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An Investigation of Transcription and Handwriting in the Performance of Kurdish EFL School-Aged Learners with (out) SLDs

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Abstract

A Specific Learning Disorder (SLD) affects a learner's handwriting ability and fine motor skills which is essential for learning the writing of any language including English as a Foreign Language (EFL). Learners with SLDs are characterized by poor writing skills. The aim of study is to find the significance of differences between normal learners and those who suffer from SLDs in terms of their performance in the area of transcription and handwriting including writing style, size, and shape of letters, writing on straight lines, usage of the upper and lower case, punctuation marks, spaces between words, page layout, and letter joins. The study is based on the hypothesis that there is no significant difference between learners with SLDs and learners without SLDs in transcription and handwriting skills. To achieve the study aims, and verify its hypothesis, a sample comprising thirty-four learners seventeen normal, and seventeen with SLDs studying EFL in the 7th, 8th, and 9th grade, has been selected to participate in a writing test constructed for the study purpose. The study concludes that there is a significant difference between the performance of normal learners and those who suffer from SLDs in the examined area.

1. Introduction

Writing is one of the four basic language skills, alongside listening, speaking and reading. It is "an extremely complex cognitive activity in which the writer is required to demonstrate control of variables simultaneously. At sentence level, these include control of contents, format,

sentence structure, vocabulary, spelling and letter formation. Beyond the sentence, the writer must be able to structure and integrate information into a cohesive and coherent paragraph and text."(Nunan, 1991). Writing is using printed symbols in the form of letters or visual symbols that form words. Words are

formed into sentences, broken down into larger paragraphs, and are often divided into different discourse types (narrative, explanatory, persuasive, poetic, etc.).

Generally, writing requires the following abilities:

a. Writing procedure. This includes the capability of prewriting, planning, organizing, re-writing, redirecting, editing a written text, and reaching the text's purpose.

b. Written product. This is writing's final product; it can be examined at word level (word choice and spelling), sentence level (grammar and complexity), and text level (discourse structure, use of cohesive devices and coherence), (Nelson, 2014a; Puranik, Lombardino, & Altmann, 2007; Scott & Windsor, 2000, cited from ASHA, 2021).

Learning to write in English is complex; therefore, spelling reformers argue that the English writing system is illogical. The relationship between letters and sounds is not one-to-one. The English alphabet contains only 26 letters, which correspond to 44 phonemes related to 102 functional spelling units (Chomsky and Halle, 1968).

Learning to write in every system of writing requires mastering the physical aspects of writing, including the formation of letters, punctuation, spacing, 'spelling, grammar, syntax and mechanics of writing. A broad set of executive functioning skills is also required to be a professional writer, such as organization, focus, attention to detail, and sustained effect' (Franklin, 2018).

During school years, writing has a pivotal role in academic activities. Learners need fluent and clear handwriting to take notes, write homework and take exams. When transcription skills are not automatic, learners need to focus their time and cognitive energy on basic writing

skills related to handwriting, spelling, as well as grammar rather than more complex skills such as planning, organization, and revision. Consequently, learners' self-perceptions may be affected by the quality of their handwriting. When students with SLD enter middle and high school, their essays are typically shorter, less organized, with less vocabulary, and of lower quality as compared to their peers who have no learning disabilities (PBC, 2011).

Barriers to writing process have been discussed since Ogle (1867). In the early beginning of the 20th century, Goldstein (1948), Head (1926), and others discussed the associations and disassociations between written and oral expression, but it was generally accepted that writing depends on verbal and spoken expression. So, there must be similar neural correlates. However, this assumption has not been held over time (Fletcher et al., 2007).

In American Psychiatric Association (2013), writing disorder is used for individuals who struggle with spelling accuracy, grammar and punctuation accuracy, and clarity with organization of written expression.

2. Writing Difficulties

According to Schumaker & Deschler (2003), writing difficulties exist at two levels: (1) transcription which includes handwriting, spelling, punctuation, grammar, and (2) expressive writing which includes the ability to generate ideas and plans, organizing and revising ideas to convey meaning in a written product).

Students with SLDs often plan or revise less when writing (Graham et al., 1991). They concentrate most of their planning efforts on producing ideas as they write. They focus most on changing one word to another and fixing mechanical errors compared to skilled writers

who spend half or more of their time planning and revising their writing (Gould, 1980).

The terms dysgraphia and agraphia are used with individuals suffering from writing disorders. Dysgraphia is generally described as: A specific learning disability diagnosed in childhood affects a person's handwriting ability and fine motor skills. It is characterized by poor writing skills significantly below the child's age, intelligence, and education and causes problems with the child's academic success or other essential areas of life. Dysgraphia is also sometimes referred to as spelling disorder and spelling dyslexia. Problems may include illegible handwriting, inconsistent spacing, poor spatial planning on paper, poor spelling, and errors in grammar, punctuation, and poor handwriting. The children find difficulty composing writing as well as thinking and writing at the same time (Misciagna, 2022)

The term dysgraphia is used to denote a written language disorder in childhood rather than a written language disorder acquired in adulthood, which is often referred to as agraphia. Dysgraphia refers to incorrect writing, and agraphia refers to lack of writing, but current clinical use reserves a-prefix for acquired adult disorders such as aphasia and dyslexia, while dys-prefix is the corresponding child condition (e.g. dyslexia). Agraphia is a medical term for an individual who suffers from writing due to a medical condition. "Acquired (adult) agraphia is generally found, together with aphasia and alexia, after left-hemisphere middle cerebral artery infarction" (Deuel, 1995, p.56).

3. Affected Writing Skills

The process of writing requires two primary skills: transcription and generation. Students with writing disorders may struggle with one or both of these areas (Taymans, 2010). Following

is the summary of the skill area affected by types of writing disability due to a specific writing skill deficit.

3.1. Transcription

Transcription of writing comprises the production of letters (handwriting) and spelling, which are necessary to translate ideas into a written product. Transcription is the construction of letters and spelling required for written products. Transcription mainly depends on the processes involved in letterforms, retrieving and spelling known words in long-term memory, strategically remembering spelling forms, novel words and supervising plans to create letters and words (Taymans, 2010).

3.2. Handwriting

Handwriting is an essential form of communication that can express and record students' ideas throughout their educational careers. It is an essential skill as learners spend up to 60% of their school time writing (McHale, Cermak 1992). Handwriting or "language by hand" as Berninger and Graham (1998) call it, is more than just a motor activity.

A student's ability to write clearly, quickly and efficiently empowers him to achieve efficient written communication and academic improvement (Tseng, & Hsueh, 1997). Graham, Weintraub, & Berninger, (2001) confirm that the automaticity of retrieving and forming letters, the rapid encoding of spelling information, and the speed of continual finger movements are the best predictors of handwriting ability. Handwriting automaticity generates composition fluency and quality for any writing piece. It is a complex sensorimotor task requiring attention, perception, fine motor skills, and linguistics skills.

Generally, handwriting acquisition starts at age five (kindergarten), and it takes about a decade

of practice to achieve complete automation. During this time handwriting develops at both qualities as well as speed level. It first develops at a quality level (from first to fifth grade) and then at the speed level (handwriting speed mainly starts in fourth grade). Despite good teaching, 5% to 10% of children never achieve appropriate handwriting automation; these writing difficulties are called dysgraphia. Handwriting disability can seriously impact children's behavioral and academic development as they encounter difficulties with automating handwriting, leading to increased cognitive performance fatigue (Gargot, et al. (2020). A student with handwriting difficulty is challenging for the readers to read their writing piece.

Handwriting is the practice of retrieving certain forms of letters from memory and then putting them in writing. Individuals must recall memory and use fine motor skills in forming cursive (script) or printed (manuscript) letters. Learners with writing disabilities suffer from remembering and generating these letters' shapes. (Christensen, 2005). To write, one has to know the letters first, then memorize how the letters are formed, and finally use motor skills to produce each letter in turn. It becomes very stressful when a person forgets how to write certain letters during a writing task. If the process of writing does not happen automatically, writers tend to devote their mental energies to the act of writing rather than to the message they want to convey. These basic handwriting problems negatively impact the length and quality of work by writers of all ages (Taymans, 2010).

4. Characteristics of Writing Disorder

A writing disorder affects writers to organize and generate ideas using proper sequence, detail, sentence structure, and literary form for

writing. For International Dyslexia Association (IDA, 2015), the main symptoms of writing disorder are as follows:

1. Reversing the direction of the letters.
2. Flipping the letters along the horizontal axis so that the letters look upside down.
3. Transposition of letters (the letters in a word are in the wrong sequence). These errors are symptoms rather than causes of handwriting problems.

[Wawryk-Epp, Lynne](#), and [Saskatchewan](#) (2004); [Misciagna](#) (2022) add some other indicators that allow recognizing students with the writing disorder:

1. Avoiding written activities; challenging with basic written tasks, such as taking notes.
2. Writing few words or sentences at a time while other pupils are finalizing several paragraphs.
3. Extreme difficulties in generating a text and poor written work (e.g., poor paragraph organization).
4. Various technical mistakes in grammar, punctuation, spacing, spelling, word usage, sentence construction, and paragraph organization are detected.
5. Repeatedly omitting words in sentences and producing unfinished sentences.
6. Confusing letters or sounds that are similar (e.g., "jumpt" for "jumped").
7. Using non-permissible letter strings constantly (e.g., "egszakt" for "exact"; discuss/diskus; "freeeqwnt" for "frequent").
8. Page positioning inconsistency in terms of lines and margins.
9. Odd grip, such as holding thumb over two fingers, writing from the wrist, or holding the pen very near the paper.

5. Methodology

To achieve the aim of this study, a qualitative methodological approaches is adopted. This approach is performed through assessing learners with SLDs and comparing them with their normal counterparts in the same years of study to find out how far they difference is statistically significant.

The selected sample of learners consists of (34) Kurdish EFL learners (17 with SLDs, and 17 normal) at British International School- Erbil, and British International School- Sulaimanyah during the academic year 2022-2023. The learners have been selected from three grades 7th, 8th, and 9th.

To measure the learner's performance, a test has been constructed by the researchers. The test requires the pupils in each grade to write a paragraph on a certain topic (see Appendix A). The test items have been piloted before implanting them in two ways. Firstly, they have been sent to (10) English-language and psychology specialists. Hughes (2003) believes that, for validity, comparing test content is the base for judgments. These judgments should be carried out by an expert who is not directly part of the production of the question test and is familiar with language testing and teaching. Secondly, an instrumental test has been exposed to 10 EFL slow learners, who have been selected intentionally, to examine the reliability and analyzability of the data. For finding the overall results of learners' performance in each grade, and for comparing learners with SLDs and those without SLDs, SPSS software has been used.

5. 1. The Scoring System

For scoring the learners' responses, a scale ranging from (5 - 0) has been constructed by the researchers. Below is a brief account for the scale:

- (5) marks if the pupil writes very well. The letters he writes are of suitable size, consistent in form and shape. He writes on straight lines, uses the upper and lower case correctly, uses suitable punctuation marks, leaves suitable space between words, produces an appropriate page layout, has no problem with letter joins.

- (4) marks if the pupil writes almost well. The letters he writes are almost of suitable size, consistent in form and shape. He often writes on straight lines, uses the upper and lower case correctly, uses suitable punctuation marks, leaves suitable space between words, produces an appropriate page layout, and has no problem with letter joins.

- (3) marks if the pupil writes rather well. The letters he writes are rather of suitable size, consistent in form and shape. He considerably writes on straight lines, uses the upper and lower case correctly, uses suitable punctuation marks, leaves suitable space between words, produces an appropriate page layout, and has some problem with letter joins.

- (2) marks if the pupil writes badly. The letters he writes are rarely of suitable size, consistent in form and shape. He rarely writes on straight lines, uses the upper and lower case correctly, uses suitable punctuation marks, leaves suitable space between words, produces an appropriate page layout, and has a serious problem with letter joins.

- (1) mark if the pupil writes very badly. The letters he writes are y of unsuitable size, inconsistent in form and shape. He very rarely writes on straight lines, uses the upper and lower case correctly, uses suitable punctuation marks, leaves suitable space between words, produces an appropriate page layout, and has a serious problem with letter joins.

- (zero) if the pupil is completely unable to write letters of suitable size, inconsistent in form and

shape. He never writes on straight lines, uses the upper and lower case correctly, uses suitable punctuation marks, leaves suitable space between words, produces an appropriate page layout, and has a very serious problem with letter joins.

6. Data Analysis

6.1 Analysis of Transcription and Handwriting in the Performance of 7th Grade Pupils

The participants representing 7th grade consist of (10) pupils: 5 normal, and (5) pupils with SLD. A significance level of $\alpha = 0.05$ has been chosen to assess the statistical significance of the results. The critical t-value would be ± 2.306 accordingly, the determined critical t-value or p-value would be ± 2.306 .

According to the analysis of the data, the mean score of pupils with SLDs is (1.6) with a SD of (0.89), while the mean score of pupils without SLDs is (4.2) with a SD of (0.83). The SD of students with SLDs indicate a more considerable variability around the mean, while the SD of normal pupils indicate the consistency scores around the mean.

The t-test result is (-4.47) which is outside the range of critical t-value (± 2.306). The p-value calculated for the t-test is (0.0001), confirming that the difference in means between both groups is statistically significant. Consequently, there is evidence to reject the null hypothesis.

Drawing from the data provided, it can be inferred that there is a statistically significant difference between the means and SDs of students with SLDs and students without SLDs. The data analysis indicates that Students without SLDs performs significantly better than students with SLDs in the variable being measured.

Table (1) Mean, t-value, and SD of 7th grade pupils with SLD in transcription and handwriting

Examined Area Transcription & Handwriting	Pupils' Scores				Statistical Indication		
	Case No.	1 st Scorer	2 nd Scorer	Average	SD	Mean	T-Value
Writing style, size and shape of letters, writing on straight lines, usage of the upper and lower case, punctuation marks, space between words, page layout, and letter joins.	1	1	2	1.5	0.89	1.6	-4.47
	2	2	2	2			
	3	0	0	0			
	4	2	2	2			
	5	2	2	2			

Table (2) Mean, t-value, and SD of 7th grade normal pupils in Transcription and Handwriting

Examined Area Transcription & handwriting	Pupils' Scores				Statistical Indication		
	Case No.	1 st Scorer	2 nd Scorer	Average	SD	Mean	T-Value
Writing style, size and shape of letters, writing on straight lines, usage of the upper and lower case, punctuation marks, space between words, page layout, and letter joins.	1	4	4	4	0.83	4.2	-4.175
	2	5	5	5			
	3	5	5	5			
	4	4	4	4			
	5	3	3	3			

6.2 Analysis of Transcription and Handwriting in the Performance of 8th Grade Pupils

The sample of learners in this grade consists of (8) Kurdish EFL pupils: (4) with SLDs, and (4) without SLDs.

A significance level of $\alpha = 0.05$ has been chosen to assess the statistical significance of the results. Assuming the degree of freedom (df) is ≈ 6 (4 + 4 - 2), the determined critical t-value is ± 2.447 .

The mean score of pupils in the SLD group is (2), whereas the mean score of pupils without SLDs is (4.25). The p-value calculated for the t-test is (0.0001), confirming that the difference in means between both groups is statistically significant. The SD in the SLD group is (0.81) indicating a more considerable variability around the mean, while the SD of pupils without SLD is (0.50) proposing consistency scores around the mean.

The t-test result is (-4.70) which falls outside the range of the critical t-value (± 2.447). Thus the first (H0) hypothesis is disproved and the (H1) is approved.

Based on these pieces of evidence, the final analysis leads to the conclusion that there is a significant difference between students with SLDs and those without SLDs in transcription and handwriting.

Table (3) Mean, t-value, and SD of 8th grade pupils with SLD in Transcription and Handwriting

Examined Area Transcription & Handwriting	Students Score				Statistical Indication		
	Case No.	1 st Scorer	2 nd Scorer	Average	SD	Mean	T-value
Writing style, size and shape of letters, writing on straight lines, usage of the upper and lower case, punctuation marks, space between words, page layout, and letter joins.	1	2	2	2	0.81	2	-4.70
	2	3	3	3			
	3	2	2	2			
	4	1	1	1			

Table (4) Mean, t-value, and SD of 8th normal grade pupils in transcription and handwriting

Examined Area Transcription & Handwriting	Pupils' Scores				Statistical Indication		
	Case No.	1 st Scorer	2 nd Scorer	Average	SD	Mean	T-Value
Writing style, size and shape of letters, writing on straight lines, usage of the upper and lower case, punctuation marks, space between words, page layout, and letter joins.	1	4	4	4	0.50	4.25	-4.70
	2	5	5	5			
	3	4	4	4			
	4	4	4	4			

6.3. Analysis of Transcription and Handwriting in the Performance of 9th Grade Pupils

The sample of learners in this grade consists of (16) pupils: (8) with SLDs, and (8) without SLDs. Again, for assessing the statistical significance of the results a significance level of $\alpha = 0.05$ has been chosen accordingly the determined critical t-value would be ± 2.145 .

The mean score of pupils with SLDs is (2.25) with a SD of (0.88) signifying a more considerable variability around the mean. On the other hand, the mean score of pupils without SLDs is (4) with a SD of (0.75) indicating a consistency scores around the mean. The t-test value is (-4.24) which is outside the range of p-value (± 2.306). The p-value calculated for the

t-test is (0.0001) confirming that the difference in means between both groups is statistically significant.

Accordingly, it can be concluded that there is a significant difference between students with SLDs and those without SLDs in transcription and handwriting. The data analysis indicates that Students without SLDs performs significantly better than students with SLDs in the variable being measured.

Table (5) Mean, t-value, and SD of 9th grade pupils with SLD in transcription and handwriting

Examined Area in Transcription & Handwriting	Pupils' Score				Statistical Indication		
	Case No.	1 st Scorer	2 nd Scorer	Average	SD	Mean	T-value
Writing style, size and shape of letters, writing on straight lines, usage of the upper and lower case, punctuation marks, space between words, page layout, and letter joins.	1	2	2	2	0.88	2.25	-4.24
	2	1	1	1			
	3	3	3	3			
	4	3	3	3			
	5	1	1	1			
	6	2	2	2			
	7	3	3	3			
	8	3	3	3			

Table (6) Mean, t-value, and SD of 9th grade normal pupils in transcription and handwriting

Examined Area Transcription & Handwriting	Pupils' Scores				Statistical Indication		
	Case No.	1 st Scorer	2 nd Scorer	Average	SD	Mean	T-value
Writing style, size and shape of letters, writing on straight lines, usage of the upper and lower case, punctuation marks, space between words, page layout, and letter joins.	1	3	3	3	0.75	4	-4.24
	2	4	4	4			
	3	5	5	5			
	4	4	4	4			
	5	4	4	4			
	6	3	3	3			
	7	5	5	5			
	8	4	4	4			

The mean score, SD, and T-value of both groups' general performance in the three years can be summarized in the table below:

Table (7) mean score, SD, and T-value of the general performance of pupils with and without SLD in the 7th, 8th, and 9th grades.

Group	Students No.	SD	Mean	T-value
With SLDs	17	0.893	1.980	-10.33
Without SLDs	17	0.487	4.529	

Table (7) shows a statistical significant difference between the mean of pupils with SLDs and those without SLDs in transcription and handwriting. The mean of students' scores with SLDs group (1.980) is less than the mean score of those without SLDs group (4.529). The critical t-value for a two-tailed test with $\alpha = 0.05$ and $df = 32$ is ± 2.036 which falls outside the range of the critical t-value. The p-value calculated for the t-test is (0.0001) which confirms that the difference in means between both groups is statistically significant

7. Conclusions

The findings of this study lead to the conclusion that there is a significant difference between learners with SLDs and those without SLDs in the three grades: 7th, 8th, and 9th. The performance of learners with SLDs is significantly lower compared to the performance of learners without SLDs in all the skills of transcription and handwriting including writing style, size and shape of letters, writing on straight lines, usage of the upper and lower case, punctuation marks, space between words, page layout, and letter joins. Accordingly, the null hypothesis adopted in the study at $\alpha = 0.05$ significance level is rejected. The analysis demonstrates that these findings can be regarded as a broad basis for diagnosing Kurd EFL students with writing learning disorders.

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Appendix (A)

The test exposed to 7th grade pupils

Q3. Write a profile of yourself. Describe your family members, place and time of your birth, the languages you speak, etc.

Appendix (B)

The test exposed to 8th grade pupils

Q3. Write passage about your country or city. Tell where it is situated, how many languages are spoken there, the foreign vocabulary found in your language like English, Arabic, etc., the official language in your country or city, the language of education in schools, etc.

Appendix (C)

The test exposed to 9th grade pupils

Q3. Write a paragraph about a strike you once saw on TV or in realty. Say who were on strike, where, when, and why. Describe how the protesters marched and the expressions they were saying. Finally, tell what happened at the end.