Educational
Administration
Theory and Practice

The Effectiveness of Mnemonic Strategies In Enhancing Reading Comprehension For Primary School Students Facing Difficulties In Learning French: A Study Of Fourth-Grade Students In Constantine

Bentounsi Sandra[1*], Bentounsi Ikram Aya[2], Ferrag Fares[3], Hechiche Mohamed Ramzi[4], Boughachiche Meriem[5]

[1*]Laboratory of Education, Training, and Development University Abdelhamid Mehri - Constantine 2 (Algeria), sandra.bentounsi@univ-constantine2.dz
[2]DECLIC Laboratory (Didactics, Enunciation, Corpus, Linguistics, Cultural Interaction). University Larbi Ben M'hidi - Oum El Bouaghi (Algeria), ikramaya-bentounsi@univ-oeb.dz
[3]DECLIC Laboratory (Didactics, Enunciation, Corpus, Linguistics, Cultural Interaction). University Larbi Ben M'hidi - Oum El Bouaghi (Algeria), fares.deserteagle@gmail.com
[4]DECLIC Laboratory (Didactics, Enunciation, Corpus, Linguistics, Cultural Interaction). National Polytechnic School of Constantine (Algeria), mohamedramzi.hechiche@enp-constantine.dz
[5]SLADD Laboratory. Faculty of Letters and languages, University of Constantine1 (Algeria), meriem.boughachiche@umc.edu.dz

ARTICLE INFO	ABSTRACT
	This study aims to assess the effectiveness of mnemonic strategies employed with fourth-year primary school students experiencing difficulties learning French, focusing on improving their reading comprehension. AA structured methodology was developed and implemented in collaboration with French language teachers to achieve this objective to achieve this objective. The central research question driving this study is: *To what extent do mnemonic strategies improve reading comprehension among primary school students struggling to learn French?* A sample of 54 students facing challenges in French language acquisition was selected. The study evaluated the effectiveness of these strategies through pre- and post-intervention reading comprehension assessments in French, using a quasi-experimental design involving one-group and two-group comparisons. Statistical tools were utilized to analyze the results. Findings indicate statistically significant improvements in reading comprehension post-intervention, affirming the strategy's effectiveness in enhancing comprehension skills among students with learning difficulties in French. **Keywords:** Mnemonic strategies, students with French language learning difficulties, reading comprehension

Introduction

Learners may encounter challenges throughout their educational journey, particularly when acquiring new knowledge or learning a foreign language. Such challenges can hinder effective communication, especially in educational contexts where language acquisition is critical. Proficiency in foreign languages facilitates interpersonal communication, expands opportunities for personal and professional interactions, and grants access to global knowledge. As Jagdish Bhagwati (2004) noted, "The rapid information revolution driven by advances in communication technology has dismantled cultural and geographical barriers, rendering the world a global village and underscoring the necessity of foreign language acquisition" (Bhagwati, 2004, p.198).

Learning one or more foreign languages has become essential in the present era. Language is a fundamental tool for communication and identity, reinforcing the individual's social, cultural, and personal identity (Tagliante, 2006). Reading comprehension, an essential cognitive skill in language education, enables learners to decode textual messages, understand meanings, and develop expressive and written abilities.

In societies where schools play a pivotal role in social integration, reading comprehension is critical for academic success. Students who struggle with reading comprehension in school may face challenges in developing independence, making informed decisions, and combating the negative consequences of illiteracy. For these reasons, reading—especially reading comprehension—is recognized as the foundational step toward academic and social success. Numerous researchers and educational experts emphasize that reading is synonymous with comprehension; conscious reading, or "reading comprehension," is critical to effective learning.

In Arabic-speaking societies, where Arabic is the native language, the demands of reading comprehension in French—the first foreign language taught—are particularly challenging. Studies have shown that the decline in reading comprehension skills in French is often linked to the current teaching methods, which emphasize reading as a singular skill rather than a composite of multiple skills. Recent educational research stresses the importance of adopting diverse instructional strategies to cultivate reading comprehension skills effectively. In particular, mnemonic strategies have been highlighted as a valuable tool in enhancing reading comprehension for students encountering difficulties with French language texts.

Research Question:

Based on the context described, the research question can be formulated as follows: *How effective do French language teachers implement the mnemonic strategy in the fourth year of primary school in enhancing the reading comprehension of students struggling to learn this language?*

Study Hypothesis: The study hypothesizes that mnemonic strategies applied to primary school students facing difficulties learning French improve tension.

Study Objectives

• This study aims to propose an educational mnemonic strategy tailored for French language teachers to implement with fourth-year primary school students in the city of Constantine who experience challenges in acquiring the language. The objective is to evaluate the strategy's effectiveness and contribution to enhancing students' reading comprehension in French.

• The study seeks to direct educational and research focus toward diagnosing and addressing language learning difficulties encountered by primary school students, particularly in French. By identifying specific barriers hindering language acquisition, the study aims to support efforts in mitigating or eliminating these obstacles.

Importance of the Study

This study highlights the application of mnemonic strategies within French language lessons at the fourth-grade level, emphasizing its role in improving reading comprehension for students who face learning difficulties in this subject. By exploring the significance of targeted strategies like mnemonic aids, this research contributes to a deeper understanding of how such approaches can positively impact the reading comprehension of students struggling with French.

The study also aims to broaden the discourse on French language learning by examining how mnemonic strategies can play an essential role in acquiring and comprehending French for students who face linguistic challenges. By focusing on practical applications, the research underscores the strategy's potential influence on language acquisition and comprehension, providing valuable insights into effective instructional methods for educators and researchers alike.

Study Terms:

Mnemonic Strategy (Memory Strategy): The mnemonic strategy, introduced by Scruggs in 1990 (as cited in Scruggs et al., 2010, p. 271), encompasses a set of techniques and methods designed to improve information retention and facilitate long-term memory storage. It is especially beneficial for enhancing comprehension of new material and concepts among students with learning difficulties. This strategy aids students in recalling rules and vocabulary in foreign languages, enabling them to record and retrieve information effectively, thereby facilitating communication.

Students with Difficulty Learning French: This study refers to a sample of fourth-grade primary students enrolled in regular educational programs and never repeated a school year. These students exhibit no emotional, mental, visual, or auditory impairments. They possess average to above-average intelligence, free from developmental or academic learning disabilities, and their primary challenge is acquiring and comprehending written French.

Learning Difficulties: According to Salah Ameera Ali (2005, p. 18) and Bateman (1965), children with learning difficulties exhibit a notable discrepancy between their cognitive potential and academic performance. This discrepancy is attributed to fundamental learning disorders, which may or may not be associated with central nervous system dysfunction. Cultural or educational deprivation, intellectual disabilities, sensory impairments, or significant emotional disturbances do not cause such difficulties.

Reading Comprehension: As defined by Anderson (2007, p. 310), reading comprehension is an active cognitive process that connects pre-existing knowledge with visually presented text, creating congruence between internalized and external information. This process involves understanding the purpose of reading, forming opinions about the text, analyzing and organizing meanings within the text, and ultimately grasping its overarching themes and main ideas.

Study Tools
• **Observation Network:** A tool to observe and record students' behaviors and engagement levels during French language lessons.
• **Draw-a-Man Test:** An assessment to evaluate cognitive and psychological factors influencing learning.
• **Diagnostic Assessment Test in French:** A pre-test to identify specific learning difficulties in French among students.
• **French Reading Comprehension Level Test:** Administered before and after implementing the memory strategy to assess its impact on students' reading comprehension.
• **Myklebust Test** (is used to assess specific learning abilities and identify learning disabilities in children.).
Methodology Used
• **Descriptive Approach:** Employed to analyze and describe students' difficulties in learning French.
• **Quasi-Experimental Approach:** Used to test the effectiveness of the mnemonic strategy in improving French reading comprehension.
Design Type
Single-Group Design: The study uses a pre-test/post-test design with a single group of students to measure changes in reading comprehension following the intervention.
Study Limits
• **Human Boundaries:** The study sample includes 116 fourth-grade students across 11 primary schools in Constantine, Algeria. The students were identified by their French language teachers as experiencing difficulties in learning French. Academic records were reviewed to exclude students with scores of 5/10 or higher in French, indicating adequate proficiency. This process resulted in a final sample of 54 students (both male and female).
• **Spatial Boundaries:** The study was conducted across multiple primary schools in Constantine, specifically in the neighborhoods of Zouaghi, Alimangli, and Ibn Al Sharqi. These locations were selected based on accessibility and available resources.

Study Process
In early September, we reached out to the administrations of primary schools selected for our study to obtain lists of students who experienced difficulties in learning French during the previous academic year. This list focused on third-year primary students identified by their teachers as having received low grades exclusively in French, without significant issues in other subjects. The goal was to isolate fourth-year students with specific difficulties in learning French.
We reviewed these students' files to gather information on their social, health, and economic conditions and their academic performance in French from the past year in two schools where records were accessible. Unfortunately, other schools declined access to this information. Where available, we calculated each student's annual average in French by reviewing their year-long performance as documented by teachers, who confirmed that these students struggled specifically in grammar, morphology, and oral and written expression. To further refine our selection criteria, we administered the Myklebust Test to detect general learning difficulties and exclude students with challenges in all subjects. Additionally, we distributed questionnaires to assess students' academic performance across subjects, aiming to identify those with difficulties exclusively in French.
By the second week of September (specifically, September 9 and 10), we coordinated with French language teachers to conduct a human figure drawing exercise to measure cognitive development. Students were asked to draw a person within twenty minutes, an approach known as the Draw-A-Man test, to assess general intelligence levels among students who previously received low grades in French.
At the end of the second week, we collaborated with French teachers to distribute diagnostic assessment exercises. These exercises included spelling, morphology, grammar tasks, and reading comprehension passages from the third-year primary textbook to evaluate students' French reading comprehension. This diagnostic process spanned an entire month, allowing ample time for assessment and ensuring that average-level students would not underperform due to time constraints if the test were limited to a single session.
Following the diagnostic assessment, we distributed forms to collect more detailed information on students who struggled to learn French. These forms focused on students' attitudes toward the French language and their perceptions of their teachers. We verified that these students' previous year's French grades were lower than those in other subjects and that their current diagnostic assessment results indicated difficulty in French. Additional forms were distributed to parents to gather insights based on the Myklebust Test scale, given that parents have valuable contextual knowledge about their children. We also provided questionnaires

to French teachers to gain further insights into these students' challenges, enabling us to accurately complete the learning difficulty detection scale.

In early October, we administered a pre-test in reading comprehension by distributing selected texts to all students. This assessment recorded baseline scores before applying a memory-based instructional strategy we proposed to participating teachers. Teachers were briefed on the key instructional elements during lesson explanations and student interactions. This strategy was implemented through exercises and questions adapted from the fourth-year primary French textbook and emphasized the following elements:

• **Memory Processing**: Organizing and retrieving information efficiently.
• **Engagement Techniques**: Making information captivating to retain students' attention and stimulate interest.
• **Relational Learning**: Drawing analogies based on students' personal experiences.
• **Controlled Information Flow**: Selecting and structuring information thoughtfully.
• **Linking Concepts**: Establishing logical connections between new and prior knowledge.
• **Task Analysis**: Breaking tasks into manageable, sequential steps for better comprehension.
• **Active Learning**: Encouraging students to read texts aloud and rephrase content in their own words.
• **Peer Teaching**: Asking students to explain lessons to classmates to reinforce understanding.
• **Skill Development**: Fostering information acquisition skills by promoting student questioning, note-taking, and time management.
• **Pause for Reflection**: Stopping at the end of each paragraph to formulate and record questions.

This structured approach aimed to enhance students' retention, comprehension, and overall engagement with the French language.

Analysis, interpretation, and discussion of students' results considering the study hypothesis
Results of the reading comprehension test after implementing the educational memory strategy

Before testing the study hypothesis, the normality of the distribution of reading comprehension data related to the memory strategy was assessed. This assessment covered the pre-test and post-test results for fourth-year primary school students experiencing difficulties learning French. The Kolmogorov-Smirnov and Shapiro-Wilk tests were employed to verify normality. Results concerning the data distribution of the variables are presented in the following table:

Table Showing the Results of the Kolmogorov-Smirnov and Shapiro-Wilk Tests for the Normality of Distribution of Variables' Data

Variables	Measurement	Kolmogorov-Smirnov Test Statistics	Degrees of Freedom	p-value	Shapiro-Wilk Test Statistics	Degrees of Freedom	p-value
Reading Comprehension of the Mnemonic Strategy	Pre-test	0.119	52	0.066	0.974	52	0.305
	Post-test	0.156	52	0.003	0.937	52	0.008

Comment on the Table: The table indicates that the data on reading comprehension variables associated with the memory strategy do not follow a normal distribution in both the pre-test and post-test. Specifically, the values for the Kolmogorov-Smirnov and Shapiro-Wilk tests are statistically significant ($p < 0.001$), except for the pre-test reading comprehension variable ($p = 0.066$; 0.305, $p > 0.05$). Due to the non-normal distribution, non-parametric tests are required to test the study hypothesis. Consequently, the Wilcoxon test will be used.

Presentation and Analysis of Results in Light of the Study Hypothesis
Hypothesis Statement: "There are statistically significant differences between the average scores of the pre-test and post-test in reading comprehension after applying the mnemonic strategy to fourth-year primary school students experiencing difficulties in learning French."

To verify the hypothesis, the Wilcoxon test was conducted to identify significant differences between the pre-test and post-test scores in reading comprehension following the implementation of the memory strategy. Additionally, Cohen's *d* (Cohen, 1988) was calculated to estimate the effect size, thereby assessing the extent to which the memory strategy improved reading comprehension in fourth-year students with difficulties learning French.
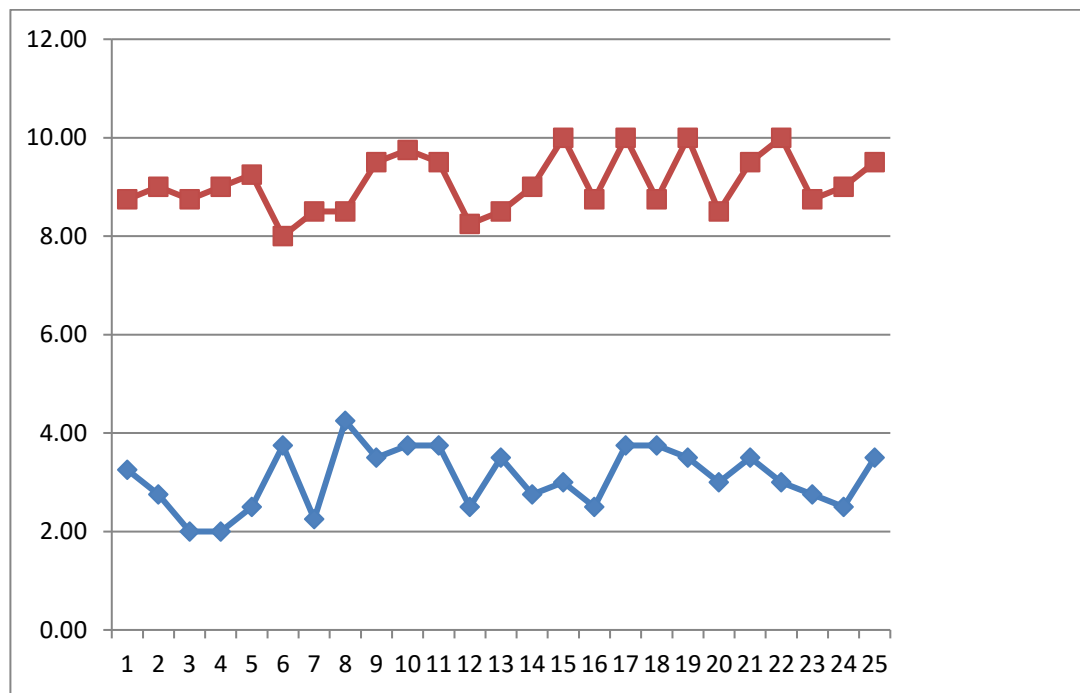
➢ Diagnostic Assessment Test (Reading Comprehension Pre-Test Result : for texts from the fourth-year textbook)
➢ Mnemonic Post-Test (Post-Test Result for Reading Comprehension)
Graphical Representation of Pre-test and Post-test Scores in Reading Comprehension After Applying the Mnemonic Strategy
The figure above illustrates that most students scored higher in the post-test compared to the pre-test in reading comprehension. This outcome highlights the effectiveness of the mnemonic strategy in enhancing reading comprehension among students facing challenges in learning French.
Wilcoxon Test Results for Pre- and Post-Test Differences in Reading Comprehension After Applying the Memory Strategy

Table Showing the Results of the Wilcoxon Test for the Significance of Differences Between Pre-test and Post-test in Reading Comprehension After Applying the Mnemonic Strategy

Number of Participants	Mean Ranks	Sum of Ranks	Pre-test Mean	Pre-test Standard Deviation	Post-test Mean	Post-test Standard Deviation	Z-value	p-value	Effect Size (d)
Negative Ranks	14	24.46	342.5						
Positive Ranks	38	27.25	1035.5	5.28	5.71	1.82	-3.171**	0.002	0.52
Tied Ranks	0	---	---						

** p < 0.01

Interpretation of the Results: The table above shows that the Z-value is statistically significant (Z = -3.171; p = 0.002; p < 0.01), indicating significant differences between pre-and post-test scores in reading comprehension after applying the memory strategy among students with difficulties learning French. The mean post-test score (5.71, SD = 1.99) was higher than the mean pre-test score (5.28, SD = 1.82), suggesting improved reading comprehension following the intervention. Additionally, the average of positive ranks (27.25) exceeds negative ranks (24.46), further supporting the increase in post-test scores.
The effect size, Cohen's *d* (0.52), falls within the moderate range according to Cohen's (1988) guidelines (0.50–0.80), indicating that the memory strategy had a moderate impact on improving reading comprehension.
These results support the hypothesis, revealing statistically significant differences at the 0.01 level between the pre-test and post-test average scores in reading comprehension. Thus, memory strategies enhance reading comprehension among fourth-grade primary school students struggling with French language acquisition.

Interpretation of the General Results of the Study

This study explores the application of a targeted educational strategy aimed at improving reading comprehension in French for fourth-year primary school students who face challenges in learning the

language as a foreign language. We propose a mnemonic educational strategy designed to enhance these students' reading comprehension, supporting French language teachers at the primary level in refining their instructional strategies to address the specific needs of this student group. This strategy was developed based on a review of literature identifying effective educational methodologies and relevant studies focused on foreign language teaching techniques that specifically address reading comprehension challenges among non-native speakers of French.

By implementing the mnemonic strategy among French language teachers, our study sample included 40 students out of 54, with an observed improvement rate in reading comprehension reaching 74.07%. This strategy is among the most effective methods for assisting teachers in embedding information into students' memories, leveraging group interaction and structured review of previous lessons. This approach integrates sounds, movements, and images, establishing connections between previously acquired vocabulary and new content within meaningful contexts. Additionally, the strategy creates mental links through practical exercises, such as using colors to represent animals or objects and engaging students in role-playing activities. For example, a teacher might have one student act as an animal while another holds a card with an action specific to that animal (e.g., "swims" for a fish or "climbs" for a squirrel). Similarly, students might role-play professions, such as one acting as a doctor while another holds a stethoscope and a card labeled "treats."

Mnemonic strategies are methods that allow students to store information for extended periods. According to Scruggs (Scruggs et al., 2010, p. 270), "Memory strategies are a set of techniques employed to enhance the process of storing and retaining information in long-term memory, especially beneficial for students with learning difficulties." These strategies facilitate vocabulary and grammar recall in a foreign language by enabling learners to retrieve stored information for communication purposes efficiently. Richard C. Mohs, PhD, also demonstrated in his study "Apprentice and Memory Strategies" (Mohs, 2014, p. 2) that mnemonic strategies significantly improve students' ability to remember concepts and information, enabling efficient and accurate retrieval.

French language teachers in this study presented prior knowledge—concepts taught in previous lessons—alongside new material, using sensory approaches such as visual, auditory, verbal, or tactile aids. This multimodal approach facilitates students' retention and retrieval of information, fostering confidence and enhancing self-expression. Observations recorded during the study noted active student engagement with the lesson content, as corroborated by all participating French teachers, who affirmed the mnemonic strategy's effectiveness and ease of implementation.

In his research, Mohs (2014, p. 3) illustrated retention rates across various teaching strategies. The retention rate for auditory information was estimated at 5%, while information presented through reading increased to 10%, and audiovisual information retention rose to 20%. Information acquired and stored through discussion and cooperative group work—where students interact in diverse groups to achieve shared learning objectives under teacher guidance—yielded even higher retention rates.

Based on our analysis of the reading comprehension improvement percentages among students, the mnemonic strategy contributed substantially to advancing reading comprehension skills in this sample group. Given the developmental stage of fourth-year primary students (ages 9–10), who generally excel at remembering concrete words and events but struggle with more abstract mental tasks, mnemonic strategies appear particularly well-suited to address the unique learning challenges posed by foreign language acquisition at this stage.

Finding

The early stages of learning to read are crucial in a child's educational development, as they lay the foundation for recognizing letters and words and constructing sentences. Therefore, French language teachers must implement memory strategies to improve reading comprehension among fourth-year primary school students, particularly those struggling to learn the language.

Research has shown that the challenges students face in learning to read are often linked to the failure of teachers to use effective or appropriate educational strategies. In some cases, teachers may apply strategies that do not align with the student's specific needs or their academic level in the French language subject (Giasson, 1983:5). Reading comprehension involves an automatic process supported by cognitive strategies, which are enhanced by the pedagogical methods employed by the teacher. To address the issue of reading comprehension, it is necessary to explore its causes and the factors that hinder its development. The findings of this study suggest that implementing an educational memory strategy can help alleviate these difficulties, both for teachers and students.

The memory strategy, which focuses on long-term memorization and sensory learning methods, is critical in helping students grasp and retain information quickly. Additionally, engaging students in dialogue with their teacher aids in their acquisition of linguistic concepts and deepens their understanding of the material. This approach also helps students overcome their anxieties and shyness, boosting their self-confidence and fostering a more positive attitude toward the French language. Ultimately, the application of memory strategies will not only improve students' reading comprehension but support their overall progress in learning French.

Conclusion:

The educational process is continuous and extends beyond merely updating and revising curricula. It also involves focusing on the quantitative and qualitative aspects of the school material content to ensure it is presented effectively to learners. Furthermore, the educational process must be grounded in the use of appropriate teaching techniques and strategies by educators. These strategies should be tailored to accommodate students' diverse abilities and levels to engage their attention, stimulate their motivation, and foster a genuine interest in the subject. The teacher should also promote active interaction and effective student communication, encouraging learning and progress.

As Fijalkow (2000:16) notes, learning to read is inherently a social activity, requiring efficient third-party mediation, such as through the teacher, parents, or skilled peers within the learning environment. Before students can thoroughly take charge of their reading development, the teacher must cultivate their reading skills and comprehension of texts. The teacher's role remains central in shaping and enhancing students' abilities to read and understand what they read, thus contributing significantly to their academic success.

References

1. **Anderson, K. M.** (2007). Differentiating instruction to include all students. *Australian Council for Educational Research*. Retrieved from https://research.acer.edu.au/cgi/viewcontent.cgi?article=1144&context=
2. **Anderson, A.**, & **Lynch, T.** (1988). *Listening*. Oxford: Oxford University Press.
3. **Butt, A. I.** (2021). The development of oral comprehension by live listening in language laboratories. *HAL* ID: dumas-03292100. Retrieved from https://dumas.ccsd.cnrs.fr/dumas-03292100. Submitted on 20 Jul 2021.
4. **Bhagwati, J.** (2004). *In Defense of Globalization*. Oxford: Oxford University Press.
5. **Fijalkow, E.**, & **Fijalkow, J.** (2000). *Reader in the CP: File Book* [PDF]. *French Revue*, 105-79. Retrieved from Michèle Arnoux, Laurent Lima, Pascal B. (2008). Introductory article: *Pratiques The lecture at CP and acquisitions at Pierre Mendès University*, France.
6. **Giasson, J.**, & **Thériault, J.** (1983). *Apprentice and sense of the lecture*. Montréal: Editions Ville-Marie.
7. **Richard, C.**, & **Mohs, Ph.D.** (2014). Apprenticeship strategies and memory. *Croix-Rouge*. Retrieved from https://www.croixrouge.ca/What-We-Do/E-news
8. **Scruggs, T.**, **Mastropieri, M.**, **Berkeley, S.**, & **Marshak, L.** (2010). Mnemonic strategies: Evidence-based practice and practice-based evidence. *Intervention in School and Clinic*, 46(2).
9. **Tagliante, C.** (2006). *The language class*. Paris: CLE International.
10. **Alrabadi, E.** (2011). What is the preferred method for adopting the language? *University Complutense of Madrid, Spain.*
11. **Ameera Ali, S.** (2005). Program to treat reading weakness. *First National Conference on Special Education*, Cairo, Ministry of Education.