with dyslexia showed bad morphological awareness, and that this awareness allows for gaining reading skills (Lais et al., 2023, p. 45). Besides, Lais et al. (2015) revealed cognitive reading skills (visual attention, rapid naming, and working memory) for Arabic speaking dyslexic children of the 04th and 05thgrades, and studied the factors that contribute to reading and to reading comprehension. Besides, the study found out that dyslexic

children showed difficulties in the visual attention and vocal procession (al Abidi, 2015, p. 16).

Dyslexic children face orthographic and grammatical issues when dealing with written language; this affects their reading and writing. Furthermore, the study of Mariona- Todd Siège Mazabel (2013) confirmed that the morphological awareness is important for reading and writing, and that its effect is independent from that of the vocal and grammatical awareness. Besides, the study of Silva Martins-reis (2016) showed that children with good grades in morphological awareness test outperform children with low morphological awareness in reading and writing (Mehram, 2021, p. 64).

We decided to focus on this topic due to the high number of dyslexic children who fail at schools, the importance of morphological awareness for language and reading, and the lack of relevant studies. Based on what was said, we raise the following question, "Is there a correlation between the morphological awareness and reading for children with dyslexia?". From this question, sub-questions arise, as follows:

- Is there a statistically significant correlation between the degrees of recognition of the morphological patterns and the degrees of reading for dyslexic children?
- Is there a statistically significant correlation between correlation between the degrees of morphological decomposition and the degrees of reading for dyslexic children?
- Is there a statistically significant correlation between the degrees of morphological production and the degrees of reading for dyslexic children?
- Is there a statistically significant correlation between the degrees of judgment of the morphological relation and the degrees of reading for dyslexic children?
- Is there a statistically significant correlation between the degrees of choice of morphologically different word and the degrees of reading for dyslexic children?

2. Aims of the study: This study aims at:

- Revealing the relation between the morphological awareness and reading for children with dyslexia.
- Revealing the relation between the components of morphological awareness (recognition of morphological patterns, morphological decomposition, morphological production, judgment of the morphological relation, and choice of the morphologically different word) and reading for children with dyslexia.

3. Importance of the study:

- Understanding the relation between the morphological awareness and reading helps understand the causes of dyslexia.
- Understanding the role of morphological awareness in reading fosters therapy.
- Understanding the role of words analysis into morphological components facilitates reading for dyslexic children.

4. The study terms:

4.1 Morphological awareness: It is the awareness about word morphemes and the ability to think about, and interact with, morphemes. Besides, it is the ability that allows us to reach the new orthographic structures by combining preexisting models (morphemes). Moreover, it is the ability to ponder the words' structures and analyze their morphological units (roots and affixes) to understand how they build meaning (Quellab, 2013, p.33). Procedurally speaking, it is the awareness assessed with the morphological awareness test used in the study.

4.2 Reading: It is the coordinated work of different cognitive and sensor systems when processing written symbols to find meaning and reach comprehension (Al Keradi, 2014, p. 81). Procedurally speaking, it is the ability to decode written symbols, and is measured with the test of Zeddam Hadda, which focuses on speed, exactness, comprehension, and vocal expression of written texts.

4.3 Dyslexia: It is a learning trouble that affects words' procession and causes difficulties in learning words (al Dissi, 2019). Procedurally speaking, it is the deficit in

reading and manifests in the recognition of written words and analysis of linguistic units; it is measured with the test of Zeddam Hadda.

5. The field study:

5.1 Method: The study uses the correlation descriptive method, which helps measure the relation between two variables, find out whether the relation is positive or negative, and quantitatively predict the significance level.

5.2 Sample: To choose our sample, we collected data using a questionnaire. Then, we excluded the unsuitable children and ended up with 08 cases diagnosed with dyslexia according to the test of the speech therapist Zeddam Hadda. It is a small sample that does not allow us to generalize results, as we aim at exploring primary indicators of the relation between the variables. The informants are 09 to 10 years males and females from the 04th and 05th grades who have neither sensor, neurological, nor psychological diseases, as their medical files show and school physician and psychologist confirm. Besides, we applied the test of drawing a man to make sure they suffer no mental troubles. The following table shows the sample properties.

Table 01: The conditions and specifications of the informants

Case	Gender	Age	Educational level
01	Male	09	04th grade
02	Male	10	05th grade
03	Female	09	04th grade
04	Female	10	05th grade
05	Female	09	05th grade
06	Female	09	04th grade
07	Male	10	04th grade
08	Male	10	05th grade

3.5 The study limitations: The study was conducted in 13 Hectares Primary School in Berraki, Algiers, and in Hassiba Ben Bouali Primary School in Ain Taya, Algiers.

5.4 The study tools:

5.4.1 The morphological awareness test: It was adjusted by Lais Ismail based on the test of Taha & Syagh Haddad that aims at assessing the implicit and explicit

morphological awareness of Arab speaking children. Scoring is built on answers to 05 items, namely:

Recognition of morphological patterns: Two words are shown to the child, who is asked to determine orally or in writing whether they have the same morphological pattern. The answer should be yes or no, and the correct answer is scored 01 while the wrong is scored.

The morphological decomposition: The child is asked to divide15 words into roots and affixes. The correct decomposition is scored 01, the partial is scored 0.5, while the wrong is scored.

The morphological production: The child is asked to generate words from the same root using different patterns. He is given 10 verbs and asked to produce 04 derivatives from each within 05 minutes. The correct word is scored 01; thus, the total is 40 points.

Judgment of the morphological relation: 20 pairs of words that have morphological or semantic relations are shown to the child, who must determine whether they have a morphological relation. The correct answer is scored 01 while the wrong is scored.

Choice of the morphologically different word: The child must identify orally or in writing the different word from 04 words. The correct answer is scored 01 while the wrong is scored.

Scoring: is given to each wrong answer and 01 to each correct answer. If reading is correct, the informant gets:

For syllables: 40 points.

For meaningless syllables: 20 points.

For familiar words: 50 points.

For unfamiliar words: 60 points.

For inflected words: 19 points.

For uninflected words: 20 points.

For real words: 19 points.

For pseudo-words: 19 points.

For simple words: 20 points.

For complex words: 20 points.

For meaningless text of 192 words: 192 points if read without mistakes.

For meaningful text of 272 words: 272 points if read without mistakes.

Thus, the total score of all items is 751 points.

The psychometric properties: We measured the consistency using Cronbach's alpha and found out a value of 0.78, which reflects a good consistency for the test.

5.4.2 The reading test: It was designed by Zeddam Hadda to measure Arabic reading ability for Algerian dyslexic children aged between 08 and 12, and detect the type of dyslexia (superficial phonological or deep). The test has 12 items, as follows:

- Items 01 and 02 on reading simple syllables that have no meaning.
- Items 03, 04, 05, 06, 07, 08, 09, and 10 on reading familiar and unfamiliar, correct and incorrect, real and unreal, and simple and complicated words.
- Items 11 and 12 on reading meaningful and meaningless texts.

The correct answer is scored 01 while the wrong is scored 00. The total score must be 751 points, taking into account the time spent in reading.

The psychometric properties:

The reliability results of the test items are between 0.42 and 0.80, showing acceptable levels and allowing us to rely on the test. Besides, we used Cronbach's Alpha to measure the consistency and found out values of 0.81 for normal children and 0.80 for dyslexic children; reflecting the consistency of the test.

6. Presentation of the study results:

To test the hypotheses and add credibility to the study, we conducted a statistical study to find out the relation between the visual cognition and the reading difficulties using Pearson correlation coefficient.

6.1 Presentation analysis of sub-hypothesis 01: It states there is a statistically significant correlation between the degrees of recognition of the morphological patterns and the degrees of reading for dyslexic children.

Table N°2. The coefficient of correlation between the recognition of the morphological patterns and reading for dyslexic children

Variables	Pearson correlation coefficient	Significance level
Recognition of the morphological patterns	0.63	0.095
Reading		
Sample	8	

The statistical analysis shows a correlation coefficient of 0.63 and a significance level of 0.095, which is higher than 0.05. Thus, we find out an average positive statistically insignificant correlation between the two variables and confirm the hypothesis.

6.2 Presentation analysis of sub-hypothesis 02: It states there is a statistically significant correlation between the degrees of morphological decomposition and the degrees of reading for dyslexic children.

Table N°3. The coefficient of correlation between the morphological decomposition and reading for dyslexic children

Variables	Pearson correlation coefficient	Significance level
The morphological decomposition	0.118	0.78
Reading		
Sample	8	

The statistical analysis shows a correlation coefficient of 0.118 and a significance level of 0.78, which is higher than 0.05. Thus, we find out a very low positive statistically insignificant correlation between the morphological decomposition and reading for children with dyslexia.

6.3 Presentation analysis of sub-hypothesis 03: It states there is a statistically significant correlation between the degrees of morphological production and the degrees of reading for dyslexic children.

Table N°4. The coefficient of correlation between the morphological production and reading for dyslexic children

Variables	Pearson correlation coefficient	Significance level
The morphological production	0.474	0.236
Reading		
Sample	8	

The statistical analysis shows a correlation coefficient of 0.474 at a significance level of 0.236, which is higher than 0.05. Thus, we find out an average statistically insignificant correlation between the morphological production and reading for children with dyslexia.

6.4 Presentation analysis of sub-hypothesis 04: It states there is a statistically significant correlation between the degrees of judgment of the degrees of morphological relation and the degrees of reading for dyslexic children.

Table N°5. The coefficient of correlation between the judgment of the morphological relation and reading for dyslexic children

Variables	Pearson correlation coefficient	Significance level
The judgment of the morphological relation	0.598	0.117
Reading		
Sample	8	

The statistical analysis shows a correlation coefficient of 0.598 and a significance level of 0.117, which is higher than 0.05. Thus, we find out an average positive insignificant correlation between the judgment of the morphological relation and reading for children with dyslexia.

6.5 Presentation analysis of sub-hypothesis 05: It states there is a statistically significant correlation between the degrees of choice of the morphologically different word and the degrees of reading for dyslexic children.

Table N°6. The coefficient of correlation between the morphologically different word of the morphological relation and reading for dyslexic children

Variables	Pearson correlation coefficient	Significance level
The morphologically different word	0.329	0.426
Reading		
Sample	8	

The statistical analysis shows a correlation coefficient of 0.329 and a significance level of 0.426, which is higher than 0.05. Thus, we find out a low positive insignificant correlation between the morphologically different word and reading for children with dyslexia.

6.6 Presentation analysis of the general hypothesis: It states there is a statistically significant correlation between the degrees of morphological awareness and the degrees of reading for children with dyslexia.

Table N°7. The coefficient of correlation between the morphological awareness and reading for children with dyslexia

Variables	Pearson correlation	Significance	Arithmetic means		Standard deviation	
Morphological awareness	0.425	0.293	Recognition of morphological patterns	20%	Recognition of morphological patterns	7,07
			Morphological decomposition	19,52 %	Morphological decomposition	13,95
			Morphological production	6,88%	Morphological production	3,48
			Judgment of the morphological relation	9,38%	Judgment of the morphological relation	8,08

			Choice of the morphologicall y different word	24,16 %	Choice of the morphologicall y different word	8,12
			Morphological awareness	13,91 %	Morphological awareness	5,07
			Reading	45,35 %	Reading	7,6
Sample	8					

The statistical analysis shows a correlation coefficient of 0.425 and a significance level of 0.293, which is higher than 0.05. Thus, we find out an average statistically insignificant correlation between the morphological awareness and reading for children with dyslexia because the sample (n=8) is small. In addition, the arithmetic mean of the morphological awareness is 13.91% and the standard deviation is 5.07, showing a relative homogeneity between the degrees of informants, and that children under study showed variant levels of morphological awareness. Besides, the arithmetic mean of reading is 45.35% and the standard deviation is 7.6, reflecting a high degree of homogeneity and that most children had convergent levels of reading.

The detailed analysis of the morphological awareness components shows that the arithmetic mean of the recognition of morphological patterns is 20% and the standard deviation is 7.07, showing variance in the informants' abilities to recognize the morphological patterns; i.e., recognizing roots and affixes, type of word, conjugation, etc. Besides, the arithmetic mean of the morphological decomposition is 19.52% and the standard deviation is 13.95, showing a strong heterogeneity, as the values are far from the mean, reflecting big difficulties in decomposing the words morphologically. In addition, the arithmetic mean of the morphological production is 6.88% and the standard deviation is 3.48, showing homogeneity and convergence in the informants' productions of words in given periods.

Furthermore, the arithmetic mean of the judgment of the morphological relation is 9.38% and the standard deviation is 8.08, showing big variance in data and different answers. Finally, the arithmetic mean of the choice of the morphologically different word is 24.16% and the standard deviation is 8.12, showing homogeneity. In general, these results show the importance of developing the recognition of the morphological patterns, morphological decomposition, morphological production, judgment of the morphological relation, and the choice of the morphologically different words for developing reading.

7. Discussion of the results:

Hypotheses' testing shows an average statistically insignificant correlation between the degrees of recognition of morphological patterns and the degrees of reading for our informants, as Pearson correlation coefficient is 0.63, showing an average positive relation between the two variables. In this regard, the ability to recognize the morphological patterns improves reading, as it allows recognizing nouns, verbs, and adjectives, and knowing how to derivate from them. This item is assessed by showing pairs of words to children and asking them if they have the same structure. The statistical significance is 0.095, and is higher than 0.05, which is the level adopted in psychological and pedagogical studies. However, the relatively high value of the correlation coefficient (0.63) shows the possibility of a real relation between the two variables and limits the generalizability of the study findings.

Our results are in line with different studies that confirm that the recognition of the morphological patterns is one of the important indicators in developing the linguistic awareness, which, in turn, is vital for reading and comprehension. Thus, the results partially confirm the hypothesis and show that the improvement of the morphological pattern recognition positively affects reading. Therefore, scholars and pedagogues must include morphological activities in reading programs. In addition, we recommend conducting experimental studies on bigger samples to assess this relation and prove its statistical significance.

Sub-hypothesis two states there is a correlation between the degrees of morphological decomposition and the degrees of reading for dyslexic children. The morphological decomposition refers to dividing the word into parts, what allows the child to read well. Findings show a low insignificant correlation, and that Pearson correlation coefficient is 0.118, which is a statistically insignificant value at significance level 0.78 and very far from the acceptable level 0.05. Thus, the ability to divide words into morphological parts (roots and affixes) is not a reliable indicator in analyzing or improving reading. In this context, the morphological decomposition is a linguistic skill that requires a given level of linguistic analysis and awareness, which may be absent or incomplete for dyslexic children. In addition, the activities or measurement tools we used may be insufficient; therefore, it is necessary to review the importance of morphological decomposition in training dyslexic children on reading. Besides, it is necessary to focus on other morphological skills, such as the recognition of morphological patterns. Finally, we suggest conducting other studies using more exact and experimental tools to identify the conditions that make the morphological decomposition an efficient tool in developing reading, as suggested by Deacon, S. H. & Kirby, J. R. (2004).

Sub-hypothesis three states there is a correlation between the degrees of morphological production and the degrees of reading for dyslexic children. The morphological production refers to the ability of deriving words. Findings show a statistically average insignificant correlation, as Pearson correlation coefficient is 0.474 and the significance level is 0.236, which is higher than the adopted level 0.05. Although the correlation coefficient indicates a relatively average positive relation, the absence of the statistical significance denies its scientific reliability. In this regard, the morphological production may not be in direct relation with reading, or dyslexic children may face deeper difficulties that exceed the morphological knowledge, such as low morphological awareness or issues in the visual procession of words, as suggested by Gabig, C. S., & Zaretsky, E. (2013).

Sub-hypothesis four states there is a correlation between the degrees of judgment of the morphological relation and the degrees of reading for dyslexic children. The judgment of the morphological relation refers to the ability to identify relations between two words regarding roots, structure, and derivation. Findings show an average direct relation, as Pearson correlation coefficient is 0.598 and the significance level is 0.117, which is higher than 0.05 and shows the absence of a strong statistical relation. Thus, the relatively high value of the correlation coefficient reflects a potential correlation that may appear clearly with bigger samples and better measurement tools. The judgment of the morphological relations requires an exact knowledge of the word structures; however, current data are not sufficient to confirm this.

Sub-hypothesis five states that there is a correlation between the degrees of the choice of the morphologically different word and the degrees of reading for dyslexic children. Findings show a low direct relation, as Pearson correlation coefficient is 0.329, which is insignificant at 0.426 and is very higher than 0.05. In this regard, the test of choosing the morphologically different word is not highly correlated with reading for our informants because such activities require verbal abstraction and may not directly affect reading. Besides, it is advisable to review the nature of the test and enlarge the sample.

The general hypothesis states that there is a correlation between the morphological awareness and reading for children with dyslexia. In this regard, we used correlation analysis, variance analysis, and quantitative description of data. Pearson correlation coefficient was 0.425 at significance level 0.293, which is insignificant at 0.05, showing an average correlation between the two variables. This partially supports the main hypothesis and shows that the high scores in the morphological awareness test reflect improvement in reading and confirm the role of the morphological skills in the variant reading levels of the informants.

The descriptive statistics show that the arithmetic mean of the morphological awareness is 13.915 and the standard deviation is 5.07, reflecting variance between the

informants. As for reading, the arithmetic mean is 45.35 and the standard deviation is 7.6, reflecting a variance in reading and clear inclination towards high scores. The analysis of the morphological awareness components separately shows that the ability to recognize the morphological patterns was average, with an arithmetic mean of 20% and a standard deviation of 7.07, reflecting variance in the informants 'ability to analyze these patterns. Besides, the word morphological decomposition had an arithmetic mean of 19.52 and a standard deviation of 13.95. This is a relatively high value that shows clear variances between the informants.

The analysis of the parts of morphological awareness shows the following values: the arithmetic mean of the morphological production is 6.88 and the standard deviation is 3.48, the arithmetic mean of the morphological relation is 9.38 and the standard deviation is 8.08, and the arithmetic mean of word derivation is 24.16 and the standard deviation is 8.12. All these indicators show high variances between the informants regarding the morphological awareness aspects, and the need to detail this variable and avoid its measurement as a complex only.

These findings are in line with the modern theory that confirms that the morphological awareness is one of the important cognitive items that develop reading competence, mainly in the languages with derivational structures and morphological wealth, like Arabic. In addition, the average relation between the two variables confirms that the morphological awareness is not the only factor that affects reading; rather, it is part of a bigger set that includes language comprehension, morphological awareness, mental lexicon, etc. In this regard, the morphological awareness is the ability to control the word change, including the addition, omission, substitution, conjugation, derivation, etc (Lais, Saad ellah, 2006, p. 75). Thus, it is one of the linguistic aspects that allow the learner to recognize the different parts of the word thanks to mastery of the morphological features (conjugation and derivation).

The study of Kaddouri, Gharbi, &Lais aimed at finding out the effects of training dyslexic children's morphological awareness on reading and found out that this training

highly affects the exactness of words' reading thanks to the ability to analyze the words of different forms. The study pointed that the morphological awareness has many roles in reading words. Besides, the study of Wafi & Quella aimed at identifying the level of morphological awareness for learners with orthographic difficulties by applying orthography test is Arabic and the test of the morphological procession of words written in Arabic. Findings showed that the cases that suffer weakness in the morphological awareness, mainly in derivation and morphology, face difficulties in orthography. This shows the relation between morphology and orthography, as confirmed by Nagy, W. E., Carlisle, J. F., & Goodwin, A. P. (2014). Thus, these results support the general hypothesis and pave the way for more studies on the mutual effect between the linguistic awareness and reading using more exact analysis tools.

Conclusion:

This primary exploratory study shows that the morphological awareness may develop reading for dyslexic children. Our findings show an average relation and that the morphological awareness is an integral part of reading. Although this awareness is not the only factor, its improvement efficiently improves reading. These findings better explain dyslexia and pave the way for developing educational strategies that help overcome it. These results are statistically insignificant and partially achieved. In addition, we cannot generalize them because the sample is small. Therefore, they are primary indicators that need more verification in other studies with bigger samples. Based on what was said, we recommend:

- Developing educational programs based on a developed morphological awareness for dyslexic children.
- Conducting future studies on other factors that may improve reading, such as the phonological abilities, attention, and the working memory.
- Integrating multiple educational techniques that help children understand and decompose the word structures to foster reading and comprehension.
- Widening the sample to get more generalizable results.

References:

- Al Abidi, Chaima Mohamed Ahmed Mohamed Attia (2015), the use of mind maps to equip kindergarten children who suffer developmental learning difficulties with some environmental concepts, Magister thesis, Faculty of Riyad al Atfal, University of Alexandria.
- Al Guerradi, Mohamed (2014), the importance of reading in school subjects, the Higher College of Teachers in Laghouat, journal of facts for psychological and social studies 1 (9).
- Al Chenafi Abd al Malek (2019), lectures on the written language and its troubles, University of Oum al Bouaghi, Algiers.
- Al Dissi, Raid (2019), introduction to reading difficulties: dyslexia, Amman, Jordan, Yafa scientific house for publication and distribution.
- Carlisle, J. F. (2000). Awareness of the structure and meaning of morphologically complex words: Impact on reading. Reading and Writing, 12, 169–190
- Deacon, S. H., & Kirby, J. R. (2004). Morphological awareness: Just "more phonological" The roles of morphological and phonological awareness in reading development. Applied Psycholinguistics, 25(2), 223–238.
- Gabig, C. S., & Zaretsky, E. (2013). Promoting morphological awareness in children with language needs: Do the Common Core State Standards pave the way Topics in Language Disorders, 33(1), 7–26.
- Ibrahim, Suleiman Abd al Wahed Youcef (2010), the developmental, academic, social, and emotional learning difficulties, (Vol. 01), Cairo, the Anglo-Egyptian library.
- Jehifa, Mehali (2018), dyslexia and its relation with school achievement of primary school learners, journal of the researcher for human and social sciences, issue 35, University of Mouloud Maameri, Tizi Ouzou (Algeria).

- Lais Ismail & Saad ellah, Taher (2006), the role of problem solving in improving reading for dyslexic children, journal of studies and researches, issue 03, June.
- Lais, Ismail al Kaddouri, Amel Gharbi, Abd ennasser (2021), the effects of training the morphological awareness on reading for dyslexic children, journal of psych pedagogy, 7 (1).