

STUDY ON THE RELATIONSHIP BETWEEN SELECTIVE ATTENTION AND WRITING DIFFICULTIES IN PRIMARY SCHOOL CHILDREN

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Received: 08/2023

Published: 03/2024

Abstract:

The aim of the present study was to investigate the relationship between selective attention and writing difficulties among primary school students. The study adopted a descriptive correlational approach, using the Draw-a-Person Test to assess intelligence level, the Mariam Ben Bouzid Writing Test and the Stroop Test, which were administered to 6 students in the third and fourth grades of primary school.

The results showed the following:

- The presence of writing difficulties among third and fourth grade primary school students.
- The presence of selective attention difficulties in third and fourth graders.
- A positive and moderate correlation between selective attention and writing difficulties in primary school children.

Keywords: selective attention, writing difficulties, primary school Children

Introduction:

Selective attention plays an important role in the processing and management of information. It is influenced by several factors that affect its effectiveness and its role in processing and cognitive operations. Selectivity is considered to be one of the most important factors because our attention to stimuli is selective due to our limited processing capacity and our inability to process the overwhelming amount of stimuli we encounter. This has implications for all cognitive processes and attention is a key requirement for successful learning (Badawi, Mona Hassan El-Sayed, 2004, p. 48).

All cognitive psychologists agree that attention is a cognitive process that involves focusing perception on a specific stimulus among multiple stimuli around us. Sternberg (2003) affirms that attention is the ability to deal with limited amounts of information selected from a vast amount of information provided by our senses or memory. Psychologists also point out that when we concentrate our mental energies during a task, our behaviour becomes under our control and conscious awareness because we intuitively decide which stimuli to focus on and which ones to neglect (Adnan Yousif Al-Atoum, 2016, p. 75).

Selective attention is a mental process that aims to direct mental activity in a specific direction for a certain period of time by controlling and directing emotional activity in a specific direction, while freeing the individual from the influence of surrounding stimuli. This

selective process involves general alertness or readiness specific to certain visual or auditory stimuli (Sulaiman Abdul Wahid Ibrahim, 2011, pp. 40-41).

Selective attention is a mental process that aims to direct mental activity in a specific direction for a certain period of time by controlling and directing emotional activity in a specific direction, while freeing the individual from the influence of surrounding stimuli. This selective process involves general alertness or readiness specific to certain visual or auditory stimuli (Sulaiman Abdul Wahid Ibrahim, 2011, pp. 40-41).

Selective attention is a voluntary process by which an individual chooses a specific stimulus or stimulus of interest and focuses his or her awareness and senses on it to achieve a specific goal. Selective attention relies on the filtering and refining of attention to transfer information from one store to another, with the possibility of information passing through the filter automatically. It is the central process by which information is decided to be transferred from sensory memory to short-term memory (Wissam Al-Na'imi, 2020, pp. 31-32).

Attention is the basis of cognitive processes that affect both oral and written language. The development of written language skills is at the top of the hierarchical organisation of language learning. Written language skills are related to listening, speaking, reading and writing skills, the latter being an essential component of language learning and language development. Written language skills include several sub-skills such as handwriting, spelling and written expression (Fathi Al-Ziyat, 2007, p. 270).

Writing difficulties, especially academic learning difficulties, are associated with developmental learning difficulties such as difficulties with attention, memory, perception, thinking and problem solving.

In this study, we investigated the relationship between writing difficulties and selective attention difficulties. Therefore, selective attention plays an important and effective role in the acquisition of writing skills. Therefore, we conducted an applied study on a sample of 6 students from schools in the province of Tlemcen, Ben Sekran district, by applying appropriate tests.

Theoretical Perspective:

Problem Statement:

Attention is one of the most important cognitive processes that plays a crucial role in children's cognitive and behavioural development. Through attention, children are able to select stimuli and cues using their different senses, which helps them acquire various skills and adapt to their environment, ultimately leading to academic achievement and success (Dalia Mamdouh, 2021, p. 12).

According to Al-Ziyat (1994), attention is a process characterised by several features, including selection, concentration, intention, and interest in the focus of attention. This definition suggests that attention involves the selection of a stimulus among multiple stimuli with the intention and desire to focus on and attend to that particular stimulus, excluding involuntary attention that does not require motivation or intention (Adnan Yousif Al-Atoum, 2015, p. 75).

One type of attention is selective attention, which refers to the act of selecting a particular stimulus from among several stimuli and focusing on it to the exclusion of other stimuli. Selective attention can be visual or auditory. Proponents of selective attention, such as

Treisman, propose that the physical properties of stimuli are initially processed but not fully attended to. Attention is then redirected to stimuli with meaning, resulting in differential attention, where some stimuli are considered more important to the individual and are thus focused and processed, while other stimuli are ignored (Hussein Mohammed, 2007, pp. 180-181).

Selective attention is also crucial for the development of oral and written language skills, such as reading and writing. Writing skills encompass several dimensions, and individuals with writing difficulties often struggle with spelling, written expression, handwriting, and school-based writing situations. These difficulties can have a significant impact on academic achievement and future career prospects (Hani Shihata Ahmed, 2011, p. 193).

The studies conducted on dyslexia, including Fathi Al-Ziyat's 2007 study, indicate that many children and students with dyslexia have developmental deficits that affect their handwriting skills. These developmental difficulties include attention deficit, visual perception deficit, visual memory deficit, or physiological impairments that hinder motor skill development (Fathi Al-Ziyat, 2007, p. 276).

In our study, we shed light on the skill of selective attention and writing activity by asking the main question:

- Is there a relationship between selective attention difficulties and writing difficulties in primary school children?

The sub-questions are:

- Are there difficulties in selective attention among primary school children?

- Are there difficulties in writing among primary school children?

The main hypothesis is:

- There is a correlational relationship between selective attention difficulties and writing difficulties among primary school students.

The sub-hypotheses are:

- There are selective attention difficulties among primary school students.

- There are writing difficulties among primary school students.

The implications of the study include:

- To determine the nature of the relationship between selective attention and writing difficulties.

- To investigate the impact of developmental learning difficulties on academic learning difficulties.

Aims of the study:

- To determine the level of selective attention in a sample of primary school pupils.

- To identify writing difficulties in primary schools.

Explanation of study terminology:

Selective attention: It is a voluntary process by which an individual selects a particular stimulus or cue and focuses his awareness and senses on it in order to achieve a specific goal.

Writing difficulties: Writing is a complex form of communication involving three areas: spelling, handwriting and written expression.

Primary students: Students in the first and second years of primary school.

Previous studies:

- Ahmed Ben Issa's 2021 study investigated the effects of working memory and selective attention on word recognition in Algerian children with attention deficit. He conducted a comparative study of 57 monolingual and bilingual children aged 8 to 11 in 18 schools in the province of El Oued. The study found statistically significant differences in the accuracy of selective attention between monolingual and bilingual children, in favour of the bilingual group. It also found significant differences in working memory between monolingual and bilingual children with attention deficit, in favour of the bilingual group. The study concluded that selective attention accuracy influences Arabic word recognition in bilingual children with attention deficit.

- Lubna Qutaiba Mohammed's 2013 study investigated the relationship between hyperactivity, attention deficit and learning difficulties. The study showed a correlation between hyperactivity and learning difficulties by administering hyperactivity, attention deficit and learning difficulties questionnaires to a sample of 12 students. Using the Pearson correlation coefficient, a strong association was found between hyperactivity, attention deficit and learning difficulties in the study sample.

- A study conducted by Aroua Aicha in 2017 examined the relationship between writing difficulties and attention difficulties in a sample of primary school students. The study included 32 students who were purposively selected, and attention and writing tests were administered. The results, analysed using Pearson correlation coefficients and t-tests, revealed a significant relationship between writing difficulties and attention difficulties among the study sample.

- Nassima Touati Ouchich and Salima Al-Atwi's 2021 study investigated the relationship between attention, working memory and writing development in primary school children aged 8 to 10. The study used the Stroop attention test, the Baddeley working memory test and a writing test.

The results showed a relationship between selective attention and writing ability, and a relationship between working memory and writing ability in primary school children.

Theoretical aspect:

Definition of attention:

Attention: The term "attention" is used in different ways. Attending to a lecture means paying attention to it. When focusing on something in a room, attention means selection. Shunck (2000) defines it as a state of concentration on something, which indicates the capacity to process and the ability to do so within a certain period of time for stimuli and activities.

(Hussein Mohammed, 2007, p. 179)

One of the types of attention is selective attention:

Selective attention occurs automatically to a specific stimulus that satisfies the individual's needs and personal motivations. The individual focuses attention on a particular stimulus from among several stimuli. For example, a child who likes to watch a particular television programme will eagerly await it every day at the scheduled time. Although this attention is selective, it requires considerable physical and mental effort to focus attention to such an extent that it is difficult for others to divert their attention, even if they try very hard.

Types of selective attention:

1. Involuntary selective attention: This occurs when a particular stimulus is imposed on the individual without their intention. For example, the passage of an aeroplane over a house causes the individual to involuntarily and automatically pay attention to the sound.

2. Voluntary selective attention: This type of attention directs the individual's mind to specific information that they are trying to achieve or obtain. For example, when shopping, the individual plans to buy specific items rather than being distracted by the many items around them. This type of attention varies from individual to individual as follows:

a. Visual attention: The focus of attention is more on visual things.

b. Auditory Attention: The focus of attention is on auditory things.

c. Sensory or tactile attention: The focus of attention is on things that are touched and held in the hands.

(Wisam Al-Na'imi, 2020, pp. 33-34)

And selective attention can be divided into two types based on the number of stimuli:

1. Focused attention: This is when an individual directs their attention to a single stimulus in order to obtain the desired information, while neglecting other stimuli.

2. Divided attention: This is when an individual pays attention to two or more stimuli simultaneously. (Das, 1996)

Das and colleagues (Das et al., 1994) further categorised selective attention in the construction of cognitive assessment batteries into:

1. Receptive attention: This type of attention occurs during the reception and processing of information or the perception and encoding of stimuli. Tasks designed in the form of Posner tasks, such as matching pairs of letters (BB, AA or Aa, Bb) or matching pairs of pictures on the basis of their visual similarity, can be used to measure this type of attention.

2. Expressive attention: This type of attention occurs during the response or output phase. Stroop tasks, where words are presented in specific colours and the child is asked to read the written word regardless of the colour of the rectangle, can be used to measure this type of attention. (Matlin, 2009)

2- Difficulties with writing: Writing is a complex form of communication that consists of three general areas: spelling, handwriting and written expression.

Spelling: It is considered a challenging task and its difficulty increases when the visual representation of a letter does not match the sound it represents. This can cause difficulties for the speller. While readers can use cues such as sound analysis, visual analysis, contextual cues and structural analysis to recognise words during reading, spellers do not have the same cues to reproduce orally heard words in their printed form.

It should be noted that tests that measure a student's spelling ability by selecting the correct word from a set of options provide limited information about the spelling problem. They are not used in the diagnostic process.

Handwriting: This refers to the motor activity involved in the writing process. Wiederhold (1978) suggested several areas for assessing handwriting, including hand and paper position, letter size, proportions, pen grip, letter formation, letter connections, spacing between letters and words, and writing speed.

Written expression: This refers to the most creative parts of the writing process. There are three areas in which written expression is assessed:

- * The student's inclination to write.
- * The individual's ability to express specific content, such as describing or reporting events, expressing feelings or observations.
- * The student's ability to compose a paragraph, organise and select effective words, use punctuation, capitalise and take notes.
- * A helpful method in the assessment process is to assess a sample of the student's writing.
- * The process of writing requires the presence of several physiological factors, including
 - Full development of the brain and nervous system, leading to cognitive maturity.
 - Sufficient motivation to learn.
 - The ability to concentrate and avoid excessive distraction.
 - Visual discrimination and perception of letters, numbers and shapes.
 - Correct visual-motor coordination and spatial orientation.
 - Motor control of the body and correct right-to-left orientation in Arabic writing.
 - Visual memory, which enables the writer to recall the images of letters and words previously learned.

Most students with writing difficulties have papers and notebooks filled with spelling, grammar, punctuation and letter confusion errors. Their writing tends to be disorganised, turbulent, lacking structure and accuracy, with errors of omitted or added letters. Their writing shows difficulty in generating ideas and expressing them accurately as their sentences are short, disjointed and lack coherence.

Exercises to help with writing difficulties:

Children with different types of learning difficulties face different challenges when trying to learn the skill of writing. The choice of appropriate methods and therapeutic interventions for each type depends on the nature of the difficulties faced by children with learning difficulties, which are often perpetuated and exacerbated by inappropriate teaching methods.

These children need a different type of teaching because they learn in a different way. They need teaching strategies that involve modifying regular instruction to avoid or compensate for their learning difficulties. Kirk and Calfee (1988) suggest a number of therapeutic principles that should be included in a programme for children with writing difficulties. These principles include

- **To train the necessary motor patterns to produce letters and words automatically without visual control:** This can be achieved through practice, repetition and teaching letters that have similar patterns.
- **Improve visual-spatial perception:** To overcome difficulties in recognising the shape of a word as a whole.
 - Improve visual discrimination of letters as a whole by providing opportunities for the child to make discriminative responses.
 - Improving visual memory for letters and words by visualising and associating the visual image with the sound of the letters and words.
 - Addressing letter formation by teaching letters separately through focused training and then in the context of words.

- Addressing the speed of writing to allow continuous practice of correct writing and to develop the ability to write letters.
 - **Reverse errors:** This can be addressed through repeated training using visualisation and practice writing over printed symbols.
 - **Blackboard activities:** These activities allow students to move and exercise shoulder, arm, hand and finger muscles.
 - Provide other materials to practise fine motor skills for writing, such as clay and colours.
 - **Pupil posture or position:** The pupil's posture should be comfortable, including the positioning of the chair and desk and their suitability for the age of the child.
 - **Pencil grip:** Teach the correct way to hold the pencil, which is between the index finger and thumb.
 - **Paper:** A coloured strip can be stuck parallel to the top edge of the notebook to help the pupil keep the paper in the correct position.
 - **Use plastic templates or letters:** Templates with models of letters, numbers and shapes can be made and the pupil asked to shape them using their fingers.
 - **Trace or follow the letter:** The letter can be written with a thick black line on a piece of wall paper and the pupil is asked to trace the letter or rewrite it on transparent paper.
 - **Graph paper or lined paper:** Write letters between these lines.
 - Teach the children to write letters according to their level of difficulty, from easy to difficult.
 - **Use verbal mnemonics:** This can be done by explaining the directions for forming letters and their sizes, such as from top to bottom or from top to bottom in a circular motion.
 - **Using words and sentences:** This can be done after the student has been taught the letters individually.
- (Ahmed Abdel Latif, 2015, pp. 31-33)
- Reinforcement through praise, encouragement and correction by the teacher.
 - **Feedback or corrective feedback:** Through a model that the child refers to, comparing what they have written to see the mistakes and corrections.
 - **Writing from memory:** The child writes the letter without help from the teacher.
 - **Repetition:** The child is asked to repeat writing the letters until they have mastered them using several senses.
 - **Drawing on sand or clay:** Using sticks or fingers.
 - **Forming letters in the air:** Students are asked to use their hands to form letters in the air.
- (Mona Ibrahim Al-Laboudi, 2005, pp. 103-104)
- **Applied aspect:**
 - **Survey study:**

The survey study was conducted on third and fourth grade students from schools in Ben Sekran district, Tlemcen province. The schools selected were Shuhada Doudouche Abdelkader, Jilali Merzouk Amaraya and Shuhada Arabi Tabessi. Interviews were conducted with headmasters and teachers, and students and their notebooks were observed. Students' participation in written expression and spelling lessons was noted, and the Draw-a-Man test was administered to assess intelligence levels and exclude students with low or average intelligence. The Fathi Al-Ziyat battery was also administered to identify writing difficulties.

- Sample of the survey study:

Status	Age	Gender	School	Grade Level
LM	9 years and 2 months	Male	Doudouche Abdelkader	4th Grade Primary
BC	9 years and 7 months	Male	Doudouche Abdelkader	4th Grade Primary
HY	9 years and 4 months	Female	Doudouche Abdelkader	4th Grade Primary
KR	9 years and 1 month	Female	Doudouche Abdelkader	3rd Grade Primary
QN	9 years	Male	Arabi Tabssi	3rd Grade Primary
FS	9 years and 5 months	Female	ArabiTabssi	4th Grade Primary
DW	10 years	Male	ArabiTabssi	5th Grade Primary
AA	10 years and 2 months	Male	Jilali Marzouk Amarria	5th Grade Primary
AT	10 years and 6 months	Female	Jilali Marzouk Amarria	5th Grade Primary
MW	11 years and 1 month	Female	Jilali Marzouk Amarria	5th Grade Primary

Survey Study Tools:

Intelligence Test: Goodenough's Draw-a-Man Test

The Draw-a-Man test is a non-verbal, performance-based intelligence test used to measure intelligence. It was chosen to classify the intelligence levels of the survey sample. The test is administered in the following manner:

1. The respondent is given a blank piece of paper and a pencil with an eraser.
2. The respondent is instructed to draw a person.
3. The Intelligence Quotient (IQ) score is calculated by assigning one point for each observed detail in the drawing.
4. The test consists of 51 details and the total score is then converted into mental age using a conversion table.
5. The mental age and chronological age are converted into months.
6. The mental age is divided by the chronological age and multiplied by 100 to obtain the IQ score.

Table 1 shows the conversion of total Draw-a-Man scores into mental age.

Mental Age	3	4	5	6	7	8	9	10	11	12	13
Points	2	6	10	14	18	22	26	30	34	38	42

Table 2 - Classification of Intelligence Quotients

IQ Score	Category
140 or above	Very High Intelligence
120-139	High Intelligence
110-119	Moderately High Intelligence
90-109	Normal Intelligence
80-89	Intellectual and Cognitive Difficulty
70-79	Borderline Intellectual Functioning
50-68	Mild Intellectual Disability
Below 49	Intellectual Disability

Reliability and validity of the test:

Shurfouh Bashir indicates in a study that the Draw-a-Man scale can be used to determine intelligence ratios in children. The reliability of the test was characterised by high reliability coefficients in all age groups (3 to 14 years). In a longitudinal study with 60 participants, the scale was administered when the children were five years old and then again when they were six years old, with reliability coefficients ranging from 0.74 to 0.77. In terms of validity, significant correlations were found between test scores and academic achievement within the sample. Furthermore, the measurement revealed differences in intelligence ratios between children from different social categories.

(Amal Mansour, 2019, p. 52)

Intelligence test results for the cases:

Cases	Age	Score	Mental Age (Months)	Chronological Age (Months)	IQ Score	Intelligence Category
BC	9 years and 7 months	33	122	115	106	Normal Intelligence
HY	9 years and 4 months	36	134	112	127	High Intelligence
KR	9 years and 1 month	37	138	109	126	High Intelligence
QN	9 years	39	146	108	135	Very High Intelligence
FS	9 years and 5 months	40	150	113	132	High Intelligence
DW	10 years	37	138	120	115	Moderately High

						Intelligence
AA	10 years and 2 months	30	110	122	90	Normal Intelligence
AT	10 years and 6 months	28	102	126	80	Intellectual and Cognitive Difficulty
MW	11 years and 1 month	33	212	133	91	Normal Intelligence

Based on the table and the Draw-a-Man test results, it is evident that all cases have normal or high intelligence scores above 90, except for case 9 (A.T.) whose intelligence score is 80, indicating below average intelligence.

Primary research tools:

Primary research method: Descriptive-correlational approach

Primary study sample: A purposive sample was selected after administering an intelligence test to individuals with writing and attention difficulties.

Cases	Age	Gender	School	Grade Level
LM	9 years and 2 months	Male	Doudouche Abdelkader	4th Grade Primary
BC	9 years and 7 months	Male	Doudouche Abdelkader	4th Grade Primary
HY	9 years and 4 months	Female	Doudouche Abdelkader	4th Grade Primary
KR	9 years and 1 month	Female	Doudouche Abdelkader	3rd Grade Primary
QN	9 years	Male	Arabi Tabssi	3rd Grade Primary
FS	9 years and 5 months	Female	ArabiTabssi	4th Grade Primary

Duration of the study: The study was conducted from February to May 2023.

Primary study instruments:

Observation: Observation is considered as one of the data collection tools used in research that cannot be obtained through questionnaires, interviews or documents. (Zarwati, 2008, p. 218)

Interview: Interviews were used in this study because of their importance in obtaining the necessary information about the cases. Interviews were conducted with headmasters to familiarise ourselves with the school and its departments and to guide us to the third, fourth and fifth grades of primary school. Interviews were also conducted with teachers in order to learn more about the pupils with writing difficulties.

Tests:

1. The written test to diagnose writing difficulties: The researcher, Mariam Ben Bouzid, developed this test in 2017 to diagnose writing disorders and difficulties by observing the way letters are copied, the coordination between letters, and the arrangement of words in sentences. This was done after a careful review of most of the scales that have emerged in the field, and the design and conditions required for a good measure. Those interested in developing measurement tools emphasise the importance of consulting specialist journals in the field. The design of this test went through a number of basic steps.

The test items were based on the following sources

- Ajeria Qira San's study (AJURIAGUERRA, 1978) and Bouzid Salihah's line test (1989).
- The Peugeot study (1979).
- Primary school textbooks for the third, fourth and fifth grades.

2- Contents of the written test:

The written test for diagnosing dyslexia consists of 20 sentences designed by the researcher.

- These sentences contain all possible variations of letter types and forms (beginning, middle and end of word).
- The test items are written in clear and simple language, free of ambiguity or confusion.
- The level of difficulty varies from easy to difficult, with sentences ranging from short to long.
- These sentences are similar to those found in textbooks.

3- Use of the written test:

The test is administered collectively according to the following scientific conditions:

- The direct transcription method is used.

Materials: Blue ballpoint pen, two sheets of white paper, carbon paper between the sheets.

Participants: Pupils aged between eight and ten.

Instructions: Write the following sentences on the white paper in your best handwriting.

Procedure: The test is administered collectively to pupils aged eight to ten after a friendly interaction with them before the test. Researchers recommend establishing a friendly relationship between the children and the test administrator to reassure them about the testing situation and to encourage them to respond without fear or hesitation. A comfortable environment is provided to facilitate their response to the test without anxiety.

-The test is administered in classrooms without altering the classroom routine, and the class teacher is present to make the testing situation as similar as possible to the students' regular school day.

-The researcher writes their name on a special sheet of paper.

-The researcher distributes the printed test sheets to the pupils and asks them to copy the sentences onto the white paper.

Note: The sentences are not hand-drawn or written on the board to ensure clear legibility. Instead, they are typed on a computer and printed on white sheets of paper in a clear font.

Marking of the written test:

Scoring is based on thirty criteria divided into three scales:

Scale 1: Paper Organisation Scale

This scale includes the first seven criteria, which identify any distortions related to the organisation of the paper.

Scale 2: Sentence and Word Analysis Scale

This scale includes the next five criteria, which identify distortions related to sentences and words in general.

Scale 3: Letter Writing Analysis Scale

This scale contains the rest of the criteria (18 in all) which identify distortions in the writing of individual letters within words.

5- Scoring of the written test:

The written test assesses each scale according to three conditions:

Condition A: Score 0

Represents good quality writing with no distortions.

Condition B: Scored 1

Represents an average quality of writing, with minor distortions.

Condition C: Scored 2

Represents very poor quality writing, with numerous distortions.

Note:

The minimum total score on the scale is "0" and the maximum score is "60". This score indicates very poor quality writing with significant distortions, suggesting significant difficulties in acquiring writing skills and the presence of dysgraphia. The lower the total score on the scale, the better the acquisition of writing skills.

2- Stroop selective attention test:

This cognitive ability scale was discovered and named after John Ridley Stroop in 1935. It is one of the most famous visual attention phenomena used to assess selective attention and cognitive control in situations involving competition between two alternative responses, known as interference. In the same context, Dempster (1992) noted that the Stroop test is characterised by dual-task interference, where there is interference between two types of information. This interference allows us to assess a child's ability to regulate cognitive control by focusing on one aspect of information, such as the colour of the word, while inhibiting another aspect, such as the meaning of the word. This scale consists of three cards with dimensions of (214/30 A) cm.

Card 1: It consists of 50 words written in black, representing colour words: red, yellow, green, blue.

Card 2: It contains the same words, but this time the words are written in different colours that do not represent their semantic meaning, such as the word "blue" written in red.

Card 3: It shows rectangles with the same colours as above, and it shows the time needed to give an answer in 45 seconds for each card. This card consists of 10 lines, each containing 5 stimuli.

Instructions: The instructions should be separated and simplified as much as possible for the child to understand.

Condition 1 (Card A): I will give you a piece of paper with words written on it. I want you to read the words from right to left as fast as you can. When you reach the end of the paper, you

should start reading again from the beginning until I tell you to stop, which will be after 45 seconds. If I indicate an error, you should correct it. When you are ready, you can start.

Condition 2 (Card B): On this paper you will do the same as before. You will read the words and when you get to the bottom of the page, you will start reading from the beginning.

Condition 3 (card C): This sheet of paper contains coloured rectangles and you have to name the colours. When you get to the end of the page, start reading from the beginning until I tell you to stop.

Condition 4 (card D): I will give you a sheet of paper similar to the one I gave you earlier, but this time you will have to tell me the colour the words are written in, not read the words. When you reach the end of the paper, you should start from the beginning until I tell you to stop.

If people do not understand the instructions, we should explain them with one or two examples, because this test requires a good level of understanding.

Method of marking: The examiner should place four cards in front of him, each containing a possible answer to be given by the examinee. On each card the examiner should observe and mark errors and hesitations. The results are then entered on a score sheet which includes the candidate's personal details, the errors and hesitations made and the number of correct answers for each card. If the number exceeds one or more lines, they should be subtracted from the total. Then the error score for each card is calculated by multiplying the sum of the errors by 2 and adding the hesitations. Then the interference score is calculated by subtracting the number of correct answers on the colour naming card (3) from the number of correct answers representing interference (naming the colour of the ink used to write on the fourth card).

Conditions for administering the test: The examiner should not provide any assistance. It is important to ensure that the child has good vision. If the child wears reading glasses, they must be worn during the test. The individual should not be allowed to remove the glasses or engage in any behaviour that may interfere with the legibility of the words, particularly in the fourth section. The student or individual should show improvement in reading and be exempted from colour naming.

If the individual stops before the allotted time or even at the end of the page, it is important to encourage them to continue.

(Adapted from Thabit Aynad, 2017, pp. 132-134)

Presentation and analysis of results:

Writing test results:

Test Items Students' Names	Paper Organization	Sentence Analysis	Letter Writing Analysis
LM	14	12	22
BC	16	11	24
HY	10	10	30
KR	12	09	25
QN	09	13	21
FS	17	15	28

The overall results of the writing test:

Case Name	Test Result	Level
LM	48	Poor Writing
BC	51	Poor Writing
HY	50	Poor Writing
KR	46	Poor Writing
QN	43	Poor Writing
FS	60	Very Poor Writing

Discussion of the writing test results:

Regarding the results of the six cases: (L.N), (B.K), (H.I), (K.R), (Q.N), (F.S), the scores were high in the areas of paper organisation, sentence and word analysis, and letter writing. The total score exceeded 41 points, indicating very poor writing skills. Therefore, all six cases had difficulties with writing.

Discussion of the results of the Selective Attention Stroop Test:

Table No. 10: Case 1 (L.M.), Grade Four Primary:

Cards	Number of Words Read	Percentage	Errors	Frequencies	Error Rate
01	35	70	10	05	93
02	20	40	28	02	
03	45	90	05	00	
04	50	100	00	00	
Degree of Interference	-5				

Quantitative and qualitative analysis of the table:

The case (L.M.) scored less than 50 points on the first three cards. In the first card, written in black ink, the individual scored 35 points. In the second card, which contained words of different colours with no semantic meaning, he scored 20 points. In the third card, which contained rectangles of the same colours as before, they scored 45 points, but they forgot a line of 5 rectangles. On the fourth card, they scored 50 points. As for the interference score, which is the result of subtracting the score of the third card from the score of the fourth card, the case received a score of -5. The error score was 93 points, calculated by multiplying the sum of the errors by 2 and adding the number of hesitations. On the basis of these results we can conclude that the case has attention difficulties.

Table No. 11: Presents the results for the second case (B.K.), fourth grade, primary level.

Cards	Number of Words Read	Percentage	Errors	Frequencies	Error Rate
01	47	94	02	01	182
02	18	36	30	02	
03	33	66	17	00	
04	09	18	40	01	
Degree of Interference	24				

Quantitative and qualitative analysis of the table:

The case (B.K.) scored less than 50 points on all four cards. In the first card, written in black ink, the individual scored 47 points. In the second card, which contained words of different colours with no semantic meaning, he scored 18 points. In the third card, which contained rectangles of the same colours as before, they scored 33 points, but they forgot a line of 5 rectangles. On the fourth card they scored 9 points. The interference score, which is the result of subtracting the score of the third card from the score of the fourth card, was 24. The error score was 182 points, calculated by multiplying the sum of the errors by 2 and adding the number of hesitations. On the basis of these results we can conclude that the case has an attention deficit.

Table No. 12: Results for the case (H.I), fourth grade, elementary level.

Cards	Number of Words Read	Percentage	Errors	Frequencies	Error Rate
01	49	98	01	00	108
02	15	30	30	05	
03	47	94	02	01	
04	32	64	18	00	
Degree of Interference	15				

Quantitative and qualitative analysis of the table:

The case (H.I) received the following scores in the four cards: In the first card, written in black ink, the individual scored 49 points. In the second card, which contained words of different colours with no semantic meaning, he scored 15 points. On the third card, which contained rectangles of the same colours as before, they scored 47 points, but they forgot a line of 5 rectangles. On the fourth card they scored 9 points. The interference score, calculated by subtracting the score of the third card from the score of the fourth card, was 15. The error score was 108 points, calculated by multiplying the sum of the errors by 2 and adding the number of hesitations. On the basis of these results we can conclude that the case has a deficit in attention.

Table No. 13: Results for the case (K.R), third grade, primary level.

Cards	Number of Words Read	Percentage	Errors	Frequencies	Error Rate
01	10	20	30	10	144
02	18	36	02	30	
03	45	90	00	05	
04	30	60	15	05	
Degree of Interference	15				

Quantitative and qualitative analysis of the table:

The case (K.R) scored less than 50 points on all five cards. In the first card, written in black ink, the individual scored 10 points. In the second card, which contained words of different colours with no semantic meaning, he scored 18 points. In the third card, which contained rectangles of the same colours as before, they scored 45 points, but they forgot a line of 5 rectangles. On the fourth card they scored 30 points. The interference score, calculated by subtracting the score of the third card from the score of the fourth card, was 15. The error score was 144 points, calculated by multiplying the sum of the errors by 2 and adding the number of hesitations. On the basis of these results we can conclude that the case has a severe deficit in attention or attentional disorganisation.

Table No. 17: Results for the case (Q.N), third grade, primary level.

Cards	Number of Words Read	Percentage	Errors	Frequencies	Error Rate
01	49	98	00	01	38
02	40	90	10	00	
03	38	76	05	07	
04	50	100	00	00	
Degree of Interference	-12				

Quantitative and qualitative analysis of Table 17:

The case (Q.N) received the following scores in the five cards: In the first card, written in black ink, the individual scored 49 points. In the second card, which contained words of different colours with no semantic meaning, he scored 40 points. In the third card, which contained rectangles of the same colours as before, they scored 38 points, but they forgot a line of 5 rectangles. On the fourth card, they scored 50 points. The interference score, calculated by subtracting the score of the third card from the score of the fourth card, was -12. The error score was 38 points, calculated by multiplying the sum of the errors by 2 and adding the number of hesitations. On the basis of these results we can conclude that the case has a rather good level of attention.

Table No. 18: Results for the case (F.S.), fourth grade, elementary level.

Cards	Number of Words Read	Percentage	Errors	Frequencies	Error Rate
01	20	40	20	10	118
02	47	94	02	01	
03	49	98	01	00	
04	18	36	29	03	
Degree of Interference	31				

Quantitative and qualitative analysis of Table 18:

The case (F.S) scored less than 50 points on all five cards. In the first card, written in black ink, the individual scored 20 points. In the second card, which contained words of different colours with no semantic meaning, he scored 47 points. In the third card, which showed rectangles of the same colours as before, they scored 49 points. On the fourth card they scored 18 points. The interference score, calculated by subtracting the score of the third card from the score of the fourth card, was 31. The error score was 118 points, calculated by multiplying the sum of the errors by 2 and adding the number of hesitations. On the basis of these results we can conclude that the case has a severe deficit in attention or attentional disorganisation.

Discussion of the Stroop test results:

Cases	Attention Level	Attention Difficulty
Case 1 (LM)	93	Attention Deficit or Disruption
Case 2 (BC)	182	Attention Deficit or Disruption
Case 3 (HY)	108	Attention Deficit or Disruption
Case 4 (KR)	144	Attention Deficit or Disruption
Case 5 (QN)	38	Moderate Attention
Case 6 (FS)	118	Attention Deficit or Disruption

From the table it is clear that all six cases have attention difficulties, albeit to varying degrees. Cases 1, 2, 3, 4 and 6 show deficits or disorganisation in their attention, while case 5 scored 38 points, indicating somewhat good attention.

Statistical analysis:

Calculation of the Spearman correlation coefficient:

$$R = \frac{1-6\sum d^2}{N(n^2-1)}$$

X Writing Test Results	Y Selective Attention Test Results	Rank of X	Rank of Y	Difference (D)	Squared Difference (D ²)
48	93	3	2	1	1
51	182	5	6	-1	1
50	108	4	3	1	1
46	144	2	5	-3	9
43	38	1	1	0	0
60	118	6	4	2	4
				0	16

$$R = \frac{1-6\sum d^2}{N(n^2-1)}$$

0.54

Correlations

			Writing difficulties	Selective attention
Rho the Spearman		Correlation		
	VAR00003	coefficient	1,000	,543
		Sig. (bilateral)	.	,266
		N	6	6
		Correlation		
	VAR00004	coefficient	,543	1,000
	Sig. (bilateral)	,266	.	
	N	6	6	

Discussion of hypotheses:

After calculating the results of the writing test for Mariam Ben Bouzid and the results of the Stroop selective attention test using the Spearman correlation coefficient, a value of 0.54 was obtained. From this we can conclude that the first hypothesis, which states that there is a moderate positive correlation of 0.54 (not statistically significant at the 0.26 significance level) between selective attention and writing difficulties in primary school children, is supported. However, the small sample size limits the statistical significance.

The second hypothesis, that there are writing difficulties among primary school students in Years 3 and 4, is supported as all the writing test results were weak.

The third hypothesis, suggesting the presence of selective attention difficulties among third and fourth graders, was also confirmed. The results of the Stroop test indicate that all cases showed attentional difficulties or attentional disorganisation, except for case 5 who showed somewhat good attention.

Conclusion:

In conclusion, most researchers confirm that developmental learning difficulties have a significant impact on academic learning difficulties such as reading, writing, mathematics and other sciences, and there is a significant correlation between them. In this study, based on the above findings, the researcher concludes that

- Due to the small sample size, there is a moderate positive correlation (not statistically significant at the 0.26 significance level) between selective attention and writing difficulties in primary school children.
- Attention difficulties lead to deficits in oral and written language.
- Writing difficulties are caused by various cognitive, physiological, psychological and social factors.

Suggestions for further research and intervention include

- Applying the study to a larger sample of primary school children.
- Investigating writing difficulties together with cognitive processes such as perception, memory, reasoning and problem solving.
- Suggesting therapeutic programmes for writing difficulties, especially for learning difficulties in general.

References:

In Arabic:

1. Hussein Mohammed Abu Riash. (2007). Cognitive learning. 1st edition. Dar Al-Masira for Publishing, Distribution and Printing. Amman, Jordan.
2. Al-Ziyat, Fathi. (2008). Learning difficulties: Instructional Strategies and Therapeutic Approaches. 1st edition. Publishers for Universities. Cairo, Egypt.
3. Adnan Youssef Al-Atoum. (2016). Cognitive Psychology: Theory and Application. Dar Al-Masira for Publishing, Distribution and Printing. Amman, Jordan.
4. Mona Ibrahim Al-Laboudi. (2005). Reading and Writing Difficulties: Diagnosis and Treatment Strategies. Zahraa Al-Sharq Library, 1st edition. Cairo, Egypt.
5. Suleiman Abdulwahid Ibrahim. (2011). Developmental learning disabilities and their impact on reading, writing and mathematics. Itrik Library for Printing and Publishing. Cairo, Egypt.

In English:

1. Das, J. (1996). Mental retardation and assessment of cognitive processes: Manual of Diagnosis and Practice in Mental Retardation. Washington D.C. (115).