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\*Corresponding author  
Chalak Ali Mohammed Ameen  
[chalak.ali@chu.edu.iq](mailto:chalak.ali@chu.edu.iq)

# The Effect of Handwriting on Developing Kurdish Undergraduate EFL Students' Descriptive Paragraph Writing

**Almas Nasradeen Abdulrahman**/English Department, College of Education, Charmo University, Kurdistan Region, Iraq

**Chalak Ali Mohammed Ameen**/ English Department, College of Education, Charmo University, Kurdistan Region, Iraq

**Khelan Mohammed Salih Mahmood**/English Department, College of Education, Charmo University, Kurdistan Region, Iraq

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## Abstract

Writing is considered one of the most essential skills that EFL students need for communication in academia and their future professions. However, it is deemed challenging by various scholars in the field of teaching and learning. The current study aims to find out the effect of utilizing the handwriting (re-writing) technique on developing Kurdish EFL students' descriptive paragraph writing. The sample of the study consists of 66 students who are divided into two groups of 33 students each. One group is assigned as a control group that is taught conventionally, while the second group is assigned as an experimental group in which, along with the module content, participants are required to handwrite extra supplemental materials such as reading comprehension passages and short stories as weekly homework. A mixed-methods approach has been utilized to gather the required data namely pre- and post-tests and a focus group interview. Moreover, descriptive and inferential statistics were used via utilizing Statistical Package for the Social Sciences (SPSS) to analyze the data gathered from the pre- and post-tests. In addition, the focus group interview results have been analyzed thematically. The results of the post-tests clearly show that by the end of the semester, the experimental group students outperformed their counterparts in the control group in writing descriptive paragraphs (p. value .000). Along this, the focus group interview results support the post-tests results' findings and confirm the positive impact of handwriting integration on enhancing the Kurdish EFL students' descriptive paragraph writing performance. Furthermore, the focus group interview results further indicate that handwriting integration enhanced the Kurdish EFL students' autonomy and self-reliance in writing.



## About the Journal

Zanco Journal of Humanity Sciences (ZJHS) is an international, multi-disciplinary, peer-reviewed, double-blind and open-access journal that enhances research in all fields of basic and applied sciences through the publication of high-quality articles that describe significant and novel works; and advance knowledge in a diversity of scientific fields. <https://zancojournal.su.edu.krd/index.php/JAHS/about>

## 1. Introduction

It is evident that language is divided into four major skills namely listening, speaking, reading and writing and each of these skills has its own significance in academic pursuit and future careers. Among the four skills, writing skill is considered of high vitality in various disciplines of life, including education and higher education. Developing students' writing skill, including EFL students, is a major aim of many institutions since it has a paramount role in academic and outside world success. Improving EFL students' writing skill performance, including descriptive paragraph writing which is the focus of the current study, is classed as challenging and difficult by various writers and scholars who work in the field of writing (Aydogan, 2014; Chicho, 2022; Alfaruqy, 2022). Further, in Mohammed Ameen and Muhammad's (2023) views, language skill is not only difficult for students to learn; rather it is difficult for teachers to teach. Writing difficulty could stem from the fact that students, while writing, not only need to write letters and words; rather they need ideas and organization of sentences and paragraphs (Richard and Renandiyah, 2002). In Nunan's point of view, writing is challenging for EFL students as they need to write "a coherent, fluent, and extended piece of writing" in a foreign language (1999:271). Furthermore, in Miftah's (2015:9) perspectives, "writing is not a favorite course neither for students, nor for lecturers". Hence, writing is challenging and has difficulties for both, students and teachers alike.

To enhance EFL students' writing skills, teachers have implemented various techniques and strategies, one of which is the handwriting (rewriting) technique that the current study focuses on. Regarding the influence of handwriting on enhancing Kurdish EFL students' descriptive paragraph writing skill performance, to the best of the researchers' knowledge, this topic is understudied in the Kurdistan Region of Iraq context and neighboring countries. Thus, it can be stated that the topic has originality and is an attempt to address the gap in the existing literature regarding this matter.

### Research Questions:

The current study is seeking to answer the following research questions:

- 1- What is the effect of handwriting on enhancing Kurdish EFL students' descriptive paragraph writing?
- 2- What is the effect of handwriting on enhancing Kurdish EFL students' autonomy and self-reliance in writing paragraphs?

## 2. Literature Review

Undoubtedly, writing plays a vital role in students' success in academia and opens numerous doors to obtain decent careers in their future lives. In Walsh's views (2010) writing is of paramount significance for students in higher education and workplace alike since it allows for professional communication, writing clear emails, interviews and reports.

### Definition of Key Terms:

#### - Descriptive Paragraph:

A descriptive paragraph is defined as a short piece of writing that usually describes people, objects, places and experiences through utilizing vibrant vocabulary, sensory words, and adequate adjectives to create a mental image in the readers' mind. A descriptive paragraph is deemed vital for EFL students since it assists them in terms of vocabulary expansion, sentence variety, coherence, and encourages students to show creativity in their writings (Zemach and Rumisek, 2003; Hyland, 2003; Oshima and Hogue, 2007).

#### - Learner Autonomy:

Learner autonomy is defined as the students' abilities to take responsibility of their own learning including setting goals, choosing appropriate methods and techniques and evaluating their progress in language acquisition (Holec, 1981).

#### - Handwriting

Handwriting is defined as a technique that teachers require their students to handwrite (rewrite) texts (reading comprehension texts, short stories and so on) manually, usually as homework, aiming

at developing the students' writing fluency and proficiency. Simply, handwriting is defined as a method of presenting symbols, letters and textual forms via using pens, pencils, papers and boards (Mangen et al., 2015). While handwriting, the handwriter first visually gazes the shapes and sizes of the letters (Longcamp et al., 2005); and then moves hands to put the text down (Pepe et al., 2012). Moreover, it is believed that handwriting activates deeper learning that supports students' learning in relation to cognitive processing, spelling and language retention (James and Engelhardt, 2012). Further, handwriting involves dealing with multiple processes simultaneously such as vision, touch and proprioception (Fogassi and Gallese, 2004). In addition, handwriting is not only a motor process that one's hand is moving and handwriting a text; rather it is a complex task that involves both mental functions and motor functions (Kellogg, 1996). In other words, while handwriting, the mental function plans words, sentences and ideas while the motor function moves the hand and fingers to form letters and words. Thus, handwriting is a cognitive process alongside a physical movement process.

### **Handwriting Marginalization**

In the past few decades, writing by hand was somehow overlooked in Kurdistan Region of Iraq (KRI) which is the context of the current study. In Kurdistan education context even national examinations do not require students to express themselves in writing subjectively. Rather, the students are required to answer mostly multiple choice questions (objective questions) which do not need subjective writing. Consequently, after completing high school, many students join university without having a good level of writing skill performance including ideas, spelling, punctuation, and so on. This applies not only to English; rather it applies to writing in their mother tongue (Kurdish) as well. One major reason behind handwriting marginalization is considered to be the emergence of technology and digitalization. In some developed countries, classrooms are digitalized and the use of tablets and laptops for students' writings is widespread (Islam & Gronlund, 2016). Teachers do not require their students to re-write texts and exercises as homework. This causes students not to have neat and easily understood handwritings which may harm the students while their test papers are rated by their teachers. Thus, handwriting negligence is considered harmful by many scholars in the field of education; and consequently this issue needs further consideration by teachers and educators.

### **Significance of Handwriting**

Handwriting is considered by various scholars as pre-requisite for enhancing students' writing skill. In this regard, providing students with extra supplementary handwriting is viewed essential for enhancing poor handwriters' writing performance (Berninger et al. 1997; Jones and Christenen, 1999). Aligning with this, it has been reported that students with extra supplemental handwritings gain greater in their composition writing and consequently in examinations (Graham et al., 2000). Furthermore, Zhou and Li (2018) highlight that practicing handwriting consistently scaffolds and reinforces vocabulary learning and overall language acquisition. Handwriting is also advantageous in relation to word recognition and memory activation (Wiley and Rapp, 2021; Zemlock et al., 2018). Besides, comparing to other methods of learning and information retention such as visual learning, handwriting leads to better achievement and outcomes (Longcamp et al., 2005; Kiefer et al., 2015) since it involves multiple senses including visual, tactile and kinesthetic senses (Ying et al., 2024). Interestingly, brain imaging technique obviously illustrated that handwriting activates areas in brain which are associated with sensorimotor skill (Chen et al., 2002). Additionally, comparing handwriting to keyboarding, it is reported that school children writing by hand produce better quality compositions compared to keyboard writing (Spilling et al., 2023). In other studies, students wrote longer (Berninger et al., 2009), and faster texts (Connelly et al., 2007) and better quality texts in terms of capitalization, punctuation and grammar (Read, 2007) compared to students typing on computers. Thus, due to the numerous advantages of handwriting, the handwriting technique should be focused upon again by writing module teachers in schools and higher education institutions.

### **Cognitive and Psychomotor Theories of Handwriting**

Handwriting is considered a multidimensional and complicated skill, which involves mental and motor functions. Kellogg (1996) pointed out that when one writes, fine motor control, visual-motor coordination and cognitive processes are complexly involved including planning, memory retrieval, and visual-spatial reasoning. This view indicates that handwriting is not only a motor process but also a process that is highly dependent on the mental process that influences the process of performing and organizing written symbols. Berninger and Swanson (1994) also stress that handwriting involves the elements of linguistic processing, such as letter-formation, spelling, phonological awareness and orthographic information.

### **Automaticity and its Role in Writing Efficiency**

Automaticity of handwriting is the fast, smooth and painless performance of letter formation and writing movements (Kellogg, 1996). Handwriting becoming automatic reduces the amount of cognitive load needed in the direct physical act of writing and therefore enables writers to allot more mental resources to other higher-order writing tasks such as idea generation, organization and style choice (Graham and Weintraub, 1996). This drop in the cognitive load is vital in writing because it allows writers to concentrate on meaning of the writing, instead of the mechanics. Berninger and Swanson (1994) affirm that automaticity development is a central determinant of fluency of writing and the composition quality in general. Also, automatic handwriting makes the process of writing easier to perform since it eliminates fatigue and makes it faster, easier and less cumbersome to create. Therefore, developing automaticity by means of specific teaching and drills can be regarded as a main objective in the course of handwriting education to promote the general writing growth of students.

### **Theoretical Models of Handwriting and Writing Performance Relationship**

A number of theoretical approaches have highlighted the importance of writing by hand as a basis to successful written expression. Concisely, Graham and Harris (2000) postulate that automatic handwriting skills can ensure a smooth transition between the idea-generation phase and the generation of coherent written text by learners. They also state that fluent handwriting frees the cognitive resources occupied by mechanical factors to writers so that they can concentrate on structuring and elaborating their content. The empirical data given by Berninger et al. (1997) reveal that, children with more automatized and legible handwriting perform better in producing better writings indicating that there is a direct positive correlation between fluency in handwriting and writing performance. This association is further supported by the Cognitive Process Model of writing (Hayes and Flower, 1980) whose premise relies on the argument that transcription skills, which include handwriting, are the base processes on which the higher-level cognitive processes of planning, drafting, and revision are based. All these models point to the fact that, effective writing and development of literacy requires sufficient transcription skills, in particular, fluency in handwriting, that affect the quality and efficiency of written communication.

### **Previous Studies**

A number of studies discussed the advantages and impact of handwriting in relation to various disciplines, including second/foreign language learning. A few of these studies are summarized below.

Mohseni et al. (2015) conducted a study in Iran on the impact of handwriting on enhancing students' writing speed and the rate of mistakes made by students. Their results demonstrated that those students who practiced handwriting regularly wrote faster with fewer mistakes. This led to their overall writing skill development and performance. Moreover, Almarwaey (2023) conducted another study in Saudi Arabia on the impact of read-write-rewrite technique on enhancing the students' writing performance. Almarwaey divided his students into experimental and control group students. His results showed that experimental group students who were taught via read-write-rewrite technique did significantly better than their counterparts in the control group in terms of the

writing skill development and taking ownership (autonomy) of their learning. In addition, Spilling et al. (2023) conducted a research in Norway comparing school pupils' writing by hand to typing on computers in 10 different schools (90 students in 5 schools for writing by hand and another 91 students in five other schools for typing on computers). The study continued for eight months. The participants were required to write narrative compositions at five different time points. The results showed that students in the handwriting group did better than the digital group who were typing on computers in terms of spelling and spacing. Furthermore, Ying et al. (2024) conducted another study in China comparing the impact of handwriting to visual learning on developing EFL students' abilities concerning vocabulary, sound and meaning. Their results demonstrated that the experimental group students surpassed the control group in the visual learning group concerning vocabulary accuracy, sounds and meaning.

Conversely, a few studies on effectiveness of handwriting did not yield promising results comparing to other methods of learning. As such, Mangen et al. (2015) compared EFL students' handwriting to typing on computers. His results showed that handwriting group students' became faster writers; however, this speed increase did not affect the experimental group students' quality of writing positively compared to those typing on computers.

While the previous studies mostly studied the impact of handwriting on developing the EFL students' writing skill in general, the current study focuses on a specific type of paragraph, that is descriptive paragraph. This is a point that has not been studied before to the best of the researchers' knowledge. Besides, a gap was detected in existing literature, specifically in Kurdistan context, that the impact of handwriting on developing Kurdish EFL students' writing skill has not been dealt with before. Thus, the current study attempts to address and fill in that gap, which is considered a good contribution to the field.

### **3. Methodology and Data Collection**

In order to gather appropriate data for the current study, two tools of data collection were utilized, namely pre- and post-tests and a focus group interview. So, qualitative and quantitative methods of data collection have been utilized. In Kumar's views (2014), while using a mixed-methods approach, one method compensates for the weaknesses of the other method that may exist in data collection. Further, utilizing a mixed-methods approach leads to enhancing the quality of the data gathered and producing comprehensive findings (Dawadi et al., 2021).

#### **Participants of the Study**

The participants of the current study consisted of 66 first year (semester two) students from the English Department, College of Education, Charmo University in the Kurdistan Region of Iraq (KRI) in the academic year of 2024-2025. The students included both genders; 40 female and 26 male students. The students were already divided by the English department administrative staff into two groups of 33 students each. Prior to conducting the research, the participants' consent to participate in the data collection process was taken and they were informed that they can withdraw from it any time they want to do so.

#### **Procedure and Data Collection Tools**

The two groups of students were assigned as a control group and an experimental group by the researchers. These second-semester (year one) students study the 'Reading and Writing' Module, which includes paragraph writing as a core component. They are required to write paragraphs, including descriptive paragraphs, on a weekly basis and submit them to their instructor. To find out the effectiveness of handwriting texts by students, the experimental group students were required to handwrite (re-write) the reading comprehension passages from the textbook studied and a few short stories from outside the textbook as extra supplementary materials. Their handwritings were returned to the module instructor at the end of the week and she graded them focusing on mechanical errors, grammar, structure and idea. Consequently, the handwritings with the teacher's feedback were returned to the students to work on. All in all, both groups (control and experimental)

received identical content in the classroom, however, as mentioned earlier, experimental group students were required to handwrite texts as extra supplementary materials.

The first week of semester two, both groups took part in a pre-test which involved writing a descriptive paragraph on 'My Best Friend'. The reason behind specifically writing a descriptive paragraph was that the textbook studied gives a good amount of attention to descriptive paragraphs; hence, the students are familiarized with it. Both groups were taught the same content for the rest of the semester. In the fifteenth week of the semester, both groups had a post-test and wrote another descriptive paragraph on 'My Favorite Place to Visit'. Furthermore, in order to obtain reliability of scoring the post-test papers, apart from the module teacher (first researcher), an external examiner from University of Sulaimani also scored the test papers. Coefficient Cronbach's Alpha has been utilized to to obtain reliability of scoring in which both scorings were compared. In Weir's (2005) views, 80% or above is commonly considered acceptable for gaining inter-rater reliability. In the current study, the compatibility between the two raters was 87% which is quite acceptable.

Throughout the following 14 weeks, both groups were taught by the same teacher receiving identical content. However, experimental group students were required to handwrite texts as homework outside the classroom. Furthermore, the last week of the semester (week 15), six students from the experimental group were chosen randomly to participate in a focus group interview. All in all, they were asked seven open-ended questions which were related to the impact of handwriting integration on their paragraph writing performance in general including their paragraph structure, ideas, grammar spelling, and punctuation and so on. Besides, there was also a specific focus on using descriptive vocabulary (adjectives) in their paragraphs. In regard to scoring the paragraphs written, Perin and Lauterbach's (2018) holistic rubric was adapted. In addition, Weigle (2002), Hyland (2003) and Brown (2004) have been consulted for assessing and scoring the paragraphs written in the pre- and post-tests.

In relation to the validity of the focus group interview questions, the researchers designed seven questions, based on literature in the field, and sent them to four experts in applied linguistics for review. The experts checked the questions, requested changes and amendments, and returned them to the researchers. Consequently, the researchers made necessary corrections and changes accordingly

#### 4. Analyses of Results

##### Pre- and Post-tests Results

As mentioned earlier, the first week of the semester, both groups' students, control and experimental, took part in a pre-test which required the students to write a descriptive paragraph on 'My Best Friend'. An independent sample T-test was run to demonstrate the results of both groups.

Table 1: An Independent Sample T-test for Pre-test results of both groups

Group	N	Mean	Std. Deviation	P. Value
Controlled	33	36.8182	12.15648	.159
Experimental	33	33.6364	8.51562	

As table 1 tabulates, the control group students' mean score was 36.81% while the experimental group students' mean score was 33.63% which is a little lower than the control group's mean score. Hence, the T-test results evidently tabulate that at the start of the course there was not a significant difference between both groups' results (p. value .159) even though there was a little difference between them, but not at a significant level.

After passing 14 weeks and specifically in 15<sup>th</sup> week of the course, both groups took part in a post test-test which required them to write a descriptive paragraph on 'My Favorite Place to Visit'. Another paired sample T-test was run to demonstrate the progress of the control group which is shown below:

Table 2: A Paired Sample T-test for Controlled Group Results' Progress:

Group	Mean	N	Std. Deviation	P. Value
Controlled Pre-test	36.8182	33	12.15648	.038
Controlled Post-test	43.8636	33	15.69564	

The above results evidently demonstrate that the control group students improved their mean score from 36.81% to 43.86% (7.05 marks increase). The p. value also shows that the control group students made a significant difference (.038).

Likewise, another paired sample T-test was run to show the progress of the experimental group students which is shown in the table below:

Table 3: A Paired Sample T-test for Experimental Group Progress:

Group	Mean	N	Std. Deviation	P. Value
Experimental Pre-test	33.6364	33	8.51562	.000
Experimental Post-test	58.6818	33	13.38651	

Table three results tabulates that the experimental group students' improvement was significantly more than the control group since they developed from the mean score of 33.63 to 58.68 (25.05 marks increase). The results evidently demonstrate that the p.value of the experimental group students' results is highly significant (.000) which is more significant than the control group's p.value (.038).

Moreover, an independent sample T-test has been utilized to make a comparison between the progress of both groups and their results are tabulated below:

Table 4: Independent Sample T-tests Comparing both Groups' Progress

Group	N	Pre-test Mean	Post-test Mean	Std. Deviation	P. Value
Controlled Group Pre and Post-tests Results	33	36.8182	43.8636	15.69564	.000
Experimental Group Pre- and Post-tests Results	33	33.6364	58.6818	13.38651	

Table 4 results clearly demonstrate that experimental group students surpassed their counterparts in the control group significantly with the significance of .000 which is statistically a high level of significance.

For further clarification of both groups' progress, the following figure demonstrates both groups' results in a column chart. The results clearly tabulate that control group students progressed from 36.8182% to 43.8636% (7.05% increase) while the experimental group students progressed from 33.6364% to 58.6818% (25.05%).

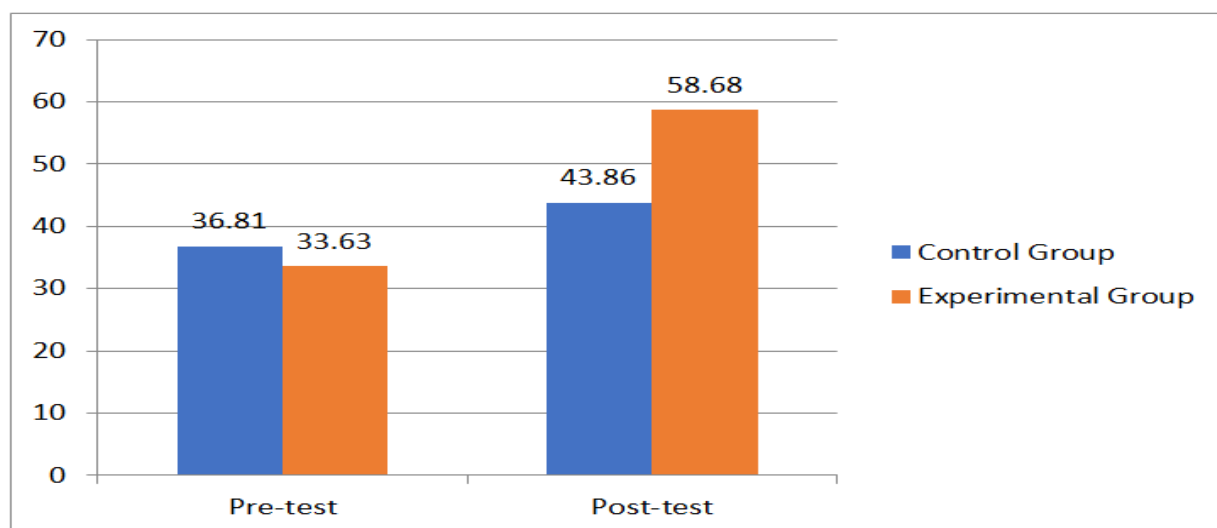


Figure 1: Both Groups' Progress

As mentioned in the methodology sections, the holistic rubric utilized assessed the students' paragraphs on 5 different paragraph writing elements namely 'Main Idea and Topic Sentence', 'Supporting Details and Development', 'Using Proper Descriptive Vocabulary', 'Grammar and Mechanics' and 'Handwriting and Concluding Sentence'. Each of these elements was assessed out of 20 marks, and the five elements' scoring totals 100 marks.

In relation to the breakdown of the results obtained from the pre-test and post-test, the difference that is made between the pre- and post-tests in each element will be tabulated in different tables for each group of students.

### Breakdown of Control Group Results

The table below clearly demonstrates that control group students progressed in all five elements of the descriptive paragraphs written. However, they only improved significantly in 'Main Idea and Topic Sentence' with the p. value of .002 and 'Supporting Details and Development' with the p. value of .039.

Table 5: Breakdown of Control Group Progress in the 5 Paragraph Elements

Paragraph Elements	Pre-test Mean Score (out of 20 marks)	Post-test Mean Score (out of 20 marks)	Progress Made in Marks	P. value
Main Idea and Topic Sentence	6.36	8.64	2.28	0.002
Supporting Details and Development	7.05	9.09	2.04	0.039
Using Descriptive Vocabulary	7.27	7.73	0.46	0.858
Grammar and Mechanics	8.64	9.55	0.91	0.442
Handwriting and Concluding Sentence	7.50	8.86	1.36	0.629

### Breakdown of Experimental Group Results

Breaking down the results, the table below evidently demonstrates that the experimental group students progressed significantly in all five elements of paragraph writing with different levels of significance. Among the 5 paragraph writing elements, 'Using Descriptive Vocabulary' was progressed more significantly than the other 4 elements; its p. value was .001 which is a very high level of significance.

Table 6: Breakdown of Experimental Group Progress in the 5 Paragraph Elements

Paragraph Elements	Pre-test Mean Score (out of 20 marks)	Post-test Mean Score (out of 20 marks)	Progress Made in marks	P. value
Main Idea and Topic Sentence	6.59	11.14	4.55	0.039
Supporting Details and Development	6.59	11.14	4.55	0.039
Using Descriptive Vocabulary	5.91	9.77	3.86	0.001
Grammar and Mechanics	7.05	12.32	5.27	0.042
Handwriting and Concluding Sentence	7.50	14.32	6.82	0.050

Hence, the breakdown results clearly demonstrate that both groups progressed in the 5 elements of paragraph writing. However, the control group progressed significantly only for the elements of 'Main Idea and Topic Sentence' with the p. value of .002 and 'Supporting Details and Development' with the p. value of .039 (see table 5 above) whereas the experimental group students progressed significantly in all the 5 elements of paragraph writing with higher levels of significance (see Table 6 above).

### Interview Results and Analyses

As mentioned in the methodology section, 6 students were randomly chosen to participate in a focus group interview. All in all, the interview comprised seven questions about the impact of handwriting on enhancing their paragraph writing performance and their autonomy in writing paragraphs successfully. The interviewees' answers were tape-recorded, transcribed, coded and major themes were indicated and reported following Braun and Clarke's (2006) framework.

#### Theme One: General Perception of Handwriting Experience

This theme tackles the interviewees' general perceptions about their experience with the handwriting process in general and its impact on enhancing their overall paragraph writing in particular. In answering question one, the majority of the interviewees had positive views about handwriting integration into their studies. In this regard, interviewee A believes that the handwriting intervention helped her in enriching her information on paragraph structure and being able to write good topic sentence, supporting sentences and concluding sentence. Moreover, interviewee B stated that "handwriting assignment enabled me to assess myself and improved my handwriting. My handwriting was very messy before, but it is neat and understandable now. As you know, the 'Writing' module teacher gives you more marks in quizzes and exams if your handwriting is neat." Moreover, interviewee F states that "it would be better if we start writing by hand from primary and high schools as it is very useful." Thus, in general, handwriting was considered advantageous by the interviewees.

**Theme Two: Benefits of Handwriting**

This theme explores the interviewees' perceptions of the benefits of handwriting. With respect to this, question two took the interviewees' opinions on the advantages of handwriting. Based on that, interviewee A stated that before the handwriting implementation, she was able to write only a few words when she was required to write a paragraph. However, she is now able to write 5-6 sentences easily. Moreover, interviewee C stresses that "my handwriting was first unclear, and I could write only a few words. Now, after the handwriting implementation with our group, I can write many words and sentences with good ideas, correct spellings and punctuations." So, various promising views were given by the interviewees on the positive effect of handwriting on increasing students' paragraph writing skills.

**Theme Three: Enhancing Students' Descriptive Vocabulary**

Theme three focused on the impact of handwriting on enhancing the students' descriptive vocabulary and using the descriptive words and sentences to write descriptive paragraphs. In answering question three, interviewee E stated that "rewriting texts by hand was very useful. Generally, I learned a lot of new vocabulary. I also learned many adjectives that helped me to write descriptive paragraphs." Additionally, interviewee A pointed out that she learned tens of new adjectives with their spellings and meanings and used them in descriptive sentences. So, handwriting implementation helped in increasing students' vocabulary in general, and adjectives and their usage in meaningful sentences in particular.

**Theme Four: Boosting Students' Mechanics**

Theme four deals with the importance of handwriting in boosting students' mechanism, including spelling, punctuation and capitalization. All the 6 interviewees, while answering question four, were in agreement that handwriting texts activity was very beneficial concerning boosting their mechanics in writing. Interviewee F indicated that "handwriting helped me much to improve my spelling. It was also useful for using punctuation marks and capitalization." In addition, interviewee C directly stated that "I used to mix the words together without much space between them and without using capital letters. Now I can create spaces between the words for better identification and use capital letters in the beginning of every sentence." Furthermore, interviewee E mentioned that he used to write down sentences without punctuation marks. But now he can write down sentences with correct spellings, and punctuation marks. Accordingly, it can be stated that handwriting intervention had a good role in developing students' spelling, punctuation and capitalization.

**Theme Five: Enhancing Students' Autonomy in Writing**

Theme five explores the impact of handwriting on enhancing the students' autonomy in writing. In this respect, while answering question five, five interviewees were in congruence that practicing handwriting regularly enhanced their autonomy to write paragraphs adequately. Interviewee D stated that "previously when I was writing sentences, I was not sure whether they were correct or related to the topic, so I needed someone to be by my side and help me with it. But now I rely on myself alone when I write down paragraphs. I am not worried about the sentences and connections among the sentences." Similarly, interviewee B points out that "at the start of the course I could not write good grammatical sentences and I always needed someone like the teacher or friends to be with me and help me; but now I am self-reliant to write paragraphs independently." Consequently, these interviewees' answers clarify that handwriting integration made students write down texts regularly that each text included various paragraphs which consequently made the experimental group students trust their abilities and become self-reliant and autonomous while writing paragraphs.

### **Theme Six: Enhancing Grammatical Competence**

Theme six investigates the effect of handwriting on enhancing the students' grammatical competence. Thus, while answering question six, all the interviewees were keen that handwriting had a great influence on developing their grammar knowledge and performance. With regard to this, interviewee F stresses that "Yes, it was very useful. The rules of putting words together to make sentences would be clear when we write down the texts. This allowed me to imitate the same sentence structure rules to make sentences." Additionally, interviewee D also states that "at first, I was not good at grammar, but now after writing down many texts, I can write down grammatical sentences easily." Thus, handwriting intervention was helpful to enhance the students' grammatical performance in writing paragraphs.

### **Theme Seven: Developing Paragraph Structure and Organization**

Theme seven tackled the influence of handwriting employment on enhancing students' abilities concerning paragraph structure and organization. In their answers to question seven, the interviewees confirmed the positive role of handwriting on developing the students' abilities in terms of paragraph structure and organization. With regard to this, interviewee A states that "first, when you read a paragraph, it starts with the definition of the topic. After that, a few supporting sentences are written, this is followed by a concluding sentence. Writing down paragraphs like that regularly automatically helps students to learn the steps of writing paragraphs and can follow it easily." Similarly, interviewee D believes that "when you write down some paragraphs by your hand, you can understand and conclude how the sentences of the paragraph are connected. This helps you to repeat the same way of writing down paragraphs." As a result, handwriting intervention was considered vital by the interviewees to enhance their performance in relation to paragraph organization and structure.

To conclude, the focus group interview results obviously demonstrate that the interviewees had positive views on the impact of handwriting implementation in improving their paragraph writing performance.

## **5. Discussion**

The results of the pre- and post-tests demonstrate a significant impact of handwriting integration on enhancing the experimental group students' abilities to write paragraphs adequately. In this respect, Table 2 demonstrates that the control group students' mean score improved from 36.81 to 43.86. This indicates the control group students' overall progress of 7.05 marks by the end of the semester; with the *p*. value of .038, which is a significant improvement. On the other hand, Table 3 tabulates that the experimental group students' mean score improved from 33.63 into 58.68. This indicates the experimental group students' progress by 25.05 marks by the end of the semester, with the *p*. value of .000. This progress is over three times more than the control group's progress. So, the experimental groups' progress is statistically more significant than the control group students' progress.

To further support these results, the focus group interviewees also expressed their positive view, in one way or another, about the important role of handwriting in developing the students' writing performance. In this respect, interviewee C indicated that "my handwriting was first unclear, and I could write only a few words. Now, after the handwriting implementation with our group, I can write many words and sentences with good ideas, correct spellings and punctuations." Furthermore, in relation with descriptive paragraph writing that is the focus of the current study, interviewee E stated that "rewriting texts by hand was very useful. Generally, I learned a lot of new vocabulary. I also learned many adjectives that helped me to write descriptive paragraphs." The current study's results agree with existing literature and previous studies. Graham *et al.* (2000) asserts that students with supplemental handwriting exercises do better and gain greater in their composition writing and examination consequently. Aligning with that, handwriting is considered vital in gaining better achievements and outcomes (Longcamp *et al.*, 2005; Kiefer *et al.* 2015). Furthermore, Kellogg (1996) states that when a student rewrites texts, their fine motor control, visual-motor coordination

and cognitive processes complexly carry out planning, memory retrieval and visual-spatial reasoning which causes better outcome. More importantly, it is asserted that when one writes texts regularly, handwriting becomes automatic. This automaticity reduces the cognitive load needed, which consequently enables writers to devote mental resources to high-order writing tasks including idea generation, organization and style choice (Graham and Weintraub, 1996). Further, Berninger et al. (1997) believe that there is a positive correlation between regular handwriting fluency and writing performance.

Concerning previous studies, the current study's results are in congruence with several related studies. With regard to this, the current study's results are in line with Almarwaey (2023) in Saudi Arabia that the students with handwriting implementation did better than their counterparts in the control group. Moreover, the current study's results are also in line with Ying et al. (2024) that students who rewrote texts regularly surpassed their counterparts in terms of vocabulary accuracy, sounds and meaning. In contrast, this study's results disagree with Mangen et al. (2015) that handwriting did not enhance their experimental group students' quality of writing while comparing students' handwriting to typing on computers.

With respect to the breakdown of the results into the five elements of paragraph writing demonstrated in tables 5 and 6, the elements are discussed one by one here. The first element is 'The main idea and topic sentence'. The control group students' mean score increased only 2.28 marks out of 20 marks while experimental group students' mean score increased 4.55 marks which is almost double comparing to the control group. Moreover, concerning the second element which is 'Supporting details and development', control group students' mean score increased by 2.04 marks out of 20 marks whilst experimental group students' mean score increased by 4.55 marks (more than double). Moreover, regarding element 5 which is 'Handwriting and concluding sentence', again experimental group students performed much better. In this respect, control group students' mean score increased by 1.36 marks whereas experimental group students' mean score increased by 6.82 marks which is over four times more than control group students' progress.

These results are in congruence with Graham and Weintraub (1996) that regular handwriting implementation leads to better idea generation, organization and style choice. The results also are in line with Graham and Harris (2000) that automatic handwriting ensures a smooth transition between idea generation phase and the generation of coherent written text by students. Further, the results are also in agreement with Hayes and Flower (1980) that while writing, handwriting has a basic role in planning, drafting and revision phases. Lastly, Zhou and Li (2018) further assert that handwriting implementation enhances students' overall language acquisition. Thus, it is evident that handwriting was evidently very beneficial in relation to developing the Kurdish EFL students' paragraph writing performance in general, and paragraph structure and organization in particular.

Regarding element 3 which is 'Using descriptive vocabulary', control group students' mean score increased by 0.46 (p. value .858) while the experimental group students' mean score increased by 3.86 (p. value .001) which is almost eight times more than the control group students' progress. So, it can be stated that handwriting integration had the greatest and most significant impact on increasing the students' vocabulary in general, and descriptive vocabulary in particular. This great achievement of experimental group students' descriptive vocabulary increase is in line with Ying et al. (2024) that practicing handwriting regularly enhances vocabulary accuracy. It is further in congruence with Zhou and Li (2018) that practicing handwriting consistently scaffolds and reinforces vocabulary learning. Thus, it can be concluded that the element that was developed by the experimental group students drastically and significantly that is more than the other elements was descriptive vocabulary.

With respect to element 4 which is 'Grammar and Mechanics', the post-test results evidently demonstrate that control group students' mean score increased 0.91 marks whilst the experimental group students' mean score increased by 5.27 marks (p. value .042) which is over 5 times more than the control group's progress. This result is in alignment with Read's (2007) study that handwriting leads to better quality of writings in terms of capitalization, punctuation and grammar. This result is also reinforced by the current study's interviewees. In this respect, interviewee F stresses that

“Yes it was very useful. The rules of putting words together to make sentences would be clear when we write down the texts. This allowed me to imitate the same sentence structure rules to make sentences.” Thus, it is now evident that the handwriting implementation had an impactful effect on enhancing the experimental group students’ paragraph writing skill in terms of grammar and mechanics.

Lastly, the impact of handwriting on enhancing Kurdish EFL students’ autonomy in writing paragraphs was another concern of this study. With regard to this, the interviewees expressed positive views. In this regard, interviewee D stated that “previously when I was writing sentences, I was not sure whether they were correct or related to the topic, so I needed someone to be by my side and help me with it. But now I rely on myself a lone when I write down sentences. I am not worried about the sentences and connections among the sentences.” Additionally, interviewee B is in line with this and stressed that “at the start of the course I could not write good grammatical sentences and I always needed someone like the teacher or friends to be with me and help me; but now I am self-reliant to write paragraphs independently.” Moreover, three other interviewees also agreed that handwriting implementation made them autonomous paragraph writers in one way or another. This result is in line with Almarwaey (2023) that handwriting intervention made his participants autonomous and took ownership of their learning. Thus, the students’ autonomy development due to handwriting implementation was occurred as a result of the current study.

## 6. Conclusion

The findings of the current study indicate that handwriting integration with the Kurdish undergraduate EFL students is very effective in developing their paragraph writing in general, and descriptive paragraph writing in particular. The experimental group students did better than the control group students in all the five elements of paragraph writing mentioned earlier. Besides, the statistical analyses of the results clearly indicate that the progress of the experimental group students is statistically more significant than the control group’s progress. So, this result answer the first research question that handwriting implementation enhances Kurdish EFL students’ descriptive paragraph writing statistically significantly. Furthermore, the focus group interview results also confirm and support the tests’ results that handwriting implementation enhances the Kurdish EFL students’ paragraph writing; that is along with enhancing their autonomy and self-reliance. This way, the second research question is answered by the focus group interviewees that handwriting enhances the students’ autonomy and self-reliance.

## Pedagogical Implication

The findings of the current study indicate the beneficial role of handwriting integration within EFL curricula to improve Kurdish EFL students’ writing skill in general and specifically at paragraph writing level. Consequently, the current study’s results can be considered beneficial for EFL students’ and instructors alike. In this respect, students can benefit from handwriting integration as an extra supplementary activity outside their classrooms aiming at improving their writing skill. Moreover, EFL teachers may utilize handwriting and require their students to rewrite texts outside the classroom aiming at fostering students’ writing level progress in general, and descriptive paragraph writing in particular.

## Limitations

The current study provides valuable insights into the effect of handwriting technique in developing Kurdish EFL students’ writing performance in general, and descriptive paragraph writing in particular. However, it suffers from a number of limitations. Firstly, the sample is limited to relatively a small group of Kurdish EFL students at Charmo University, which may restrict its generalizability in other contexts. Secondly, the duration of the intervention is relatively short (15 weeks course), which may limit the extent of development to be made in writing. Lastly, using only pre- and post-tests and focus group interview might not truly capture long-term improvements and performance in real life situations.

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## Appendices:

### Appendix 1: Interview Questions

- 1- Can you tell us your perceptions about handwriting implementation with your group and its role in improving your abilities to write paragraphs generally?
- 2- In your opinion, what are the benefits or advantage of regularly handwriting of paragraphs and texts?
- 3- Was handwriting helpful in enriching your knowledge and enhancing your vocabulary in general and descriptive vocabulary in particular?
- 4- Can you tell me your views on the impact of handwriting on improving your spelling, punctuation and capitalization? Explain how?
- 5- Was the process of regular handwriting of texts helpful in making you confident and self-reliant? How?
- 6- What was the role of handwriting for improving your grammar? How?
- 7- Was it helpful in improving your paragraph organization and structure? How?

### Appendix 2: (Rubric for scoring the tests' results)

#### Criteria

Excellent (4)

Good (3)

Satisfactory (2)

Needs Improvement (1)

**a. Main Idea and Topic Sentence**

4. Clearly shows a well-paraphrased main idea with an appropriate topic sentence.
3. The main idea is clear, but the topic sentence could be better.
2. The main idea is there, but it's not very clear or well paraphrased.
1. The main idea is missing or has been copied directly, and the topic sentence is missing or not relevant.

**b. Supporting Details and Development**

4. All important information is included, and the details are clearly explained and logically support the main idea.
3. Most of the important details are there and explained; small mistakes or unclear links
2. Some important details are included, but development is simple or inconsistent.
1. Few or unimportant details; little growth

**c. Using Descriptive Vocabulary**

4. A wide range of appropriate descriptive vocabulary used that makes the paragraph clearly descriptive
3. Generally good descriptive vocabulary used, but some words are repeated or used incorrectly.
2. Limited descriptive vocabulary use; simple word choices; clear mistakes
1. Very few or wrong descriptive words used; meaning is often not clear

**d. Grammar and Mechanics,**

4. Few or no mistakes; different types of sentences make it easier to read
3. A few mistakes; sentences were mostly different
2. There are a lot of mistakes, and the way the sentences are put together is repetitive or awkward.
1. There are a lot of mistakes, and sentences are often missing parts, run-on, or unclear.

**e. Handwriting and Concluding Sentence**

4. The handwriting is neat, clear, and easy to read, and appropriate concluding sentence
3. Mostly neat handwriting, but there is a little problem with the concluding sentence
2. Sometimes hard to read handwriting; and almost inappropriate concluding sentence
1. Hard to read handwriting; completely inappropriate concluding sentence

## كاريگري ته كنكي به دهنوسينه وه له بهر وپيشبردي تواناي نووسيني په رگرافي په سني لاي خویندکاراني کوردنوبان که زماني ټينگيزي وهکوو زمانیکي بيگانه دهخوين

الماس نصرالدين عبدالرحمان

کوليژي په روه رده-به شي ټينگيزي-زانکوي چه رموو

[almas.nasradeen@chu.edu.iq](mailto:almas.nasradeen@chu.edu.iq)

چالاک علي محمدامين

کوليژي په روه رده-به شي ټينگيزي-زانکوي چه رموو

[chalak.ali@chu.edu.iq](mailto:chalak.ali@chu.edu.iq)

خيلان محمداصالح محمود

کوليژي په روه رده-به شي ټينگيزي-زانکوي چه رموو

[khelan.muhamad@chu.edu.iq](mailto:khelan.muhamad@chu.edu.iq)

### پوخته

نوسين به يکک له کارامه ييه گرنه کان دادنه ريت بق ټو خویندکارانه ي که زماني ټينگيزي وهکوو زمانیکي بياني دهخوين بق په يوه نيگرتيان له ژباني ټو کاديمي و داهاتوي پيشه گه ربياندا. له گه ل ټو ه شدا، تويزه راني بواي نووسين بيان وايه که کارامه يي نووسين ټالنگاري زوري له بهر دمه دمايه، ټامانجي ټم تويزه يوه يه دوزينه وه ي کاريگري ته کنکي به دهنوسينه وه ي تيکسته له بهر وپيشبردي ټاسي نووسيني په رگرافي وه سفي لاي خویندکاراني کوردنوبان که زماني ټينگيزي وهکوو زمانیکي بيگانه دهخوين. به شداربواني تويزه وه که پيکها تون له 66 خویندکار که به سهر دوو گروبي 33 که سيدا دابه شبون، گروبي ټاساي که به شيوه يه کي ټاساي وانه دهخوين و گروبي ټاقيکاري که شانبه شاني وانه و تنه وه ي ټاساي، هه فتانه ټه رکی دوو باره نووسينه وه ي تيکستيان پيدنه ريت وهکوو نووسينه وه ي بابه ته خویندراوه کان و کورته چيروکي دهره کي. دوو ټامرازي کوکرنه وه ي زانباري به کارهاتون که ټوانيش ټاقيکرنه وه ي پيشه کي و پاشه کي و چاوپيکه و تني به گروپن. داتا به دهنه هاتوه کان شيکاريان بق کراوه له ريگه ي به کارهيتاني پروگرامي (SPSS) هوه. هه روه ها ټه نجامي چاوپيکه و تنه کان له ريگه ي به کارهيتاني شيکاري بابه تيه وه نيشاندراره. ټه نجامه کاني ټاقيکرنه وه ي پاشه کي بهر وپيشچووني بهرچاوي گروبي ټاقيکاري نيشانده دن له نووسيني په رگرافي وه سفيدا. (p. value .000) هه روه ها، ټه نجامه کاني چاوپيکه و تن بهرچاوي جه خنده که نه وه له وه ي که ته کنکي به دهنوسينه وه ي کاريگري ټه ريني هه يه له سهر بهر وپيشبردي تواناي نووسيني په رگرافي خویندکاراني گروبي ټاقيکاري. شانبه شاني ټه ممش، ټه نجامي چاوپيکه و تنه کان دهر يده خن که به کارهيتاني ته کنکي به دهنوسينه وه ي تواناي خو به ريوه به ري و پشتبه خو به ستني خویندکاران بهر وپيشده بات له نووسيندا .

**وشه سه ره کييه کان:** به دهنوسينه وه ي، په رگرافي په سني، تواناي نووسين، خو به ريوه به ري، خویندکاراني کورد که زماني ټينگيزي وهکوو زمانیکي بيگانه دهخوين.

### أثر الكتابة اليد في تطوير مهارة كتابة الفقرة الوصفية لدى طلبة اللغة الإنكليزية كلغة أجنبية في المرحلة الجامعية في كوردستان العراق

الماس نصرالدين عبدالرحمان

كلييه الترييه-قسم اللغة الانكليزية-جامعه جرموو

[almas.nasradeen@chu.edu.iq](mailto:almas.nasradeen@chu.edu.iq)

چالاک علي محمد امين

كلييه الترييه-قسم اللغة الانكليزية-جامعه جرموو

[chalak.ali@chu.edu.iq](mailto:chalak.ali@chu.edu.iq)

خيلان محمداصالح محمود

كلييه الترييه-قسم اللغة الانكليزية-جامعه جرموو

[khelan.muhamad@chu.edu.iq](mailto:khelan.muhamad@chu.edu.iq)

### الملخص

تعد مهارة الكتابة من أهم المهارات التي يحتاجها طلبة اللغة الإنكليزية كلغة أجنبية للتواصل في المجال الأكاديمي وفي حياتهم المهنية المستقبلية. ومع ذلك، يعتبر العديد من الباحثين في مجال التعليم والتعلم أن الكتابة مهارة يصعب إتقانها. تهدف هذه الدراسة إلى الكشف عن أثر استخدام تقنية الكتابة اليدوية (إعادة الكتابة) في تطوير مهارة كتابة الفقرة الوصفية لدى طلبة اللغة الإنكليزية في كوردستان. تضمنت عينة الدراسة (66) طالبًا، قتم تقسيمهم إلى مجموعتين متساويتين (33) طالبًا في كل مجموعة. فجرى تعيين المجموعة الأولى كمجموعة ضابطة تم تدريسها بالطريقة التقليدية، بينما عيّنت المجموعة الثانية كمجموعة تجريبية، طُلب من طلابها بالإضافة إلى محتوى المقرر، كتابة مواد إضافية يدويًا مثل مقاطع الفهم القرآني والقصص القصيرة كواجبات منزلية. استخدمت منهجية البحث المختلط لغرض جمع البيانات المطلوبة، وذلك من خلال اختبارات قبلية وبعديّة، بالإضافة إلى مقابلة جماعية مركزة. كما استخدمت

الإحصاءات الوصفية والاستدلالية لتحليل البيانات باستخدام برنامج الحزمة الإحصائية للعلوم الاجتماعية (SPSS)، أمّا نتائج المقابلة الجماعية فقد تم تحليلها موضوعيًا. أظهرت نتائج الاختبارات بوضوح أنه بنهاية الفصل الدراسي، تفوق طلاب المجموعة التجريبية على نظرائهم في المجموعة الضابطة في كتابة الفقرات الوصف حيث كانت قيمة الاحتمال ( $p. value .000$ ) علاوة على ذلك، دعمت نتائج المقابلة الجماعية نتائج الاختبار البعدي وأكدت الأثر الإيجابي لإدماج الكتابة اليدوية في تحسين أداء طلبة اللغة الإنكليزية في كتابة الفقرات الوصفية. كما أشارت نتائج المقابلة إلى أن إدماج الكتابة اليدوية أسهم في تعزيز استقلالية الطلبة واعتمادهم على الذات في الكتابة.

**الكلمات المفتاحية:** الكتابة اليدوية، الفقرة الوصفية، أداء الكتابة، الاستقلالية، طلبة اللغة الإنكليزية كلغة أجنبية.